

MF Working Paper

Recovery Rates from Distressed Debt- Empirical Evidence from Chapter 11 Filings, International Litigation, and Recent Sovereign Debt Restructurings

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IMF Working Paper

International Capital Markets Department

Recovery Rates from Distressed Debt—Empirical Evidence from Chapter 11 Filings, International Litigation, and Recent Sovereign Debt Restructurings

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Abstract

The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

On a credit rating-adjusted basis, spreads on U.S. high-yield debt have typically been regarded as a lower bound for emerging market debt. However in the C-rated and defaulted segment, emerging market debt has traded at lower spreads than similarly rated U.S. high yield debt. We show that the lower spreads reflect the fact that the total returns from defaulted debt in the emerging markets have been significantly higher than returns from similarly rated high yield defaulted debt under Chapter 11.

JEL Classification Numbers: F3, F34, G15, K33, K41

Key words: Distressed debt, Sovereign debt restructuring, Chapter 11, Sovereign litigation

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I. INTRODUCTION

A large universe of U.S. corporates and emerging market borrowers issue below investment-grade U.S. dollar-denominated debt. High-yield (HY) debt is typically defined by market participants as corporate issues rated below BBB- (i.e., below investment grade). The size of the U.S. HY market, including defaulted issues, was over \$570 billion at end-2001,² Moreover, a third of the HY debt market was distressed debt—issues yielding at least 1,000 basis points over U.S. Treasury yields, or an equivalent benchmark.

Since 1990, debt issuance by emerging markets (EM) entities has grown considerably. Sovereign external debt comprises over 80 percent of the external debt from the EM and is well over \$400 billion. At present, sovereign EM debt of about \$125 billion also trades at distressed levels (Figure I).³

The number of investors that hold both HY and EM debt—typically holders of high yield corporate bonds in the United States or Europe who are not specialists in emerging markets—is increasing, but their holdings reveal mostly one-way flows toward EM paper. Such crossover investors include dedicated HY investors seeking diversification (and returns) from the EM segment.

Crossover investors belong to both the sell side (hedge funds, as well as proprietary and arbitrage desks) and the buy side. For example, holders of Cote d'Ivoire debt include banking institutions such as BNP Paribas and Societe Generale and buy-side investors such as Montpellier Asset Management and Grantham Mayo van Otterloo. Many pension and insurance funds that have promised clients 6-8 percent returns have also begun to consider EM debt along with traditional HY debt. Crossover investors could continue to increase their holdings of distressed EM debt in the future, albeit a small fraction of their overall portfolio, in favor of HY corporate debt. It is important to note that "vulture funds" are only a small set of the crossover investors that hold distressed EM debt and HY debt. For example, a key distressed debt market player, Elliott Associates, has been involved in HY debt (TWA's bankruptcy in early 1980s) and only more recently in EM debt (the famous Elliott vs. Peru case). Investors in this market possess specialized knowledge of bankruptcy law and international litigation and are willing to hold-out for many years before seeing any recovery.

It has been argued that U.S. HY debt trades at a lower interest rate spread than comparably rated EM debt since the former is usually located in a jurisdiction with a well-defined debt-workout mechanism (Chapter 11), has a longer statistical record, and has experienced less price volatility than the emerging market asset class. Empirically, interest rate spreads on the U.S. high-yield bonds have almost acted as a lower bound for spreads on

² Merrill Lynch (2001, 2002). Figures exclude convertible bonds, warrants, and floating rate bonds.

³ Holdings by Argentine pension funds are not included.

comparably rated emerging market debt (Figure 2). Thus, it is not surprising that HY issues rated double B and single B trade at narrower interest rate spreads than similarly rated EM debt.

However in the comparable C-rated and lower rated segment, EM debt has traded at *lower* interest rate spreads than similarly rated U.S. HY debt—especially in 2001 when the HY default rate almost reached the all-time-high rate of 10 percent recorded in 1991 (Figure 3).⁴ Moreover, distressed EM debt has offered higher recovery rates than comparable corporate HY debt.

Section II of this paper highlights that returns from the defaulted HY corporate market have annualized returns averaging about 22 percent. Section EI argues that returns from bilateral restructuring of sovereign EM debt are likely to be affected by the precedents set by Russia, Cote d'Ivoire, and Ecuador, which have established "benchmark" annualized average returns of 57 percent. Moreover, investors that have resorted to litigation to recover on defaulted EM debt have annualized returns averaging 50-333 percent, net of legal fees. Section IV concludes with a comparative analysis across the various distressed debt asset classes and offers some suggestions to mitigate arbitrage that are available in emerging markets.

II. CORPORATE DEBT, DEFAULT, AND RECOVERY RATES SINCE 1970

The value of the U.S. corporate bond market is well over \$4.5 trillion, with half the issues convertible bonds, floating rate bonds, or preferred stock that are not comparable to sovereign emerging market debt. The remaining, straight issues in the *non-* HY category (i.e., issues rated BBB- and higher) are about \$1.6 trillion.

