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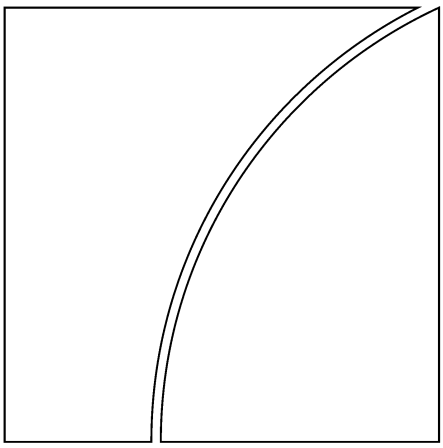

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Developing country economic structure and the pricing of syndicated credits

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Abstract

We analyse in an extensive risk return framework the determinants of the pricing of 5,000-plus syndicated credits granted to developing country borrowers between 1993 and 2001. Syndicated loans with riskier characteristics or granted to riskier borrowers are found to be more expensive than others, although the effect of purely microeconomic price determinants is in several instances weaker when macroeconomic conditions in borrowers' countries are also controlled for. In addition to individual loan or borrower considerations, lenders seem to focus more on macroeconomic factors to determine the pricing of their loans, such as the level of exports relative to debt service in the developing countries where the borrowers are located. For some, this means restricted access to external financing. We detect possible evidence of lenders exploiting their market power. Certain banks appear to charge a premium to change initially agreed loan terms. Furthermore, discounts are granted on developing country loans provided by small groups or clubs of relationship banks rather than on facilities with the participation of a large number of institutions.

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Contents

1. Introduction[1]

Grinols and Bhagwati (1976) report that some developing countries are excessively dependent on foreign funds or aid, which leaves them unable to escape the poverty trap by their own means. Balassa (1986) notes differences in the response of inward- and outward-oriented countries (ie countries relying or not on international trade for their economic growth) to external economic shocks, partly because the former depend excessively on foreign funds and do not have the right policies to make use of these funds, which eventually results in lower economic growth rates and reduces their creditworthiness. Economic problems in developing countries have often triggered major international financial crises over the past three decades. The Mexican crisis of 1982 was among the first crises to have a major impact on the functioning of international capital markets, with the development of Brady bonds (Rhodes (1996), p 10). More recently, the financial crises in South-east Asia (1997) and Russia (1998) also had a major impact on international lenders' behaviour (see, for instance, IMF (1998)). Several recent papers discuss bank lending to emerging markets (Van Rijckeghem and Weder (2001), Goldberg et al (2000), Goldberg (2001)) and crises (Kaminsky and Reinhart (1999)). The sustained availability of foreign credit to developing countries is viewed as one means for deepening capital markets in these countries and potentially reducing the severity of crises when they occur (Goldberg (2001)).

The determinants of bank lending to developing countries have been analysed in the existing academic literature within the risk return framework, but the conclusions of earlier articles have often been only partial or contradictory. The availability of a comprehensive database of individual syndicated credit facilities allows us to apply the risk return framework to study the determinants of syndicated lending to developing countries in a more systematic manner. This is the analysis we undertake in this paper.

One stream of academic literature, which started to appear in the late 1970s/early 1980s with the Latin American financial crisis, examines the effects of sovereign borrowers' macroeconomic characteristics such as solvency and liquidity on the financing conditions obtained by them. More recent papers on secondary bond spreads study the determinants of spreads, including local and global factors (Mauro et al (2002), Forbes and Rigobon (2002)). Other papers on market discipline analyse the interest rates charged to different banks according to bank characteristics and macroeconomic variables (Martinez Peria and Schmukler (2001)).

Further articles explore the microeconomic determinants of loan pricing (Kleimeier and Megginson (2000), Eichengreen and Mody (2000)), such as the borrower's business sector, loan purpose, maturity and size, and risk mitigants.

