CHAPTER 4

The Risk Management Benefits of Bonds

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The importance of local bond markets has become much clearer in the wake of the international financial crises of the past three to four years, following the Mexican crisis of 1994/95. Like similar events dating back to the nineteenth century, these crises can be divided into two basic types. One is simply a good old-fashioned insolvency crisis in which a country has borrowed far too much and is unable to pay its foreign lenders. To take a current example, Ecuador has an external debt of approximately 90% of GDP, which is clearly not repayable. The second type of financial crisis is more like a classic bank run. Although it may reflect policy mismanagement, lack of reforms, capital controls, crony capitalism, and other causes, its roots lie in unstable capital structures. This type of crisis is a problem of corporate finance theory more than a problem of economics, although the economic consequences are huge.

This presentation covers four topics. I look at the current state of the local bond market, specifically medium-term or long-term fixed-rate local currency bond markets, among the developing countries. Many of these markets have short-term or floating-rate local currency instruments or may have instruments that are indexed to another currency, such as U.S. dollars. However, these are radically different instruments from the point of view of risk management and the development of local economies. Therefore the emphasis here is on a local currency yield curve that extends beyond one

year. Second, I consider some of the corporate finance benefits that local bond markets bring to developing countries. The underlying assumption here is that corporate finance theory applies not only to corporations but also to sovereigns and, indeed, to any entity with a capital structure. Third, I discuss the implications of local bond markets for risk management, corporate finance, and the stability of capital structure. And fourth, I identify some of the main impediments to the development of local bond markets.

THE STATE OF BOND MARKETS

Most entities obtain their financing from three major sources: (1) equity markets, (2) capital markets (specifically bonds), and (3) bank debt. The following numbers give a sense of their relative importance: in the developed world, the United States has at least $12 trillion in traded equity; $13 trillion in the bond market; and about $4 trillion in bank debt. As for their scale, the value of equity markets is equal to approximately 140% of U.S. GDP, bonds are equal to 160%, and bank debt 50%. Other large developed countries report a relatively similar breakdown. In Japan, equity accounts for about 50% of GDP, bonds about 110%, and bank debt 150%. In the United Kingdom, equity, bonds, and bank debt account for 150%, 80%, and 260% of GDP, respectively; and in Germany the respective figures are 40%, 100%, and 170%. Although these numbers vary greatly among countries, the split in these three types of financing is fairly even throughout the developed world. On average, bonds represent about 110% of the developed world GDP, with a total of $US24 trillion of capital markets instruments. Equity represents 80% and bank debt represents 150%. In each case, most of the bond markets are denominated in the home currency of the borrower.

Debt markets in developing countries can be divided into external and domestic markets. In East Asia, domestic debt amounts to 10% of GDP and external debt 3% of GDP. For the emerging markets of Europe, domestic debt accounts for 10–15% of GDP and external debt 10%. In Latin America, the corresponding figures are roughly 20% for domestic debt and 20% for external debt. In South Asia, domestic debt is fairly negligible, while external debt runs at

about 20% of GDP. These numbers lead me to conclude, first, that local bond markets play a much greater role in the rich countries than in the poor countries; second, and more important, that rich countries have mixed funding structures whereas poor countries depend heavily on bank debt.

Over the past few years, there has been an increased focus on diversity as an important ingredient of the funding structure. However, emerging market countries tend to lack such diversity in their funding structures and to rely heavily on bank debt. This pattern has serious risk management implications: because banks tend to have certain systemic features, problems tend to crop up across the entire industry. When the banking system is the central means by which capital is allocated and is experiencing strains, those strains can shut down the whole system. That can put additional pressure on the banks and create further problems. Fortunately, local bond markets in emerging market economies have experienced fairly rapid growth over the past decade. At the beginning of the decade the numbers were almost negligible, even in Latin America, which has traditionally had a reasonably large local bond market. The South Asian region is an exception in this regard, with no significant growth.

BENEFITS

A long-term local bond market can have several economic benefits. First, it allows a more efficient allocation of savings as it matches the borrowers and savers directly. Hence it reduces the role of banks in the investment process, and reduces the amount of political interference in the allocation of credit since banks are subject to regulators such as the central bank. Also, in view of the especially important role banks play in the payment system, any threat to a credit market that focuses entirely on the banking system is likely to have marked effect on domestic liquidity and on the payment system. Local bond markets can help to separate these links.

Second, local bond markets allow borrowers to use capital that is tailored to their assets and operations. Such tailoring may occur in many ways, the most important of which concerns maturity. Banks typically like to lend fairly short because their funding sources are

very short, but projects are not necessarily short term. That is why maturity mismatches have traditionally been one of the biggest sources of domestic market problems.

