

Recent Advances in Future-Flow Securitization

Suhas Ketkar and Dilip Ratha*

“Market placements backed by hard currency receivables can allow issuers to escape the sovereign credit ceiling, thereby opening doors to lower cost finance. At a macro level, such placements can also prevent large-scale panic that can result from sudden loss of reserves. An analysis of such deals completed over the past five years shows that this asset class has continued to perform admirably even following the devaluation and debt defaults in Argentina. Issuers from many developing countries outside of Latin America have become active in this asset class. Securitization of diversified payment rights (DPRs) has gained currency with Brazilian banks taking the lead since 2001. Receivable pooling has occurred increasing the access of smaller issuers from multiple jurisdictions to the asset class. Mexico has graduated from securitization of foreign currency future receivables to securitizing local currency existing assets. Finally, despite falling costs and growing familiarity with this asset class, it appears to be under exploited—the potential size of this asset class remains a multiple of the current issuance.”

I. INTRODUCTION

From a modest beginning in the early 1990s, asset-backed securitization of future-flow (hard currency) receivables has now become a standard offering from developing country issuers—private and public companies as well as sovereign and sub-sovereign bodies. Such future-flow-backed bond issuance averaged \$5.9 billion since the beginning of 2001 versus \$0.6 billion from 1990 to 1994.

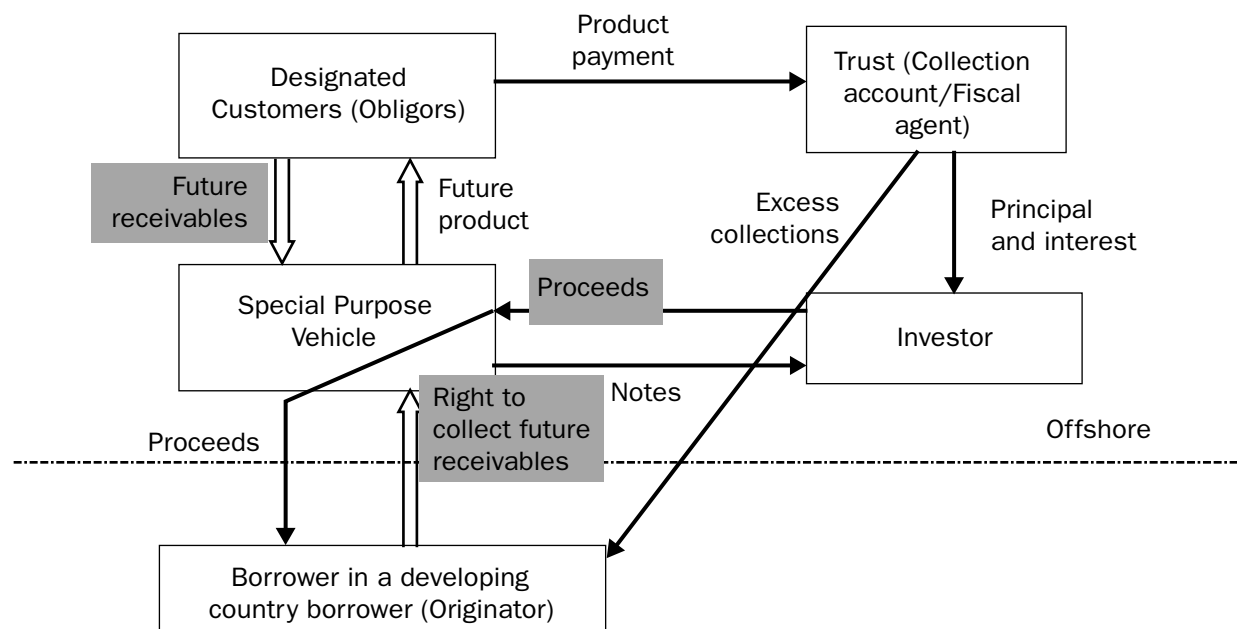
Given the vulnerabilities associated with accessing international capital markets following financial crises – for example, Mexico in late 1994, East Asia in the second half of 1997, Russia in August 1998, Brazil in January 1999, Argentina and Ecuador in 2001—and in view of the limitations of official emergency financing, developing country entities need innovative ways of securing foreign finance. As discussed in our earlier paper (Ketkar and Ratha 2001a, 2001b), market placements backed by either partial public guarantees or hard

currency receivables can allow issuers to escape the sovereign credit ceilings, thereby opening doors to lower cost finance. Such placements can also prevent large-scale panic that can result from sudden loss of reserves.

In this paper, we build upon our earlier work on the securitization of future flow receivables while focusing on recent developments. An analysis of such deals completed over the past five years and the recent performance of this asset class shows that:

- The asset class has continued to perform admirably even following the deep devaluation and massive debt defaults in Argentina.
- Issuers from many developing countries outside of Latin America have become active in this asset class—Egypt, Kazakhstan, Russia and South Africa to name a few.
- Securitization of Diversified Payment Rights (DPRs) has gained currency with Brazilian banks leading the way since 2001.
- Receivable pooling has occurred increasing the access of smaller issuers from multiple jurisdictions to the asset class.

Exhibit 1. Stylized Structure of A Typical Future Flow Securitization.



- Mexico has graduated from issuing bonds backed by hard currency receivables and the focus has now shifted to securitizing existing domestic assets. This is owed in part to the development of the legal infrastructure in the early 1990s when Mexico dominated future flow securitization.

The plan of this paper is as follows. In section II, we describe a typical structure of a future flow-backed securitization that mitigates the most common elements of sovereign risk, thereby permitting a credit rating above the sovereign ceiling. In section III, we examine principal characteristics of future flow securitizations by developing country entities that were rated by Fitch IBCA, Duff & Phelps (Fitch), Moody’s and Standard & Poors (S&P). We describe the securitization track record – in terms of the volume of issuance and sectoral composition of the transactions—in section IV. We then try to estimate the potential size of future flow securitizations and outline various constraints that have prevented the asset class from reaching its potential in section V. In section VI, we take up a number of public policy issues relevant to facilitating future flow securitization in the years to come. Finally in section VII, we present the principal conclusions.

II. RISK MITIGATION IN FUTURE FLOW SECURITIZATION

A typical future flow structure involves the borrowing entity (or originator) selling its future product (receivable) directly or indirectly to an

offshore Special Purpose Vehicle (SPV). The SPV issues the debt instrument. Designated international customers (or obligors) sign an agreement to direct payables (such as exports or other flows) to the originating entity directly to an offshore collection account managed by a trustee. The collection agent allocates these receivables to the SPV, which in turn makes principal and interest payments to the investors. Excess collections are then directed to the originator (Exhibit 1). Several examples of future flow securitization structures are provided in the appendix.