The U.S. HY corporate bond market is valued at over \$570 billion, of which defaulted debt accounts for about \$60 billion. Distressed debt (including defaulted debt) currently constitutes about 35 percent of the HY market. These bonds may have initially been issued with a rating of A, B, or C.

A. Recovery Rate from Corporate Defaults

To explain a potential price anomaly between the HY corporate debt literature and EM debt, we need to analyze the main components of credit spreads. The corporate bond recovery literature summarizes the default-recovery relationship as follows:

$$\text{Credit Loss} = \text{Default rate} \times (\text{Loss Given Default})^5$$

⁴ International Capital Markets Report of IMF, August 2001. See Chapter IE (Box 3.4).

⁵ Loss Given Default (LCD) is equal to par value minus recovery.

The recovery rates in the *corporate distressed debt literature* usually refers to the recovery value at the time of default, or 30 days thereafter, based on the par value of the bond. Research by Jarrow, Lando, and Tumbull (1997); Kijima and Komoribayashi (1998); and Gupton, Finger, and Bhatia (1997) have assumed that recoveries and default exposures are random outcomes. However, Hu and Perraudin (2002) recently have used Extreme Value Theory on corporate bond data to find that default rates and recovery rates are negatively correlated. Jokivuolle and Peura (2000) use an option pricing framework where the total assets (available) do not determine the recovery rate; instead, the collateral value is assumed to be the only stochastic element determining recovery. A counterintuitive result of their model is that expected recovery rates increase as probability of default increases. Most research on the relationship of the recovery rate and probability of default has assumed a corporate asset-liability framework.

Market sources indicate that the standard methodology to predict bankruptcy is based on the Altman (NYU)-Salomon Z-score models; these use the Z-score approach that allows them to measure conditional probability of a credit event. Empirical results from both Moody's and the Altman methodology are similar with the correlation of default rates at 0.97.

Empirical evidence suggests that the probability density function of the recovery rate is not normal. Analysts have therefore experimented with other distributions that best fit the empirical recovery rates. For example, recent work by the rating agency Moody's (LossCalc™) is based on the Beta distribution, which empirically approximates the bond *recovery* distribution (ex post the default). The data show a characteristic left-side peak and right-side skew with only two parameters, a "the center" and p , "the shape" (see Figure 4).

The conversion of the Beta distributed recovery values to a normally distributed dependent variable is explicitly defined as:

$$y = j - 1 [Betadist, RecovRt, a, fl, M'i, Max]$$

where, $RecovRt = \min(\text{Max} - \epsilon, \text{observed recovery rate})$; $\epsilon =$ some small value $a =$ The Beta distribution's center parameter ($\beta =$ The Beta distribution's shape parameter $Min =$ set to zero for all value $Max =$ set to 1 $Y =$ recovery value (empirically approximately a Beta distribution)
 $N \sim J =$ the normal transformation of the Beta distribution

The appropriate recovery rate is generally based on the par value of the bond. However for distressed debt investors, *recovery rate is based on the value of the defaulted* (or, near-default) bonds at the time of purchase, which is usually significantly below par. Empirically, the average price of defaulted HY debt was about 41 cents on the dollar over the

past three decades.⁶ Recovery for such investors is based on their investment on the average prices at default and average payoffs on emergence from bankruptcy. Altman-Eberhart (1994) have shown that investments in 202 defaulted senior unsecured bonds between 1980 and July 1992 have earned weighted average annualized returns of 30.5 percent. An extension of this study for the period August 1992-2000 by Fridson and Gao (2001) find that the weighted average annualized returns of 11.2 percent for investments in 115 senior unsecured bonds. The two studies suggest that in the past two decades, investors in defaulted debt have earned *annualized returns averaging 22 percent*. The average pay-off period for debt-workouts has averaged between one and four years, with a tendency toward shorter debt-workouts lately in the 1990s due to prepackaged bankruptcies—a technique for expediting reorganization under Chapter 11 by obtaining consents to a plan of organization prior to filing for bankruptcy.

However, the empirical relationship between probability of default and recovery rate in the corporate data cannot be directly used in the context of sovereign EM debt. Market sources indicate that recovery rate is used as a fixed parameter in Early Warning System models and Credit Default Swap models to predict probability of default in EM. In the sovereign EM, however, recovery value ex post the default is a function of bilateral negotiations that involve capacity and willingness to pay by the sovereign, creditor rights specific to the jurisdiction of the claim, and litigation arbitrage in the absence of an international bankruptcy court (Singh/Iorgova, 2002 and Merrick, 2001).⁷

B. Recent Evidence from the Corporate Default Market—A Break from the Past?

The last two to three years have witnessed one of the worst HY default rates in 30 years, reaching 10 percent in 2001 (Altman/NYU and Moody's data). The aggregate price of defaulted debt for 2001 reached an all time low of about 21 cents to the dollar due largely due to low recoveries associated with in the Telecoms sector and other "fallen angels" (investment grade issues now rated below investment grade). This trend is likely to continue in 2002 with the recent corporate governance and possible bankruptcies by WorldCom, Tyco, Qwest, Georgia Pacific, Gap, Dynegy Holdings, Nevada Power, etc. Credit downgrades are outrunning upgrades by six to one with the volume of debt caught in bankruptcy and/or restructuring on the rise. The recovery values are typically bi-modal and are affected by the general business cycle of the economy (Schuermann, 2001). Estimates suggest that recoveries from the defaulted debt in 2001/2002 will be *significantly below* their long-term trends. In the aftermath of Enron, the market size of defaulted HY is about \$60 billion today., compared to \$8 billion in 1998,

At the end of 2001, 13 percent of U.S. HY debt was already in default and *another* 22 percent was in distress—that is, about 35 percent of the HY market yielded over 1000 basis points. In a historically low interest rate environment, the only reason a bond yields 15 percent

. See CreditSights note on Clipped Wings, July 2002 (www.Creditsights.com).