Third, economic benefit of long-term local bond markets is that they provide retail and institutional investors with several high-quality and liquid domestic saving vehicles. Bonds have many of the characteristics that allow savers to choose their risk and maturity, and to develop investment funds and pension funds. Traditionally, the most important traded security in new emerging markets, dating back to those of the United Kingdom in the eighteenth century and the United States in the nineteenth century, has always been government debt. Even when countries have a fairly large liquid government debt market, they often lack a liquid corporate bonds or liquid equity market. Yet it is important to the local bond market to develop pension funds, mutual funds, and more efficient ways of rounding up the savings of the country.

Incidentally, more and more banks are also talking about trading bank loans. This activity should be encouraged for a number of reasons, the primary one being that banks need to liquefy their portfolios. Such trading also enables market participants to obtain an enormous amount of information from secondary market pricing. Market reactions to outside events are immediately apparent in the way bonds or loans trade. One can work out exactly how the markets are measuring specific credit risk and other types of risk. At times, of course, such information may annoy bankers because it can make clear the volatility in the portfolio.

Fourth, local government bond markets create monetary policy instruments. Government bonds also provide a pricing benchmark for the corporate sector. In fact, a corporate bond market should probably not be considered until there is a government bond market, since the government is the only borrower big enough to develop a very liquid market. Furthermore, since government debt tends to be the lowest risk asset within a country, all other assets can be priced off this asset. In countries with currency boards, however, the government borrower may not be the least risky borrower in the currency, since it will no longer have the option to monetize the debt but will have to raise the money just like any other borrower. Raising dollars may be extremely difficult for heavily indebted governments.

The benefits of securitization also merit a few words. Securitization refers to the pooling of different assets and the issuing of new securities backed by those assets. In principle, these assets can be any claims that have predictable cash flows, such as real estate, financial assets and loans, or even future receivables. One of the most famous securitizations of recent years involved the future royalty payments on records sold by the rock musician David Bowie. As long as there is some predictability in his royalty payments, future payments can be packaged and sold today to investors.

Why is securitization useful? Like loan trading, securitization allows banks to take a collection of illiquid assets and make them liquid, and therefore make them marketable enough to be bought and sold. This enables banks to adjust their asset position to fit their capital needs, their risk appetite, and their risk profiles. It is also a way of converting and monetizing future earnings so that they can be used as a source of capital in the current period. This can be done with rent payments on a building, for example. If a building owner is earning rent over time but needs to make a capital investment today, securitization will allow that owner to borrow in the current period. The future rent payments that are owed can be used as a source of capital in the current period. Securitization also facilitates development of a mortgage market, which may be politically important because it assists and encourages the banking system to provide low-cost loans for individuals to buy homes.

Furthermore, securitization provides an incentive to developing local bond markets because securitized assets cannot be evaluated and priced without a liquid "plain vanilla" asset in the market. "Plain vanilla" assets are straight bonds characterized by bullet payments, fixed coupons, and, in contrast to securitized assets, single obligors with clean credit structures and payment structures. Once a market for plain vanilla securities is in place, it is possible to build complex markets such as securitization on top of it.

RISK MANAGEMENT BENEFITS

As mentioned earlier, liquid markets incorporate all the information that investors care about and embed it in the prices of every asset

that is traded. Such information helps mitigate uncertainty, which significantly reduces the prices of financial assets and in many cases prevents investors from buying into them. A local bond market generates a huge amount of useful information. A yield curve, for example, allows for calculation future interest rates, such as forward rates.

This information is very useful for an investor or a trader because it gives investors or traders a sense of market expectations concerning liquidity premiums, inflation and the cost of hedging. This "information discovery" mechanism helps stabilize the national capital structure and permits development of derivative instruments. It also allows one to derive estimates of expected inflation from government yield curves and to calculate currency forwards, which are not necessarily priced on the expectation of the future exchange rate, but simply the interest rate differential of the two currencies. That is why, in examining a particular market, I generally spend a great deal of time looking at the way yield curves shift over time.

Note, too, that a yield curve and a local bond market can be used to figure out corporate credit spreads. To illustrate, suppose a government is considered a risk-free borrower and is borrowing for five years at 13%, while a corporation is borrowing for five years at 15%. In other words, according to the market, the risk of default—the credit risk component—of that corporation implies roughly 2% a year of additional risk. This provides a basis on which to assess comparable credit risk in different borrowers.

I believe that local bond markets can contribute a great deal to the management of financial crises and risk. Economist Guillamo Calvo has asked why the Asian crisis meted out such a huge punishment for such small mistakes. In his new book, Paul Krugman calls this the most important question that has come out of the Asian crisis. What happened to Korea, Malaysia, and Indonesia, in 1997 and 1998 seems all out of proportion to what actually went wrong. I strongly believe that, from an economic policy point of view, probably not that much was done wrong—at least not enough to cause the market collapses. Rather, the explanation lies in corporate finance issues relating to the national capital structure.