Risk mitigation in securitized transactions occurs via the structure of the transaction as well as the choice of the future flow receivable to be securitized. By obtaining a legally binding consent from designated customers that they would make payments to the offshore trust, the structure mitigates sovereign transfer and convertibility risks. The structure described above also mitigates the bankruptcy risk because the SPV has typically no other creditors and hence cannot go bankrupt. Of course, the risk of the originator going bankrupt exists. Such risk is mitigated in part by seeking originators with high local currency (domestic) credit ratings and low performance risks (which captures the ability and willingness of the originator to produce and deliver the product that generates the receivables). Rating agencies have also come to accept the argument that an entity may continue to generate receivables even when it is in financial default. This so-called “true sale” principle

Exhibit 2. Hierarchy in future flow-Backed Transactions.

i.	Heavy crude oil receivables
ii.	Diversified Payment Rights (DPRs), airline ticket receivables, telephone receivables, credit card receivables and electronic remittances
iii.	Oil and gas royalties, export receivables
iv.	Paper remittances
v.	Tax revenue receivables
Source: Standard & Poors and Fitch	

has now become an expected feature in future flow securitized transactions. Furthermore, Fitch's "going concern" and S&P's "survival" assessment have allowed the agencies to award asset-backed transactions of certain entities such as banks *higher* ratings than the issuers' local currency ratings.

While a securitized transaction can be structured so as to minimize the transfer and convertibility sovereign risks, some other elements of sovereign risk cannot be totally eliminated. For instance, the sovereign can insist upon the originator selling the product in the domestic market rather than in the export market (or selling the product to customers other than those who sign the consent agreement). This product diversion risk is generally greater for commodities (such as agricultural staples). It is relatively low for crude oil (such as Maya from Mexico), which is sold to a limited number of buyers who have the refining capacity. It is also low for credit card receivables since there are only a handful of credit card companies such as Visa, MasterCard and American Express.

The product risk arising from price and volume volatility and hence fluctuations in cash flow cannot be totally eliminated, but it can be mitigated by using excess coverage or over-collateralization. Typically, it is easier to control product risk for commodities like oil, gas, metals and minerals for which there is demand from many diverse sources. In contrast, custom-made products are likely to have high product risk unless there are adequately enforceable long-term sales contracts.

Keeping in mind the performance, product and sovereign risks, the rating agencies have arrived at the following hierarchy of future flow receivable transactions in terms of deals that are most secure to those that are least secure. Securitization of heavy crude oil receivables is deemed to be the most secure. Diversified payment rights (DPRs), including workers' remittances, qualified export earnings, and FDI inflows that come through the SWIFT system, are considered the second-most desirable collateral because of the diversification in the source of origin. In contrast, securitization of future tax receipts is thought to be the least secure (Exhibit 2).

It is possible to securitize future flow receivable transactions even at the lowest end of the hierarchy shown in Exhibit 2. An example is the securitization of co-participation tax revenues (via federal tax sharing) by several Argentine provinces (Standard & Poors 1999). But given the problems experienced by such tax-backed transactions of Argentine provinces since the sovereign default and currency devaluation in 2001, it is likely to be difficult to securitize future local currency tax receivables unless many more safeguards can be provided for.

Insurance companies are playing a rising role in the 1990s in structured finance transactions by providing complete financial guarantee. An interesting example is the insurance provided by Ambac Assurance Corp. to the 2002 credit card merchant voucher securitization in Central America involving five countries of Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua. While Standard and Poors assigned this multiple jurisdiction Credomatic transaction an investment-grade stand-alone BBB- credit rating, the Ambac guarantees of timely payment of interest and principal raised the transaction rating to AAA.

III. SALIENT CHARACTERISTICS OF SECURITIZED FUTURE FLOW TRANSACTIONS

The innovative structuring of these transactions has allowed many investment grade borrowers in developing countries to pierce the sovereign credit ceiling and obtain financing at significantly lower interest rates and for longer duration.

- When the fear of the Workers' Party candidate, Luis Inacio Lula da Silva, being elected Brazil's president sent spreads on Brazilian debt soaring and all but cut off access to international finance for Brazilian public and private sector entities, Brazilian banks began to securitize DPR flows. The state-owned Banco do Brasil set the ball rolling in early 2002 by doing the first securitization of DPRs to raise US\$450 million. Moody's as well as S&P rated this transaction investment grade at Baa1 and BBB+, respectively. Brazil's sovereign ratings at that time were B1 by Moody's and BB- by S&P. Other major Brazilian banks—Banespa, Bradesco,

Itau and Unibanco—followed suit and together completed 22 DPR-backed transactions to raise US\$2,140 million in 2002, US\$1,777 million in 2003 and US\$1,005 million thus far into 2004, for a total of US\$4,922 million. Of these 22 transactions, nine were rated AAA thanks to insurance coverage by Ambac and others. Of the remaining 14, eight were rated BBB, two BBB- and four BBB+. For eight transactions on which data is available, the spread at issuance averaged 334 basis points over US Treasuries. The spread on the Brazil component of EMBI+ during those years was 1418 basis points in 2002 and 813 basis points in 2003 for an average of 1,116 basis points over Treasuries. *Thus, the DPR securitization channel resulted in savings of over 700 basis points.*

- In late 1998 when financing to developing countries dried up due to the crises in Asia and Russia, Pemex Finance Ltd., a special purpose vehicle established to finance capital expenditures of Pemex, Mexico's state-owned oil and gas company, issued a series of oil export backed securities which were rated BBB by Standard & Poors, three notches above the Mexican sovereign and Pemex unsecured debt. Pemex saved via securitization anywhere from 50 basis points to 337.5 basis points from what it would have had to pay on senior Pemex debt. In the aftermath of the Mexican crisis of 1994-95, Argentina's oil company YPF (by then privatized) raised \$400 million at a 200 basis point spread advantage through securitization of future exports receivables.

In addition to providing lower cost funding, securitization also allows issuers to extend maturity of their debt, and improve risk management as well as balance sheet performance. Securitization also permits issuers from developing countries to tap a wider class of investors. For example, this asset class is attractive to insurance companies that face limitations on buying sub-investment grade. Moreover, by establishing a credit history for the borrower, these deals enhance the ability and reduce the costs of accessing capital markets in the future.

Most of these advantages are common to public and private sector entities alike. But private sector issuers are unlikely to undertake issuance—future flows or otherwise—during crisis times. Thus, use of future flow transactions to raise financing during a crisis is possible only in the case of public sector entities. Considering the long lead times involved in future flow deals, however, even public sector entities would need to keep securitization deals in the pipeline and investors engaged even in good times so that the asset class remains accessible during a crisis.

From the investors' point of view, the attractiveness of this asset class lies in its good credit rating and its stellar performance in good and bad times. Since much of

secured debt paper is traded infrequently, there is lack of adequate information on secondary market price and spread on securitized debt. *Nevertheless, the available information (as well as the perception of market players) suggests that future flow securities tend to be less volatile in price and spread than unsecured debt from developing countries.* For example, the spread on Pemex 7-year securitized debt was less volatile than Mexico's sovereign spread on UMS 2026 bonds since its issuance until the end of 1999. The asset-backed Pemex paper had a lower average spread of 309bp versus 372 on unsecured UMS 2026 bonds and also lower standard deviation of 63bp versus 79bp (see Ketkar and Ratha 2001a and 2001b).