⁷ For a protection buyer, recovery rate in credit default swaps is defined as the cheapest available price to deliver a bond within 30 days of default.

or more is because the principal and coupon is in real danger. For firms specializing in distressed debt, EM debt is an alternative, especially for those HY investors who desire to supplement a yield pick-up at the lowest end of the credit curve.

The switch in investor base is important to note since non-distressed debt investors, who are unable to sell their WorldCom and Enron bonds, may be forced to liquidate their holdings of EM debt.

III. Sovereign Emerging Market Debt

The investor base in distressed emerging market debt is mainly composed of two types of investors: (i) those that acquired the debt prior to default and hold the more *liquid* EM distressed bonds and usually recover via bilateral negotiations with the sovereign⁸ and, (ii) distressed debt investors, including vulture funds, which specialize in *illiquid* sovereign distressed debt and recover their investment via protracted litigation; such investors provide a "floor" to the distressed debt prices. Indeed, the behavior of investors in the distressed market and the non-distressed market accounts for the supposed "pricing anomaly" across HY debt and EM debt.

A. Investors in the "Liquid" Emerging Market Debt

Recent sovereign emerging market bond restructurings have also had a higher than expected recovery when compared with other classes of distressed debt. Early sovereign bond restructurings, such as the ones involving Russia, Ecuador, and Cote d'Ivoire offered holders of defaulted debt a considerable post-default "pick-up" of their investments (Figure 5). Market participants define default as occurring when the sovereign has missed either a coupon, or a principal payment past the due date, inclusive of the grace period (Pakistan did not default). However, in these earlier instances, suspension of debt service by the sovereign was not anticipated. Many of the original and early holders, especially European retail investors, sold off immediately *after* the default, regardless of the relatively short time from default to restructuring. Russian debt was restructured only 1.7 years after the default. Primary beneficiaries of the European sell-off were distressed debt funds that bought Russian Prins and lans at 5 cents and 10 cents on the dollar. Ecuador's restructuring was complete one year after default. Recent debt work-outs from default to restructuring have been rather quick.

Recovery rates from bilateral restructuring, calculated by dividing the post-restructuring prices by the average post-default price, have averaged about 114 percent. These are conservative estimates since present prices are significantly higher than the post-restructuring prices. Assuming a conservative two year window for a bilateral debt-workout

⁸ These investors are usually dedicated emerging market buy side (pension and insurance companies) that invest and hold for the long term, or sell side with long-term business plans/relations with the sovereign.

(Cote d'Ivoire's work-out was longer than Russia, Ukraine, or Ecuador's), investing in defaulted emerging markets *annualized returns have averaged 57percent* (see Table 1).

B. Investors in the "Illiquid" Emerging Market Debt

Investors attracted to this "exotic" debt market work often buy paper with the intent of suing for full recovery. These include Elliott Associates (earlier known as Water Street Bank and Trust) from the case of Elliott vs. Peru, and Dart from the Brazil Brady negotiations. Other investors that have recently engaged in such cases are: Cardinal vs. Yemen; Water Street Bank and Trust vs. Poland; Leucadia National Corporation and Van Eck vs. Nicaragua; Red Mountain vs. Democratic Republic of Congo. Most (but not all) investors have had successful litigation, or out-of-court settlements, or are holding favorable judgments/attachments on assets of the sovereign. They have averaged recovery rates of about 3 to 20 times their investment, equivalent to returns, *net* of legal fees, of 300 percent to 2000 percent.⁹ Litigation is a protracted process with many law suits taking 3-10 years to "settle." Legal documents on file indicate 6 years as a conservative median estimate for recovery, which suggests that *annualized returns average 50 percent to 333 percent* (Singh, 2002). Some of these claims were bought at roughly 10 percent efface value implying very high gross recovery rates.¹⁰ Subtracting legal costs, often recouped from the sovereign, these recovery rates are probably the highest in the distressed debt world. Creditor rights in most jurisdictions favor full recovery.