In corporate finance, the capital structure is not simply a way of raising money, but more a way in which the borrower indexes itself

to market risks. Money can be raised in many ways, ranging from equity to different types of debt and all their permutations. The critical feature of the capital structure is how the repayments are indexed. That is what can transform a small shock into a disaster or keep it a small problem.

How does this process work? An external shock affects both sides of the national balance sheet: the asset side, which reflects a country's ability to make money, generate revenue, and so on; and the liability side, which reflects the way repayments are indexed in the future. Most of the Asian countries had what I would call an inverted capital structure—one in which the performance of the asset is inversely correlated with the liability sides of the national balance sheet. An inverted capital structure, in other words, is one in which improvements in underlying conditions (the "asset" side) will lead automatically and immediately to lower borrowing costs (the "liability" side); conversely, deterioration in external conditions will lead to higher borrowing costs.

A typical example of inverted funding is short-term debt denominated in dollars (and by "dollars" I mean any foreign currency). As the economy improves, the local currency strengthens in real terms and along with this strengthening, presumably, asset values and local revenues increase. Because the borrowings are in U.S. dollars, whose value in real terms is declining if the local currency is strengthening, the real cost of the borrower's existing debt continuously drops. With a short-term debt, the financing spreads decline quickly as the debt comes due since, presumably, the borrower's credit quality is improving, and every time the debt is refinanced it is refinanced at a lower rate.

But this type of inverted capital structure carries a substantial cost, in the form of increased volatility. If external conditions deteriorate, debt-servicing costs on existing loans automatically increase for the same reason that they decrease in improving conditions: a deterioration in global conditions can cause the currency to weaken and asset values and revenues to decline. Debt costs, however, because they are fixed in dollars, increase. This adds instability to the balance sheet by "doubling up" the effect of both good events and bad events. In domestic U.S. markets, debt and equity analysts are extremely sensitive to these types of unstable capital structures, and

they will penalize a company whose balance sheet incorporates too much market risk. But this does not seem to be the case for emerging market countries, even though the consequences there can be much worse.

In a stable capital structure, changes on one side are matched by offsetting similar changes on the other side. If there is a currency collapse, for example, domestic revenues may go down for whatever reason; ideally, the cost of the liabilities will go down simultaneously. That is, a deterioration on the asset side will be matched by an offsetting improvement in the liability side. In the case of a corporation, if assets and liabilities move together, the value of equity never changes— and the structure remains very stable.

This is the key factor that determines whether external shocks are, or are not, transformed into crises. When the economy of an entire country is deteriorating, this, by definition, means the asset side is deteriorating. "Asset" is used here as a generic term to represent the value of its future revenues. If its liabilities are structured in such a way that the value of the liabilities also decrease—in other words, that the liability side improves as the economy deteriorates—then net worth will not be affected. This is a correlated capital structure. An unstable inverted capital structure, which is characteristic of most emerging markets, will experience the opposite result, as demonstrated in every country that underwent a crisis between 1994 and 1999. It is the instability of the capital structures that turns a small shock into a big shock.

Countries should therefore aim for a structure that minimizes volatility in net worth. However, most emerging market countries face the reverse situation: when economic circumstances improve, their existing cost of financing decreases, whereas when circumstances grow worse, the cost of financing increases. A prime example of this can be seen in Thailand's rather large short-term borrowing in dollars. As long as things went well in Thailand, more capital came into the country, asset values boomed with the growing economy, and the currency strengthened. For Thai corporations as well as the Thai government, the dollar cost of borrowing declined as the currency grew stronger in relative terms. In consequence, revenues increased and liabilities decreased. As long as it can be guaranteed that things will stay good forever, this is a wonderful capital structure.

The problem is that there can be no such guarantee. When things turn around and the economy does badly, the currency weakens and the real value of dollar borrowings goes up. Although initially net worth may remain positive, in a deepening crisis it will collapse because both sides of the balance sheet will do the wrong things at the same time. Why was this structure ever created? If a country believes that things are going well and will continue to do so indefinitely, for example, because of a whole set of reforms that are eagerly being implemented, then it makes sense to choose the structure in which the cost of liabilities is always going down. However, things cannot go well forever, so it is better to have a capital structure that protects against these risks.

What bearing does all this have on local bond markets? As it turns out, long-term and fixed-rate local currency bonds are probably the most stable type of borrowing that a country or corporation can engage in. Emerging markets, to the extent that they rely on local-currency bonds at all, favor short-term bonds almost exclusively, and if they do extend beyond a year, they are almost always floating. In Latin America, both Mexico and Brazil have large local currency bond markets, but Mexico has nothing beyond one year and Brazil little beyond a year, much of which reprices every day, in any case. This repricing means that the interest rates will keep changing, even for purely external reasons, such as the collapse of Russia or Brazil.