There have been no debt defaults on rated future flow hard currency asset-backed securities issued by developing country entities despite repeated crises of liquidity and/or solvency. Thus, the asset class has withstood the test of the Mexican peso crisis in 1994-95, the Asian liquidity crisis in 1997-98, and the Russian and Ecuadorian debt defaults in 1998 and 1999. An interesting example is the Pakistan telephone receivable deal that continued to perform even in the face of selective default on sovereign debt (see Box 2 in Ketkar and Ratha 2001a). Indeed, there were no debt defaults on rated future flow asset-backed securities issued by developing country entities despite repeated crises of liquidity and/or solvency until Argentina's sovereign debt default at the end of 2001 (Fitch 1999c). Subsequently, Argentina devalued the currency, imposed restrictions on hard currency transfers, and pesified most contracts; i.e., compulsorily converted certain dollar obligations into pesos at a one-to-one exchange rate.

Pesification in Argentina in January 2002 adversely affected Mortgage Backed Securities (MBS) as well as companies that were local currency generators, like utilities. Such structured US dollar denominated debt obligations ran into difficulties. Utilities, for instance, were unable to raise tariffs adequately to cover the bloated local currency costs of servicing dollar denominated debt. But securities backed by future export receivables continued to perform on schedule, proving their resiliency against transferability and convertibility controls (S&P 2003). The oil export backed debt of YPF has performed as also the oil royalty backed bonds issued by the province of Salta. The full repayment of the Aluar Aluminio Argentino S.A.I.C. transaction on June 14, 2004 has reiterated once again that hard currency future flow backed securitizations remain a strong and reliable financing alternative for developing countries (S&P 2004).

While this track record (of no default) is encouraging for this asset class, the test has not been severely stringent until now because future flow asset-backed debt still

Exhibit 3. Securitization of future flows, 1990-2004.

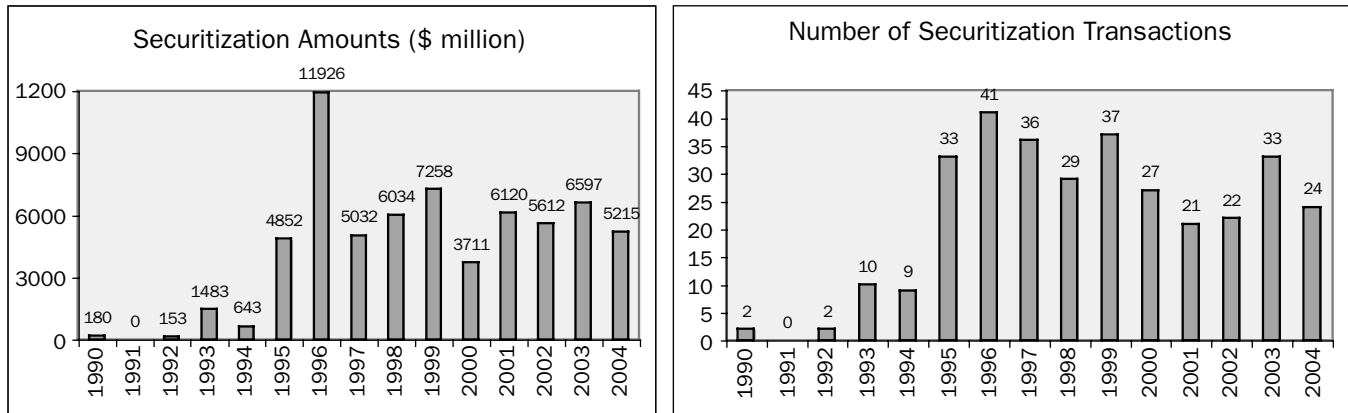
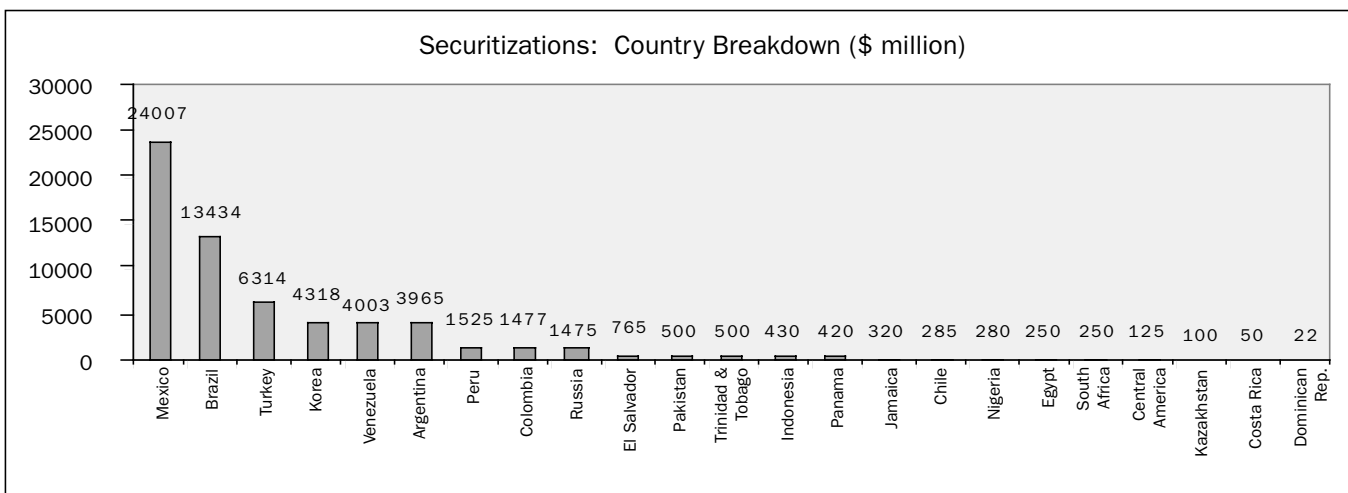


Exhibit 4



(as of 2004)

represents a very small percentage of total debt. One of the few cases of investor dispute involving an airline receivable securitization deal by Colombia's Avianca was settled out of court, without default on the underlying securities.¹

So far, given the small size of future flow issuance, the pledging of future assets has not affected the cost or the rating of unsecured debt. But obviously there are limits to the amount of future exports that can be pledged.

IV. SECURITIZATION MARKET SIZE AND TRENDS

Securitization of future flow receivables has a relatively short history in developing countries. The first important future flow securitized transaction in a developing country occurred in 1987 with the securitization of telephone receivables due to Mexico's Telmex. Since

then the three principal rating agencies—Fitch IBCA, Duff and Phelps (Fitch), Moody's and Standard & Poors (S&P)—have collectively rated well over 300 future flow securitizations with the aggregate principal amount of nearly US\$65 billion. The issuance of future flow receivable-backed securities increased especially after the Mexican crisis in 1994-95 (Exhibit 3). It peaked at just about US\$12 billion in 1996, thanks to Pemex's US\$6 billion oil export receivable transaction.² While down from that high level, securitized issuance has stayed robust since then averaging US\$5.7 billion per year.

Latin American issuers dominate the market for future flow securitization. Mexico alone accounts for roughly 37 percent of asset-backed transactions in nominal dollar terms; Argentina, Brazil and Venezuela account for another 33 percent (Exhibit 4). Relatively more developed capital markets and larger need for external

Exhibit 5. Future flow securitization by assets 1990-2004.