Litigation arbitrage

There is asymmetry between the Anglo-Saxon and continental European law regarding the nature of sovereign immunity. Starting with Foreign Sovereign Immunities Act of 1976 in the United States, a number of common law countries,¹ particularly in the United States and the United Kingdom, have adopted legislation on sovereign immunity including protection from pre-judgment attachment of foreign central bank assets, hi continental Europe, in contrast, foreign central banks are generally treated as entities separate from the foreign state. As a consequence the central banks assets enjoy little or no protection. The Deutsche Bundesbank, during the Cardinal vs. Yemen saga, considered amending the law (via Parliament) on the non-immunity provided to a sovereign whose assets are deposited with a German bank. However, the law on *central bank immunity* is not uniform in the major financial centers of the world. In continental Europe, there is no unified theory on central bank immunity. Central banks that are separately incorporated do not enjoy immunity, only the sovereign does. If litigation arbitrage continues, central bankers may avoid holding assets in places where there is no immunity.

⁹ See Annex 1 for further details on international litigation.

^D Highly Indebted Poor Countries Initiative—Status of Implementation, Annex ffl. (SM/02/264)

^I This includes, for example, the United States, United Kingdom, Australia, Canada, South Africa, India, and Pakistan.

Another avenue open to legal action involves the *payment system*. The clearing systems Euroclear and Clearstream are also vulnerable points in the payment systems. The modified Article 4A of the Uniform Commercial Code in the United States indicates that an attachment order can only reach wire transfer either before a transfer is initiated or after payment is completed. In *Elliott vs. Peru*, the sovereign was forced to settle after a Belgian Court acting ex-parte and applying a pari-passu theory ordered Euroclear not to pay Peru's bondholders. Similar recent cases, cited below (such as *Red Mountain vs. Congo, Kinshasa*) applied a similar approach. Payment on restructured bonds in the name of a Trustee or a Fiduciary (rather than the sovereign) may be an avenue to circumvent this dilemma and is likely to be tested by sovereigns (Uruguay, 2003).

Experience and precedents from selected international litigation cases

In this section we provide recent evidence of legal asymmetry in the form of (i) wire transfer and (ii) attachment of international assets in jurisdictions that do not provide immunity to central banking assets. The discussion is based on the views of the capital markets, including opinions of certain leading law firms.¹²

The *Elliott vs. Peru* case illustrates that payments in the clearing system can be interfered with in continental Europe. The Southern District Court of New York had ruled in favor of Elliott. Elliott had enforcement orders not only from Brussels (as is widely cited) but also from Luxembourg, the United States, the United Kingdom, Germany, and Canada. In Brussels, the court ruled that if any member of Euroclear accepts a payment from Peru, the court would impose a BEF100 million penalty on the member. As a result, Euroclear members (i.e., holders of restructured Peruvian debt) were reluctant to accept payment from Peru. This forced Peru to settle with Elliot. In 2001, a California (U.S.) court reiterated the Elliott verdict in *Red Mountain vs. Democratic Republic of Congo (DRC), Kinshasa* and ordered nonpayment to other creditors unless Red Mountain was paid pro-rata—and it was paid in June 2002.¹³

Cardinal vs. Yemen reaffirmed that central bank immunity is not uniform throughout the major financial centers of the world. Germany's Bundesbank was aware of the international legal asymmetry that allows distressed funds, with prejudgment claims on a sovereign, to "shop" and seize assets in continental Europe. In this case, the plaintiff initiated proceedings on the merits in London where prejudgment attachment of the Yemeni Central Bank's assets was not possible under the U.K. Immunity Act. The plaintiff then obtained a prejudgment attachment of Yemeni Central Bank's assets in Frankfurt (where there was no jurisdiction) on

¹² Some legal scholars may have other views that relate to the legal asymmetry that stems from wire transfers and central bank immunity. Specifically, the practical implications of past judicial decisions concerning injunctive orders against clearing systems may vary among lawyers; differences may also arise in the interpretation of a central bank's immunity.

¹³ Red Mountain obtained a post-judgment order from a California court preventing DRC from making any payments on its external debt, unless it made proportionate payments to the plaintiff. This order illustrates that even without a contractual pari-passu clause, litigators can seek full payment.

the theory that the attachment was necessary to secure the rights of enforcement of the future English judgment, which in Germany would be recognized, pursuant to the Brussels Convention. This case was settled out of court in July, 2001.

Luecadia vs. Nicaragua is an ongoing case that highlights that central bank's assets are not immune in continental Europe. The lawsuit stems from the sovereign's incomplete buyback operation (under World Bank's International Development Association facility) in early 1990s.¹⁴ Many commercial creditors did not participate and have actively followed Leucadia's lead in taking Nicaragua to courts in the United States and the United Kingdom. Leucadia was awarded a favorable judgment in the Southern District court of New York in 1999 and tried to attach American and Continental Airlines payments to Nicaragua for flights to Managua. The Sovereign Immunity Act in the United States benefited Nicaragua prompting Leucadia to pursue attaching Nicaraguan assets in continental Europe. Currently, the sovereign is taking preventive measures by keeping all reserves in Basle, Switzerland, earning LIB ID *minus* roughly 25 basis points. At least two other vulture funds (van Eck and GP Hemisphere) have rulings in their favor that allow them to attach Nicaraguan assets, [van Eck is a member of the Argentine Bondholder Committee]. Another example of illiquid debt is orphan debt and is illustrated in Box 2.