When investors are nervous and there is some external liquidity contraction, it is normal for them to pull their money out. As interest rates go up, however, debt servicing costs change immediately because this is all short-term debt. Unfortunately, commodity prices are also likely to fall, since they tend to drop whenever global liquidity contracts. Remember that when real interest rates go up in emerging markets, they do not go up by 50 or 100 basis points. In the case of Brazil, nominal rates rose from 20% to about 50% with inflation remaining at 1% to 2%. Faced with such a huge increase in the real rates, a legitimate legal enterprise will be unable to earn that type of return on its capital. Therefore, credit quality will plummet. As credit quality deteriorates, investors become nervous. At the same time, corporations may begin defaulting on bank loans, and the banking system may get into trouble. Interestingly, when

conditions are good, the same sort of cycle occurs in reverse. When interest rates come down, credit quality improves, confidence increases, and interest rates come down even further. The trouble is that the process is uncontrollable—external shocks can quickly send it in the opposite direction.

Now consider how this process works when local currency debt is fixed at a 5-year or 10-year rate, for example. When there is a crisis and interest rates go up, inflation often increases. Brazil and Mexico are good examples of this pattern: until their currency broke, inflation was low, but afterward it shot up. As inflation goes up following the crisis and the value of the currency declines, the real cost of the fixed rate debt goes down. The payment is fixed, and as it goes down in real terms owing to inflation, the debt burden shrinks. An automatic stabilization mechanism comes into play here, because as things get worse on the asset side, the liability side shrinks enough to reduce or even eliminate the debt burden. This is a radical and elegant concept: fixed rate local currency bond markets act automatically to stabilize markets both when times are good—although perhaps low volatility is not desirable when times are good—and, most important, when times are bad. Borrowing in dollars or in short-term local currency does the exact opposite. It makes good times even better, but it causes bad times to spin out of control.

AN IMPEDIMENT TO CREATING A BOND MARKET

Of the various impediments to creating a bond market, one of the most troubling is the common misperception among government finance officials that rates today are always too high and that they will always be lower tomorrow. In consequence, these authorities tend to assume that development of the local bond market should be delayed. The Mexican government, for example, recognizes the need for a long-term market but keeps saying that rates are too high. Officials think that if they wait 6 or 12 months, rates will be half the levels that they are today. In reality, of course, rates are as likely to move in an unexpected direction as they are to do what they are supposed to.

At the beginning of 1998, Mexico could have gone ahead with 20% rates for five-year peso bonds but decided that this was too high and chose to wait two quarters for rates to come down. Two quarters later, one-year rates climbed past 30%. In the case of Brazil, in mid-1997 when its rates were 20%, it was told that there would be a strong demand for five-year fixed-rate debt at 17% or 18%. Brazilians refused to accept this, saying that in six months rates were going to be around 12%, so why should they borrow at 17%? In fact, six months later Brazilian rates were at 40%. The problem with always wanting to borrow at a cheaper funding cost is that timing the market is inherently speculative. Needless to say, developing a bond market should not be a speculative trading activity. Rather, it is a long-term program with bonds being issued no matter where interest rates happen to be, and the market has to find this pricing over time. Such insistence on "gaming" the market has often been the biggest impediment to developing markets in Latin America and other developing countries.

CONCLUSION

Credibility is largely about the ability to manage volatility. A country with low credibility is one that is perceived to be unable to maintain the integrity of fiscal, monetary, or exchange rate policies in the face of shocks. Because the policies of small countries already suffer from low credibility, and because an unstable national balance sheet is the most common cause of financial collapse, sharp increases in volatility can seriously threaten their stability. This problem must be met with a disciplined approach to national liability management because financial instability carries an enormous cost. Even when countries are able to figure out appropriate development policies, history argues on the side of caution, in view of the repeated failed attempts to develop and follow through on earlier policies for economic growth. Moreover, almost no government can be expected to maintain the integrity of its economic policies over the long run when faced with periodic market collapses.

A local currency long-term bond market cannot prevent market shocks, but it can certainly help absorb them better. It is an impor-

tant way for borrowers—corporate and government alike—to ensure that investors and users of capital share risks appropriately. For low-credibility countries, liability management must be geared toward reducing volatility and preserving the integrity of economic policies. Their overall capital structure should be designed to pass volatility onto investors. It is the misunderstanding of the role of liability management—rather than crony capitalism, bad banks, or any of the other culprits usually blamed for financial crises—that explains the speed and surprise with which markets have collapsed in the past. The problem is not that global financial markets are too volatile or free capital flows too dangerous, but that sovereign capital structures are not usually designed with this volatility in mind. In the end, an optimal capital structure is not enough to ensure that an emerging economy will develop rapidly. The wrong capital structure, however, can guarantee that the economy will break down before it can achieve its goals, regardless of overall policy.