	Volume (US\$ m)	Share of total volume (%)	No. of Transactions	Average Size (US\$ m)
Oil and gas	22663	35.0	59	384
DPRs	10387	16.0	63	165
Credit card vouchers	11462	17.7	59	194
Minerals & metals	8394	13.0	53	158
Remittances	2332	3.6	20	117
Agriculture	2720	4.2	22	124
Ticker receivables	1990	3.1	19	105
Telecoms	1310	2.0	7	187
Others	3557	5.5	24	148
Total	64815	100	326	199

Source: Fitch, Moody's, and S&P

capital appear to be two reasons behind the dominant share of these countries in this asset class.

Although some 35 percent of future flow transactions in US dollar terms are backed by oil and gas export receivables, the asset class has demonstrated an enormous scope for creativity (Exhibit 5). In recent times, DPRs have increased in importance and now vie for second place with credit card vouchers. Mineral and metal export receivables, telecom receivables, workers' remittances, ticket receivables and tax receivables, among others, have been securitized. The share of non-oil deals is also much larger in terms of number of transactions given that oil transactions tend to be large in dollar terms. As a result, the average size has been the largest for oil-backed transactions at US\$384 million. The average size of transactions securitized by remittances, ticket receivables and telecom receivables has been much smaller.

V. POTENTIAL AND CONSTRAINTS ON FUTURE FLOW SECURITIZATION

The present value of future flow receivables of developing countries is sizeable, and can be exploited using securitization techniques to gain significant access to international capital markets. Developing countries exported nearly \$230 billion worth of fuel, and nearly \$50 billion worth of ores and metals in 2003. In addition, they received about \$119 billion in travel receipts from nonresidents and \$93 billion in remittances from their own nationals abroad.³ These four items plus agricultural raw materials (about \$20 billion in 2003) provided over \$500 billion worth of foreign exchange to developing countries in 2003.

While it is true that the amount of FX earnings from these sources may vary from year to year, in all likelihood,

these earnings are likely to average over half a trillion US dollars (adjusted for inflation) in the next five years. Applying an over-collateralization ratio of 5:1—i.e., assuming only \$1 of debt is backed by \$5 of the future export revenue—the *potential size of future-flow backed securitization could exceed \$80 billion per year* (Exhibit 6). This calculation assumes that only half of the future flows of foreign visitors' expenses are paid in credit cards. It also assumes that only half of workers' remittances are channeled through banks.

Exhibit 6 also reveals that there is scope for countries outside Latin America, especially those in Europe and Central Asia and even in Sub-Saharan Africa to raise significant amounts of capital using future-flow securitization. Similarly, looking at countries according to income group, the potential appears significant in lower middle-income countries, but also in low-income countries. In lower middle-income countries, the potential for securitization lies in mining exports, but in low-income countries, the potential lies in workers' remittances and in tourism receipts (i.e., credit card vouchers).

Note that the above calculation does not include many sources of foreign exchange earnings for developing countries. An important omission, for example, is telephone receivables, although with falling costs of international phone calls, the potential is decreasing in this sector.

Several constraints have kept the actual future flow receivables-backed securitization well below its potential. First and foremost, the best candidates for future flow receivable secured transactions are typically investment grade issuers (in local currency terms) from below investment grade sovereigns. Securitization via an SPV structure and over-collateralization permits such transactions to escape the sovereign credit ceilings and obtain significant reductions in borrowing costs.

Exhibit 6. Securitization potential by region and income group in 2003 (\$ billion)

	Fuel exports	Agr. raw materials exports	Ores and metals exports	Travel services exports	Workers' remittances	Total
All developing countries	45.9	3.9	9.4	11.9	9.3	80.5
Low-income countries	1.5	0.3	0.8	0.6	3.0	6.2
Lower middle-income countries	31.5	2.6	6.7	7.5	4.5	52.8
Upper middle-income countries	12.9	1.0	2.0	3.8	1.8	21.5
East Asia and Pacific	7.1	0.7	2.4	4.3	1.8	16.2
Europe and Central Asia	17.8	2.0	3.4	3.3	1.0	27.6
Latin America and the Caribbean	9.6	0.6	1.6	2.4	3.0	17.2
Middle-East and North Africa	9.1	0.0	0.4	1.0	1.3	11.8
South Asia	0.6	0.1	0.5	0.4	1.8	3.3
Sub-Saharan Africa	1.8	0.5	1.1	0.6	0.4	4.3

* Fuel exports from Saudi Arabia are excluded from this calculation reflecting Saudi Arabia's role as a net exporter rather than importer of capital. Also many countries (e.g., Lebanon) that did not report balance of payments data to the IMF are excluded.

Source: Authors' calculations using over-collateralization ratio of 5:1. Data on exports are from the World Bank's World Development Indicators. Worker remittances, defined as in Ratha (2003), are calculated from the IMF's Balance-of Payments Statistics Yearbook 2003. Regions are as defined in the World Bank's Global Development Finance 2004.

While there is no shortage of below investment grade sovereigns in the universe of developing countries, there are only a limited number of companies that are rated investment grade in local currency terms. Since many of these are from the financial sector, the most productive sources of securitization are banks' receivables from DPRs, credit card vouchers and workers' remittances.

Another major constraint on the growth of future flow transactions arises from the paucity of good collateral in developing countries. Oil is an example of a good collateral for several reasons: a) the stock of oil in a country is more or less well-known; b) this is a highly 'liquid' asset with well-developed global markets; and c) it is usually of great importance to a nation's economy and, therefore, its exports are less vulnerable to government interference. Finally, crude oil may be a better collateral than refined petroleum because the former cannot be easily diverted to foreign importers (obligors) not covered in the securitization structure.

The paucity of good collateral is also reflected in the absence of high-quality public and private issuers in developing countries. Securitization deals tend to be complex and involve high preparation costs and long lead-times. The lack of legal clarity on bankruptcy procedures in many developing countries adds further

complexity to these deals. In some cases, policy makers are simply not familiar with this mechanism. Many issuers cannot—or do not want to—assume the burden of full disclosure of information in a timely fashion. Others worry about whether the use of future flow secured bonds will taint their creditworthiness.

VI. PUBLIC POLICY ISSUES

Future flow securitization increases the level of inflexible debt of an issuer as well as the nation. Although the current level of future flow debt is nowhere near the danger level in any country, such debt combined with debt from other preferred creditors can reduce the flexibility in debt servicing and jeopardize issuer creditworthiness (IMF 2003). While this concern has validity, the current level of such securitized indebtedness is not large enough yet in any country to dilute its overall debt servicing ability. Thus, rating agencies have felt no need to downgrade any sovereign's unsecured debt because of the level of securitized debt. Furthermore, the cost of reduced flexibility in debt servicing has to be weighed against the many benefits that developing countries reap from securitization.

For instance, governments may find this asset class attractive because, if planned and executed ahead of time,

it can provide a way of accessing markets during times of liquidity crisis. Because of their investment grade rating, future flow deals attract a much wider class of investors than unsecured deals. Thus, future flow deals can improve market liquidity and reduce market volatility. That can generate added interest on the part of international investors in other asset classes or other borrowers. For many developing countries, future flow receivable-backed securitization may be the only way to begin accessing international capital markets.