IV. CONCLUSION

On a rating-adjusted basis, spreads on U.S. HY debt have typically served as a lower bound for EM debt spreads. In contrast, in the C-rated and defaulted segment, EM debt has traded at lower spreads than similarly rated U.S. HY debt. This paper explains the *seemingly anomalous* spread reversal in the distressed debt market via the returns from defaulted debt in EM that have been significantly higher than returns from similarly rated HY defaulted debt under Chapter 11. The investor base for the defaulted (or near default) debt asset class is very different from that for assets rated single B or higher.

Distressed emerging market debt has offered higher recovery rates than comparable HY corporate debt. Section II highlights that returns from the defaulted HY corporate market have annualized returns averaging 22 percent. Section ffl has shown that empirically, defaulted *liquid* EM debt that is negotiated via bilateral debt restructuring will be affected by the precedents set by Russia, Cote d'Ivoire, and Ecuador, etc., and have established "benchmark" annualized returns of 57 percent. Empirically, *illiquid* EM debt that resorts to international litigation for recovery have annualized returns averaging 50-333 percent, net of legal fees. Crossover investors may continue to increase their holdings of distressed EM debt in the future, albeit keeping it a small fraction of their overall portfolio, in favor of high yield corporate debt.

¹⁴ The World Bank provides grants via its IDA debt buyback facility to retire commercial creditors. The facility is largely funded by G-7 countries, the Scandinavian countries, and the Netherlands.

Summary statistics of returns from distressed debt:

Returns from Chapter 11 Filings Under Bankruptcy Annualized 22%	Returns from Sovereign Debt Restructurings Annualized 57%	Returns from International Litigation Annualized 50%-333%
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The paper also shows the existence of litigation arbitrage across international jurisdictions. To mitigate some of this arbitrage that exists in the illiquid debt market, continental Europe could consider extending to its jurisdiction the attachment immunity for foreign central banks assets that already exists in the United States and the United Kingdom. Also, adoption of rules to protect payments flowing to and from clearing systems (such as Euroclear, Clearstream etc.) would deter distressed debt investors from taking aggressive positions in EM debt. Currently, a small movement[^] say 5 percent, of the \$60 billion invested in HY *defaulted* debt could buy about \$10 billion of Argentine debt (at the current market price of 28-30 cents) and alter the landscape for debt negotiations with Argentina—especially if the new creditors are debt boutiques familiar with returns and trends from sovereign debt restructuring and international litigation.

Table 1. Recovery Rates from Sovereign Debt Restructuring

Country	Recovery Rate
Pakistan 05	No default
Ukraine 01	57.7%
Ecuador Disc	24.4%
Ecuador PDI	31.4%
Ecuador Par	16.9%
Ecuador 02	35.0%
Russia Prins	149.4%
Russian Ian	228.2%
Ivory Coast FLIRB	35.0%
Ivory Coast PDI	35.0%
Weighted Average Recovery Rate:	114.9%

Note: Average debt work-out period: 2 years.

Box 1. The Holdout Strategy Under Chapter 11

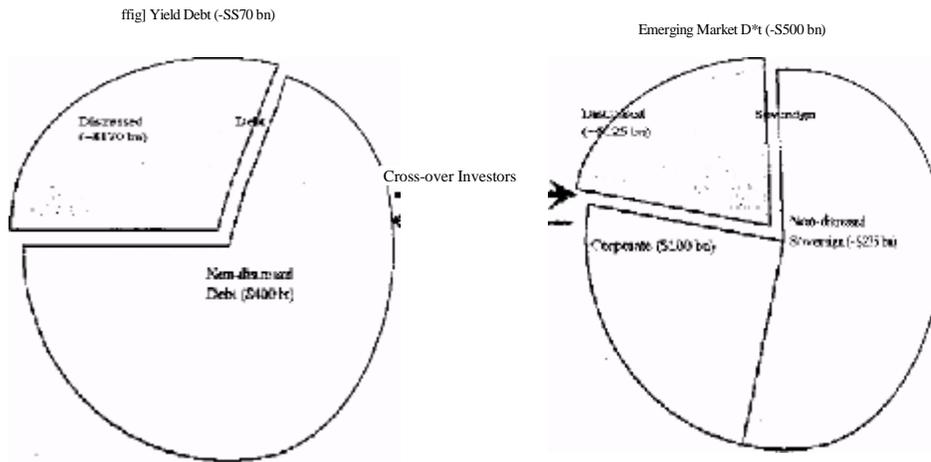
Under the United States Bankruptcy Code, approval of a plan to reorganize requires the approval of two-thirds of each class of creditors. In response to this requirement, some vulture funds attempt to acquire more than one-third of a company's subordinated debt, with the object of blocking approval of the plan. By delaying the disbursement of funds to creditors, the holdouts exert pressure on senior unsecured holders to strike a deal rather than suffer further losses of time value of money. As a quid pro quo for their consent to the plan, the holders of a blocking position in the subordinated paper demand a larger percentage recovery than they would be entitled to under absolute priority.