An even important incentive for governments to promote this asset class lies in the externalities associated with future flow deals. Future flow deals involve a much closer scrutiny of the legal and institutional environment—the existence as well as the implementation of laws relating to property rights and bankruptcy procedures—than unsecured transactions. In trying to structure away various elements of sovereign risk, highly trained professionals from investment banks, legal firms, and international rating agencies spend enormous amounts of time and energy examining the investment climate in a country, including the ways in which the sovereign can affect the performance of a private (or public) sector entity. They also closely study the risks facing the sovereign itself. Thus, these deals can produce enormous informational externalities by clarifying the legal and institutional environment and the investment climate in a developing country. Besides, the preparation of a future flow transaction often involves reforms of the legal and institutional environment. These reforms would facilitate domestic capital market development and encourage international placements as in the aftermath of the Brady deals in the early 1990s.

A prime example of such externalities is the recent development of the existing asset securitization (such as MBS) market in Mexico. Of course, it is safe to say that the consolidation of the pension fund system some four years back created a strong local investor base, providing impetus to the emergence of such a market. Furthermore, the development of a stable economic environment and lower interest rates has also been a contributory factor. But the effective regulatory, tax and legal changes introduced in Mexico to facilitate future flow securitizations in the second half of the 1990s and beyond also played a crucial role. While Mexico's current investment grade sovereign credit rating implies that securitization of future flow receivables no longer offers significant cost advantages⁴, such issuance is now being supplanted by securitization of existing domestic assets like mortgages, thanks in part to the earlier development of an appropriate legal infrastructure. This is a welcome development in the local capital markets, which over time is expected to attract foreign investment flows to Mexico's domestic capital markets.

Public policy to facilitate future flow-backed securitizations should focus on removing the constraints identified earlier. Transaction costs may be reduced through expansion of the scale of these deals by planning a series of deals by the same issuer (the so-called master trust arrangement). Receivable pooling may work in some instances. Certain segments of this asset class—such as securitization of oil receivables—may be amenable to standardization and a cookie-cutter approach. Clarification of bankruptcy laws will be helpful for all financial deals including securitization. Also, educating policy makers and potential issuers would help promote this asset class.

VII. SUMMARY AND CONCLUSIONS

Our main finding is that securitization of future flow receivables can provide a way of raising development finance for many low and particularly middle-income countries, especially during times of low liquidity and heightened perception of sovereign risk. *Future flow securitization is a foul-weather friend for investment grade entities in below investment grade countries.*⁵

- Securitization transactions can be structured to mitigate sovereign risk so that a developing country borrower can access longer-term financing at lower interest rates than unsecured bonds. *Typically such benefits of lower interest rates or longer maturity far outweigh the high fixed costs of undertaking future flow securitization, especially during a crisis.*
- Governments may find this asset class attractive because, when planned and executed ahead of time, it can provide a way of accessing markets during times of liquidity crisis. There are also significant externalities associated with future flow deals. By clarifying the legal and institutional environment surrounding a developing country issuer, such deals can pave the way for future deals by other issuers as well. Because of their investment grade rating, future flow deals attract a much wider class of investors than unsecured deals. Thus, future flow deals can improve market liquidity and reduce market volatility. That can generate added interest on the part of international investors in other asset classes or other borrowers.
- However, future flow securitization increases the level of inflexible debt of an issuer at the micro level, and of the nation at the macro level. Although the current level of future flows debt is nowhere near the danger level in any country, such debt combined with debt from other preferred creditors can reduce the flexibility and the ability to service the non-preferred debt.
- A major constraint to the growth of future flow transactions arises from the paucity of good collateral in developing countries. Oil is an example of good collateral for

several reasons: a) the stock of oil in a country is more or less well-known; b) this is a highly 'liquid' asset with well-developed global markets, c) it is usually of great importance to a nation's economy and, therefore, its exports are less vulnerable to government interference. Finally, crude oil may be a better collateral than refined petroleum because the former cannot be easily diverted to foreign importers (obligors) not included in the securitized structure. In comparison, agricultural commodities tend to be more difficult to securitize, although the number of such deals has risen rapidly in recent years.

- The paucity of good collateral is also reflected in the absence of high-quality public and private issuers in developing countries. Securitization deals tend to be complex and involve high preparation costs and long lead-times. The lack of legal clarity on bankruptcy procedures in many developing countries adds further complexity to these deals. In some cases, policy makers are simply not familiar with this mechanism. Many issuers are constrained by the burden of full disclosure of information in a timely fashion. Others worry about whether the use of future flow secured bonds will taint their creditworthiness.

- Still, the size of future receivables of developing countries that can be securitized is much larger than (more than ten times) the current level of issuance at well under \$10 billion annually. Of these receivables, a large part

comes from outside Latin America, especially from countries in Eastern Europe and Central Asia that are rich in fuel and mineral exports. Countries in the Middle East have large oil receivables. In South Asia, the potential for securitization lies in remittances, credit card vouchers, and telephone receivables.

- Public policy to facilitate future flow-backed securitizations should focus on removing some of the constraints on their issuance. These include high transaction costs which can be reduced through expansion of the scale of these deals by planning a series of deals by the same issuer (the so-called master trust arrangement) and by pooling receivables of a number of issuers in the same or even different jurisdictions. These approaches have been used selectively in the past five years but can be expanded. Establishment and use of indigenous credit rating agencies to obtain domestic credit rating can also reduce transaction costs, although care has to be taken in mapping local rating scales to international scales. Certain segments of this asset class—such as securitization of oil receivables—may be amenable to standardization and a cookie-cutter approach. Clarification of bankruptcy laws will be helpful for all financial deals including securitization. Also, educating policy makers and potential issuers would help promote this asset class.

APPENDIX

EXAMPLES OF SECURITIZATION STRUCTURES

EXAMPLE 1: BANCO DO BRASIL'S (BdB) NIKKEI REMITTANCE TRUST SECURITIZATION.

Amount: US\$250 million. Collateral: US dollar- or Japanese yen-denominated worker remittances. Transaction Rating BBB+ versus BdB's and Republic of Brazil's local currency rating of BB+ /Stable and foreign currency rating of BB-/Stable. See Exhibit 7 for the structure of this deal.

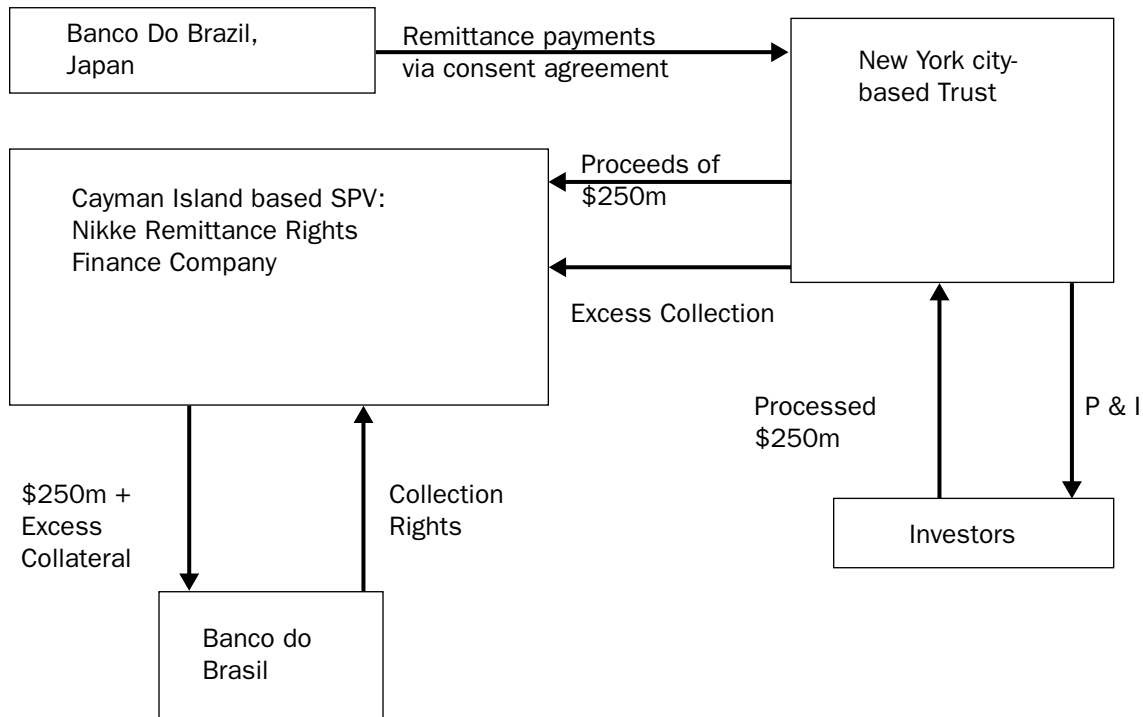
This deal involved Banco do Brasil (BdB) selling its future remittance receivables from Brazilian workers in Japan directly or indirectly to a Cayman Island-based offshore Special Purpose Vehicle (SPV) named Nikkei Remittance Rights Finance Company. A New York City based SPV issued and sold the debt instrument to investors, receiving US\$250 million. BdB Japan was directed to transfer remittances directly to the collection account managed by the New York based Trust. The collection agent was to make principal and interest

payments to the investors. Excess collections were to be directed to the originator BdB via the SPV.

Since remittances did not enter Brazil, the rating agencies believed that the structure mitigated the usual sovereign transfer and convertibility risks. The structure also mitigated the bankruptcy risk because the SPV had no other creditors and hence could not go bankrupt. Of course, the risk of BdB going bankrupt existed. But such risk was minimal given the government-owned BdB's dominant position in Brazil. Furthermore, legal opinion held that creditors would continue to have access to the pledged security (i.e. remittances) even if BdB were to file bankruptcy petition.

However, a number of residual risks remained and they were difficult to structure away. These included the performance risk - the ability and willingness of BdB to garner remittances and deliver them to the collection account managed by the New York based Trustee, the product risk - the ability and willingness of Japan to generate remittances, and the diversion risk - the possibility of BdB selling the remittance rights to another party. The performance risk is generally captured in the issuer's local currency rating. For entities such as banks, Fitch uses the going concern and

Exhibit 7. Structure of BdB Remittance Securitization.



Source: Standard and Poors (S&P)

S&P the “survival” assessment of the originating entity in rating an asset-backed transaction higher than the issuer’s local currency rating. This was the case for the BdB’s Nikkei Remittance Trust transaction, which was rated BBB+ versus BdB’s BB+ local rating. In reaching this decision, S&P took into account BdB’s position as the largest financial institution in Brazil (with a 2900 strong branch network) that makes it the most natural conduit for funds transfers, the long-established presence of BdB in Japan since 1972, and the importance of worker remittances in generating foreign exchange for the Brazilian government. The product risk from volatility and seasonal fluctuations in remittances was mitigated via over-collateralization or excess coverage, with a debt service coverage ratio (DSCR) of 7.64.⁶ Another element of the product risk was partially mitigated by recognizing Japan’s need for workers to supplement the native workforce, and the availability of Brazilians of Japanese decent to fill this demand. S&P, however, recognized as constraints on the rating the possibilities of Japan obtaining workers from countries other than Brazil and BdB selling remittance rights to another party. It expressly identified the latter as an event of default, triggering early amortization.

Some elements of the sovereign risk also cannot be totally eliminated. For example, Banco Central do Brasil (BCB) can compel BdB to pay remittances directly to the Central Bank instead of the Trust. A degree of protection against this risk is provided by the fact that BdB is majority owned by the government of Brazil. In other instances, remittance securitized transactions have made designated correspondent banks sign a Notice and Acknowledgement, binding under the U.S. law (or the law of a highly rated country), that they will make payments to the offshore trust. That would make the sovereign reluctant to take the drastic step of requiring payments into the Central Bank. Currency devaluation is yet another element of sovereign risk that cannot be totally eliminated even in structured transactions. For instance, currency devaluation may impact the size and timing of remittances, particularly through formal channels.

**EXAMPLE 2: BANCO DE CREDITO DEL PERU’S
SECURITIZATION OF
CREDIT CARD RECEIVABLES.**

Amount \$100 million, Issue Date 11/12/1998,
Maturity 11/14/2005, Future US dollar receiv-

ables owed to Banco de Credito del Peru by Visa International. Credit Rating AAA from S&P. See Exhibit 8 for the structure of this deal.

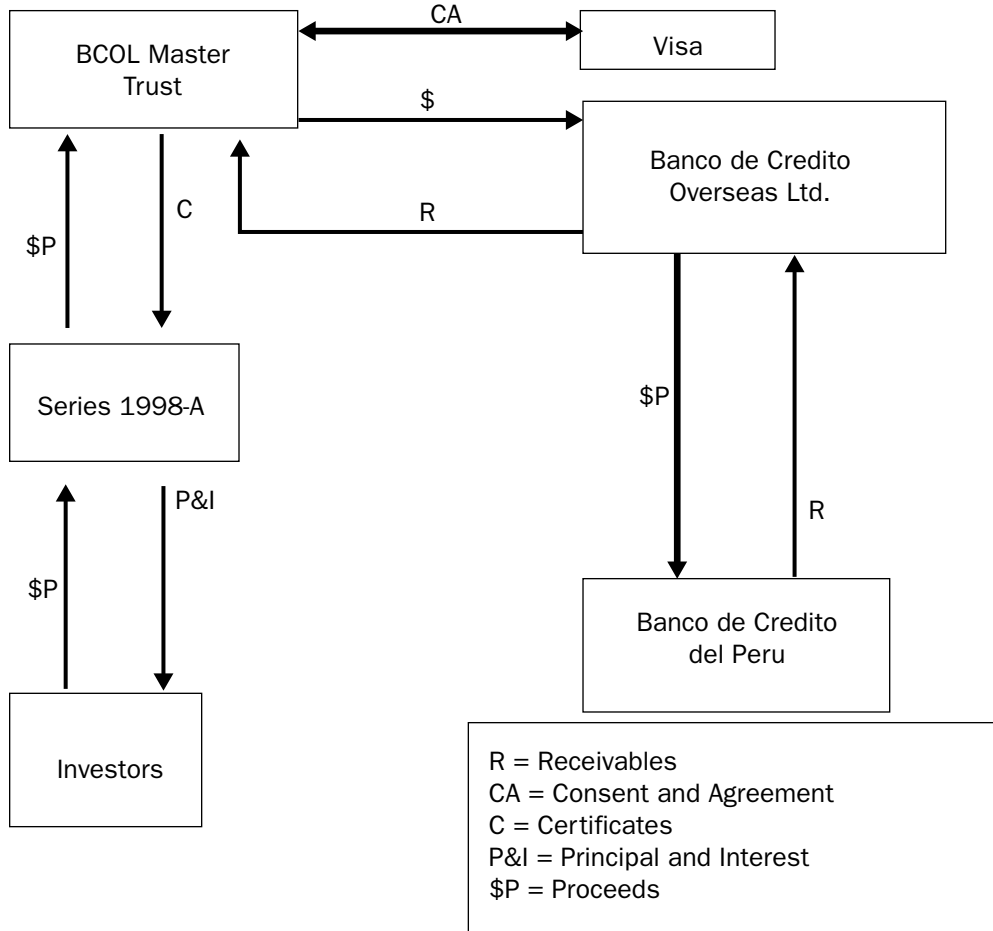
Credit card holders traveling to Peru buy goods and services or obtain advance or local currency on ATM. The merchants sell the resulting vouchers to a local voucher-acquiring bank, which pays them cash. The voucher-acquiring bank then obtains dollars from Visa.