Box 2. Orphan Debt—An Example of Illiquid Debt

Distressed debt firms prefer holding illiquid debt to liquid debt since it is cheaper but carries legal rights identical to those of the relatively more expensive liquid debt. One example of illiquid claim is orphan bonds where the majority of a specific bond has either been extinguished via regular amortization prior to default or, has been given a new CUSIP (identity) number following a debt exchange. For example, market sources indicate that Argentine orphan debt was keenly sought after the default and has already been bought by distressed debt accounts. Preliminary data from Bloomberg and market sources indicates that three main denominations of Argentine debt were sought after by distressed debt accounts. These were the 12.125 percent coupon 2019's, where about \$102.5 million remained outstanding from the original \$1.43 billion; the 10.25 percent coupon 2030's, where about \$240.5 million remained outstanding from the original \$1.25 billion; and the 12 percent coupon 2031's, where about \$15.2 million remained outstanding from the original \$1.175 billion. In this example, *hold-outs have full payment in mind (including accrued interest) and with double digit coupons, interest arrears could be sizeable as the restructuring will most likely be protracted.*

Prominent distressed debt accounts in the United States (WL Ross & Co, Oaktree, Cerberus, Angelo Gordon, or their affiliates) usually look for inexpensive claims, provided opportunities from the U.S. corporate distressed debt market do not "crowd out" investment into junk emerging market debt.

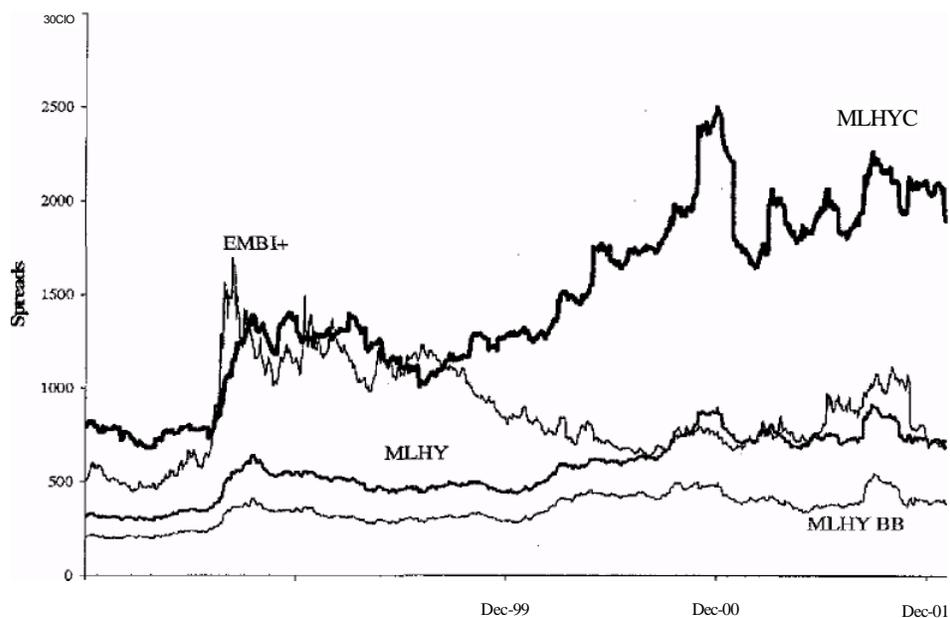
Figure 1: High Yield Distressed Debt and Emerging Market Distressed Debt



Source: Merrill Lynch, Size and Structure of the World Bond Markets 2001

Nb: Distressed debt are issues yielding at least 1000 bps over the U.S. Treasury yield or an equivalent benchmark.

Figure 2. MLHY Indices vs. EMBI+ Index



Source: Bloomberg and Merrill Lynch

MLHY: Merrill Lynch High Yield Index (all issues below BBB-)

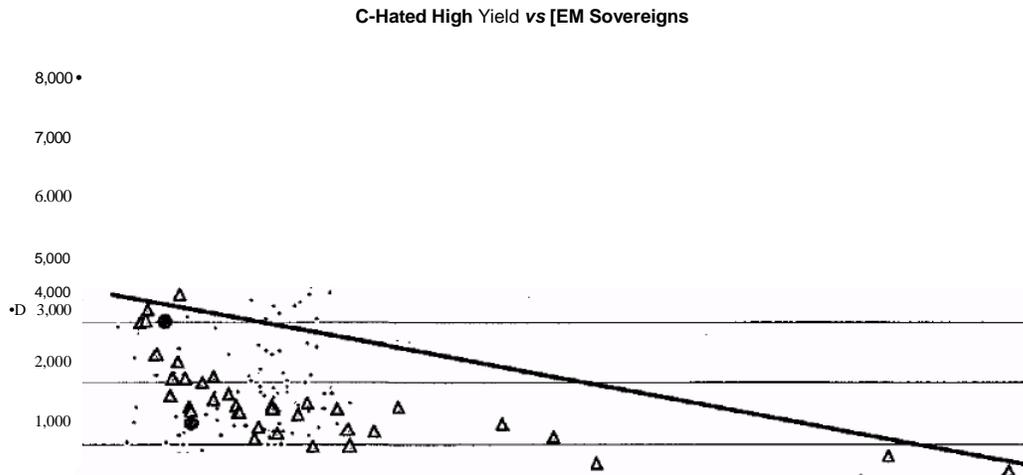
MLHY C: Merrill Lynch High Yield Index for all bonds rated C

MLHY BB: Merrill Lynch High Yield Index for all bonds rated BB

EMBI+: Emerging Morgan Bond Index (plus) from JPMorgan

The overall EMBI+ is generally wider than the overall MLHY index. However, as discussed in the paper, returns from holding defaulted and (near default) EM debt are higher than returns from holding similar rated HY debt.