In a structured transaction, the voucher-acquiring bank (Banco de Credito del Peru, in this instance) issues irrevocable instructions to the credit card company (Visa, in this instance) to transfer all future payments on credit card vouchers to an offshore account under the control of a trustee. The trustee uses the monies paid into this account to make payments to the bondholders. This structured transaction is not subject to the same sovereign risks as unstructured transactions.

As Exhibit A-2 shows, the BCOL Master Trust, which receives payments from Visa, is outside the Peruvian jurisdiction. The first claim on BCOL is from the bondholders. The Peruvian Central Bank is not involved in the process. After paying principal and interest to the bondholders, the excess Visa payments on vouchers are paid by BCOL Master Trust to Banco de Credito Overseas Ltd. in the Bahamas which in its turn pays the excess to Banco de Credito del Peru in Peru. The proceeds from the issuance of the structured bonds flow to Banco de Credito del Peru via BCOL Master Trust and Banco de Credito Overseas Ltd. in the Bahamas.

While this structure mitigates the usual convertibility and transfer risks, two risks still remain. First, there is the risk of fluctuations in the volume of vouchers due to (a) variation in tourism, (b) relations with vendors, and (c) devaluation of Peru’s currency, nuevo sol. Second, there is the risk of Banco de Credito del Peru becoming insolvent. These risks can be reduced (not eliminated) through excess collateral. The rating agencies examine the data on tourist arrivals/expenditures and subject it to stress tests. The results of these tests are used to determine the necessary excess coverage. In the case of Banco de Credito del Peru, the amount of future flow receivables transferred to the BCOL Master Trust were set at 2.5 times the debt service requirements. The structure described above plus the excess collateralization resulted in the transaction receiving a AAA credit rating from S&P as opposed to the BB sovereign credit rating of Peru in 1998.

Exhibit 8. Banco de Credito Overseas Ltd.



**EXAMPLE 3: PEMEX FINANCE LIMITED
 SECURITIZATION OF CRUDE OIL RECEIVABLES**

Amount: Nine issuances during 1998 and 1999, each up to \$500 million. Future US dollar receivables owed to Pemex Finance Ltd. by designated customers who will receive Mayan crude oil from Pemex Exploracion y Produccion (PEP), via Petroleos Mexico Internacional (PMI). Rating BBB. See Exhibit 9 for the structure of this deal.

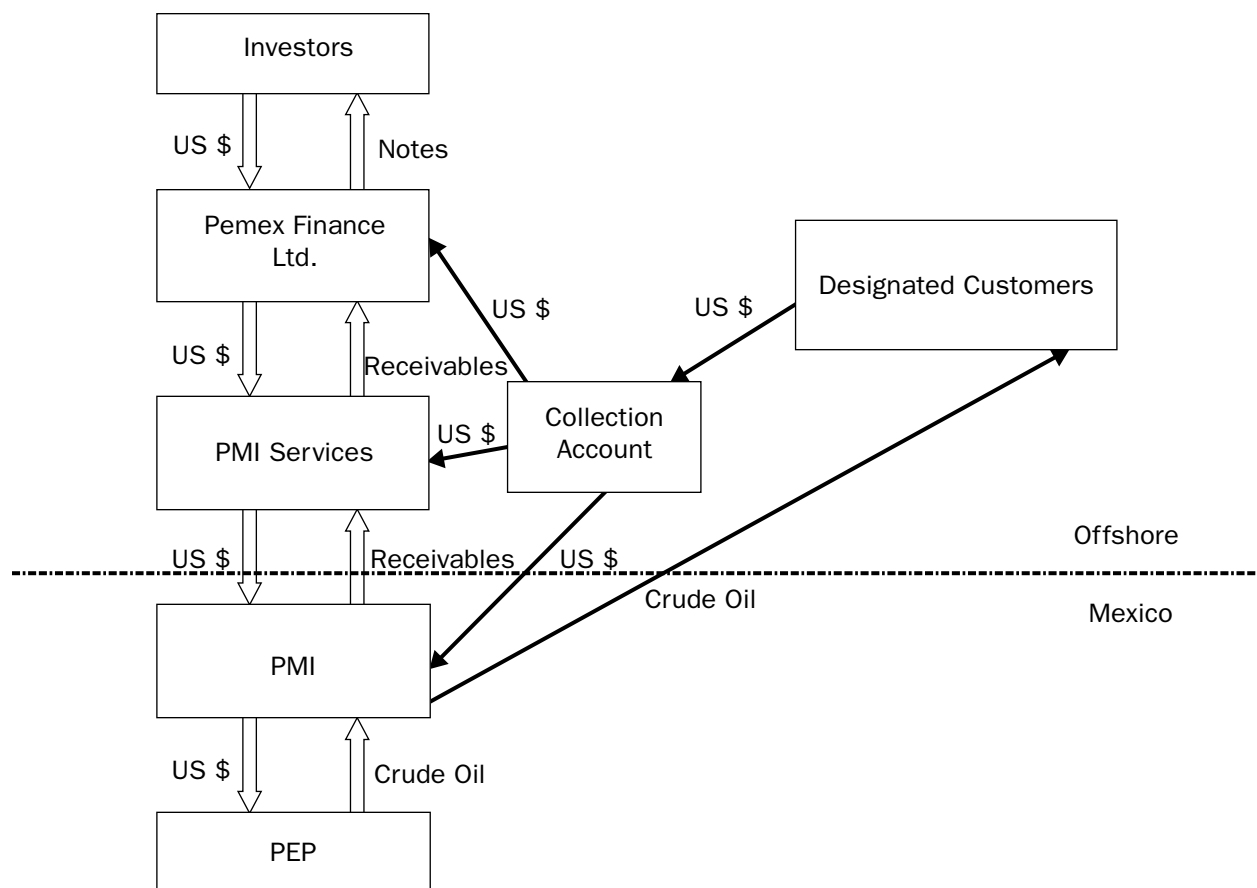
PMI arranges to sell Mayan crude oil, or some other crude oil type if Mayan becomes unavailable, to designated customers who agree to deposit their payments into an offshore collection account. PMI, a subsidiary of Pemex, is the distributor for Mayan crude oil, which is produced by PEP. Pemex Finance Ltd. is the offshore issuer of notes. It purchases the receivables from PMI via the offshore Pemex subsidiary, PMI Services.

Exhibit A-3 shows that sales of the crude oil to designated customers and of receivables to PMI Services are out of the

jurisdiction of the Mexican government. The first claim on the receivables is from the note holders, and the Mexican central bank is not involved in the process. Chase Manhattan Bank has agreed to administer the issuance of all debt and the payment of interest and principal on such debt in accordance with Pemex’s agreements. After paying note holders principal and interest, excess payments, based on fluctuation in crude oil prices, are paid to PMI Services and PMI, via the offshore collection account.

While this structure mitigates the usual convertibility and transfer risks, other risks still remain. Primarily, there is a risk that a fluctuation in crude oil prices will result in revenues insufficient to cover the interest and principal due to note holders. The overcollateralization of the notes minimizes this risk—PMI will provide a minimum coverage ratio of three times the amount needed for payment of interest and principal. Designated customers have also signed agreements acknowledging their commitment to purchase crude oil and to make any future payments into the offshore collection account. Further

Exhibit 9. Pemex Finance Ltd. Structure.



enhancing the strength of such issuance is Pemex’s track record of timely servicing of debt in the past. As a result of these enhancements, S&P rated the credit of 1998 and 1999 tranches A-2 and A-4 and 1999 tranche A-5 as BBB. Rated as AAA are 1998 and 1999 tranches A-1 and A-3, as they are insured by MBIA and AMBAC. These ratings are clearly favorable relative to the BB foreign currency rating of the United Mexican States

ENDNOTES

* Suhas Ketkar is a Senior Economist and SVP at the Royal Bank of Scotland, and Dilip Ratha is a Senior Economist at the World Bank. We would like to thank Gary Kochubka, Dan Bond, Michael Morcom, Laura Feinland-Katz, Coy Uy and Jennifer Conner for data and discussions. The paper reflects personal views of the authors, not of their respective institutions. This paper was presented at the Annual Finance & Accounting International Conference - Managing Securitization for Lebanon and the MENA Region, December 3-4, 2004, Lebanese American University, School of Business, Beirut, Lebanon. Correspondence may be addressed to dratha@worldbank.org.

1 This out of court settlement also prevented a test of the “true sales” principle supported by wide-spread legal opinion from developing countries.

2 The Pemex oil exports deal was part of the conditions in the US Treasury’s rescue package, funded using the US Exchange Stabilization Fund, for Mexico following the Tequila crisis. See Rubin (2004).

3 The size of remittance flows to developing countries has been revised up recently, to \$126 billion in 2004. See World Bank (2005).

4 This is consistent with the argument by Stone and Zissu (2004) that at higher sovereign ratings, the spread reduction achieved from securitization may be too small to justify the cost of undertaking securitization.

5 See also Checki and Stern (2000) who argue that “In some instances, placements with private creditors of receivables-backed loans and bonds may be appropriate...to stabilize a situation and buy time for confidence-restoring measures to kick in...Experience also suggests that the signal value of well-executed market placements should not be underestimated.”

6 While excess coverage helps mitigate elements of product risk, it also reduces the total amount of funds that can be raised with future flow receivables.

REFERENCES

Caballero, Ricardo. 2000. “Aggregate Volatility in Modern Latin America: Causes and Cures.” Paper prepared for the World Bank report “Dealing with Economic Insecurity in Latin America.” May.
 Checki, Terence J., and Ernest Stern. 2000. “Financial Crises in

the Emerging Markets: The Roles of the Public and Private Sectors.” Current Issues in Economics and Finance Vol 6 No. 13. Federal Reserve Bank of New York. November.

Fitch IBCA, Duff & Phelps. 1999a. “Future-Flow Securitization Rating Methodology.” Fitch IBCA, Duff & Phelps, March.

Fitch IBCA, Duff & Phelps. 1999b. “DCR’s Approach to Rating Existing Trade Receivables Transactions in Emerging Markets.” Fitch IBCA, Duff & Phelps. April.

Fitch IBCA, Duff & Phelps. 1999c. “Under Pressure: Structured Transactions in Emerging Market Stress..” Fitch IBCA, Duff & Phelps. April.

Fitch IBCA, Duff & Phelps. 2000a. “Rating Securities Backed By Financial Future Cash Flows.” September 25. www.fitchratings.com.

Fitch IBCA, Duff & Phelps. 2000b. “Rating Securities Backed By Future Export Receivables.” October 10. www.fitchratings.com.

International Monetary Fund (2003). “Assessing Public Sector Borrowing Collateralized on Future Flow Receivables.” June 11.

International Monetary Fund. Balance of Payments Statistics, Various issues.

Izquierdo, Alejandro. 2000. “Credit Constraints, and the Asymmetric Behavior of Asset Prices and Output under External Shocks,” The World Bank. Mimeo. June.

Ketkar, Suhas and Dilip Ratha. 2001a. “Development Financing During a Crisis: Securitization of Future Receivables.” The World Bank, Economic Policy and Prospects Group. April.

Ketkar, Suhas and Dilip Ratha. 2001b. “Securitization of Future Flow Receivables: A Useful Tool for Developing Countries.” *Finance*

& Development. International Monetary Fund. Washington, D.C. March.

Morgan Stanley Dean Witter. 2000. “Pemex Finance Ltd. Offering Memorandum.” February.

Rubin, Robert E. and Jacob Weisberg. 2004. *In an Uncertain World: Tough Choices from Wall Street to Washington*. The Random House Publishing Group.

Standard & Poor’s. 1999a. “Securitization in Latin America 1999.” Structured Finance at Standard & Poor’s.

Standard & Poor’s. 1999b. “Lessons from the Past Apply to Future Securitizations in Emerging Markets.” July.

Standard & Poor’s. 2000. “Bank Survivability Criteria Aids Future Flow Issuers.” Standard & Poor’s CreditWeek. September 27.

Standard & Poor’s. Structured Finance: Emerging Markets Criteria.

Standard & Poor’s. 2003. “Economic Hurdles Continue to Plague Argentine Structured Market.” May 15.

Standard & Poor’s. 2004. “Export Future Flows Thrive After Repayment of Argentine Aluar.” June 16.

Standard & Poor’s. 2004. Mexico’s Subnational Securitization Market Entering Second Stage of Development.” November 3.

Stone, Charles A. and Anne Zissu. 2004. “Piercing Sovereign Ceiling: Defining the 3-D Securitization Space of Future Flow Receivables.” Mimeo.

World Bank. 1999. World Development Indicators. Various issues.

World Bank. 2000. Global Development Finance.

World Bank. 2005. Global Development Finance.