Figure 3. C rated (and lower) HY Debt vs. Comparable International EM Sovereigns (Nov 2001)



^S£^L

V

10 15 Years
to Maturity

. C-Rated High Yield
E Algeria A
Argenfinna

Ecuador
I Ivory Coast
-LJ near (C-Rated High Yield)

K Indonesia
^ Nigeria

t* Pakistan
O Ukraine

Figure 4. Recovery Values Empirically Approximate a Beta Distribution

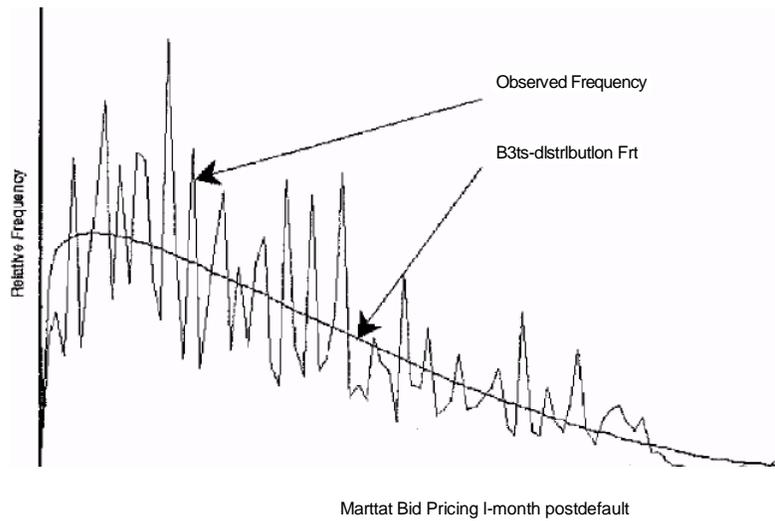
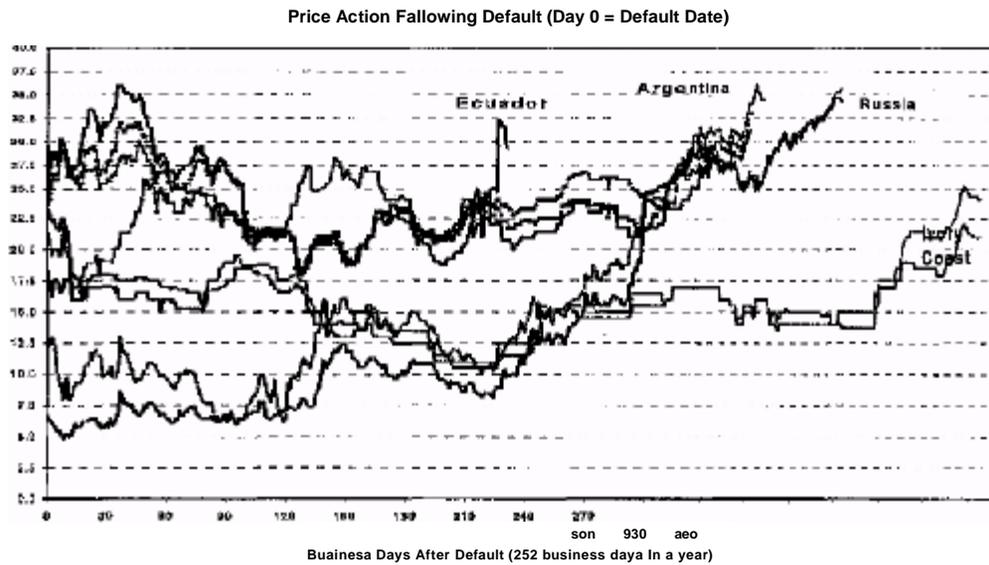


Figure 5: Prices of Sovereign Debt after Default



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Some Selected International Litigation Cases

	Creditor (original)	New Claim Holder (presently)	Debtor	Face Value of Claim	Litigation	Settled
*	Czech Republic	Cardinal	Yemen	\$8,2 million. Cardinal purchased claims at 12-13 cents on the dollar.	1999; attachment in favor of Cardinal Attaches CBY's assets in Germany; proceedings on "merit" were underway in U.K.	Cardinal settled with Yemen for about one-third of face value, (end July'01)
*	Transroad LTD	original	Uganda	\$5.5 claimed in 1990	Sued the Bank of Uganda in the U.K.	Court orders Uganda to pay \$20.6 million
*	Bank Arab Espanol, Spain	original	Uganda	\$1.8 million	Sued the government and the Bank of Uganda	Court orders to pay \$2.7 million
*	Yugoslavian Banks (two)	original	Uganda	\$10.5 million	Ugandan courts rule in favor of Yugoslavian Bank	Govt ruled in favor of the creditors
*	Yugo Export/Imports	original	Ethiopia	With interest arrears, claims over \$100 million	Yugo did not participate in the IDA buyback ; wants full payment	Ethiopia has approached the International Chamber of Commerce for arbitration
*	Booker Pic., U.K.	original	Guyana	\$6 million (via DP document)	Commenced mid-July 2001— in progress/ under arbitration	Booker's legal representative Simons & Simons in arbitration with icsro
*	International Bank of Miami (conduit for many commercial Creditors who opted out of the IDA buyback)	Leucadia National Corporation and recently Van Eck (a member of Argentine bondholder committee)	Nicaragua - keeping assets in Basle, Switzerland, earning LIB ID minus 25 bps.	\$85 million (now \$96 million with interest)	1999; Leucadia awarded judgment by NY District. Could not attach assets via American and Continental airlines. Won judgment in U.K.	No; Leucadia, van Eck, and GP Hemisphere trying to attach assets in Switzerland where Nicaragua keeps reserves.
*	Midland Bank - lead loan syndicate	Ex-Printer sold to Winslow (Bahamas)	Cameroon	\$8 million (with litigation now \$19.9 million claims bought significantly below par).	1997; Favorable judgment for Winstow in London. Attaches sovereign's Embassy assets	Govt. appealed unsuccessfully; asked for an "exequatur" in Paris and appealed to Courtd Cassation, Supreme Court of Appeal

	Creditor (original)	New Claim Holder (presently)	Debtor	Face Value of Claim	Litigation	Settled
	Laboratories Bago, a commercial creditor from Argentina		Honduras	\$1.5 (\$17 with accrued interest from 1975)	First initiated in 1989; still in progress	No (IDA buyback proposal refused)
*	Midland Bank - lead loan syndicate	Del Favero (Italy)	Cameroon	Ecu 3.8 million	1998; Favorable judgment for DelFavero m London.	Attached £ 150,000 in London; Cameroon attempts retrial in Paris
*	BNP & other French banks	No intermediary but Lazard was financial advisor to the Government	Madagascar	\$55 million	No; 1997 (under last days of Zafi's govt.)	Paid full face value;- market value at the time was 10 cents.
*	Not known	Red Mountain - also a member of Argentine Bondholder Committee	Congo, Kinshasa	\$27 million, with accrued interest and legal fee	Red Mountain won in U.K., and has attachment order in U.K./Europe. Obtained recognition of UK judgment and enforcement in California,	U.S. Judge has ordered injunction against DRC to pay any creditor prior to Red Mountain. Settled in June 2002 for \$8.2 million.
*	Chemical Bank	Elliott Assoc.	Cote d'Ivoire	\$8-10 million	Default in 1981; settled in 1994	Settled
*	ITOH Middle East, Bahrain		Congo, Brazzaville (recent case in progress)		Sought and won injunction in France; can intercept wire transfers	Possible, since money is transferred by French Development bank is via wire
*	Equator Bank	via Bay Street to Water Street Bank & Trust	Republic of Congo	\$6-7 million	Default in 1981; settled in 1994	Settled
*	Kuwait	Camdex	Zambia	\$40-45 million purchase at fraction of face value	Won attachment with Bank of England on Zambian currency notes (from the printing press)	Settled in full for \$100 million (with interest arrears)

	Creditor (anginal)	New Claim Holder (presently)	Debtor	Face Value of Claim	Litigation	Settled
*	Dresdner Bank	Water Street Bank & Trust	Poland (Bank Handlowy of Warsaw)	Swiss Francs 5 million (including arrears)	Default in 1980; 1995	Settled
*	Lloyds Bank Pic	Water Street Bank & Trust	Ecuador (under MYRA)	\$6 million	1995	Paid in full
*	ING and Swiss Bank Corp.	Elliott Assoc.	Peru	\$64 million with interest and legal fee (purchased at \$21 million)	Initiated 1995; Elliot secured an order of attachment in 2000	Paid fully, \$64 million in final settlement
*	Lloyds Bank Pic.	Water Street Bank and Trust	Panama	For \$48 million initiated in 1996	\$78 (with legal and interest arrears); 1998	Settled in full
*		Dart	Brazil (under Brazil's Brady deal)	\$1.4 billion principal -*- \$80 million interest	No attachment or accelerated payment but payment in full on original maturity schedule	Is being paid in full via pass through Trust Vehicle (original debt instruments securitized)
*	Societe General - original loan syndicate	via Croesus emerging market fund, sold to Elliott Associates	Turkmenistan	\$3.8 million.	Suing State Bank of Turkmenistan, Ministry of Foreign Economic Affairs and the Government	Paid in full

Sources: Law firms of Baker & Hostetler-Washington offices; Clifford Chance; ING Barings- Paris office; Public Resources International, N.Y.; IMF EDs offices; OFOD files; MED files; U.S. Treasury information; conversations with Lazard, Paris office.