This paper aims to bring together these two streams of literature and, relying on a developing country data sample that is more comprehensive in terms of information content and also covers the Asian and Russian financial crises, makes a number of important contributions:

- Most previous authors have used spreads over a benchmark interest rate (eg Libor) to study syndicated loan pricing. However, this does not represent the true economic cost of loans, as additional pricing factors, such as fees, are typically charged in loan syndications. Our empirical analysis looks at the determinants of the full economic cost of loans, distinguishing between spreads and fees.
- Contrary to the existing literature, which considers the effects of explicit guarantees, we distinguish between the notion of explicit guarantees and implicit guarantees as determinants of loan pricing. Explicit guarantees are formal commitments by third parties while implicit ones can arise from ownership of the borrower by a parent company. We find different effects on loan pricing.

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- The relative influence of micro- and macroeconomic determinants of loan pricing is analysed. Most of the existing literature focuses on these two groups of factors separately. In accordance with previous authors, we find that individual characteristics of borrowers and loans generally influence the pricing of credits in the expected way (ie riskier loans or borrowers correspond to higher pricing). However, this effect is in several instances weaker when macroeconomic conditions prevailing in the countries of the borrowers are also controlled for. Microeconomic factors viewed favourably on their own by lenders, such as implicit financial safety nets for financial sector borrowers, or loan transferability, lose their significance or can even penalise borrowers when the possibility of macroeconomic distress arises.
- The implications for syndicated loan pricing of a variety of market structure indicators for this loan market are also evaluated to answer questions that the existing literature does not examine when supply side effects are not integrated with the demand side. Are loans granted by smaller syndicates to developing country borrowers cheaper than those granted by larger ones, and are borrowers who have used the market more extensively able to obtain cheaper rates than others? Does a transferable loan (this characteristic is a proxy for the liquidity of the secondary loan market) command a price discount? We find that countries most heavily dependent on syndicated loans as a means of external financing are charged higher prices for additional credit facilities, as a result of banks charging more for higher perceived concentration of risk, or potentially exploiting their market power.

The rest of this paper is structured as follows. Section 2 provides a brief historical perspective on syndicated lending to developing countries. We present our dataset and methodology in Section 3. Section 4 describes and discusses our regression results. We conclude in Section 5.

2. Historical perspective

Syndicated loans have always been an important source of international financing for developing countries and indeed were in the limelight during the Mexican debt moratorium of August 1982, since most Latin American debt then consisted of syndicated credits. The international market for syndicated credits saw its first large wave of development in the 1970s with lending to developing country borrowers, followed by a dominance of bond markets over loans in the 1980s, until syndicated credits again became an indispensable source of finance in the 1990s, largely complementary to securities.

Syndicated lending has been as significant as bond financing since the first half of the 1990s (Table 1). While international developing country bond issues rose from negligible levels at the beginning of the 1990s to more than $120 billion in 1997, before falling back to $82 billion in 2000 after the Asian crisis, loan commitments have followed the pace, reaching levels comparable to bond issues. Signings of international developing country loan facilities actually exceeded bond issuance just about every other year, totalling $71 billion in 2001. Robinson (1996) notes that “the rapidity with which [the Latin American syndicated loans] market has recovered from the problems [of the Mexican crisis], its growing size and increasing breadth of participation indicate that this market has staying power”.

As Table 2 below shows, in times of financial crises in developing countries, syndicated lending generally tended to fall quite rapidly (refer to the statistics for 1985 and 1998) and took some time to pick up again. This form of lending thus seems very much market-oriented and determined by lenders’ short-term considerations, based on macroeconomic conditions in the borrowers’ countries. This provides an important justification for the inclusion of macroeconomic variables in our analysis of the determinants of syndicated lending to emerging markets, for which we now present the data used.

Table 1: Various sources of international financing for developing countries, $bn

Gross announcements	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
International syndicated credit facilities	26.5	26.2	46.6	76.6	89.3	140.1	75.8	56.7	95.7	71.1
International bonds	20.6	47.1	38.1	36.9	103.3	120.9	77.3	76.6	81.6	105.6
International equities	6.7	7.7	17.3	8.9	15.1	26.0	10.1	22.7	44.0	11.6

Sources: Dealogic Loanware; Bank for International Settlements.

Table 2: Announcements of international syndicated credit facilities by regions, $bn

	1980	1982	1984	1985	1986	1988	1989	1992	1994	1996	1998	2000	2001
Industrialised countries	39.9	41.0	16.1	9.5	18.1	91.1	122.6	159.9	441.6	729.6	821.0	1,332.2	1,280.1
Developing countries	41.9	45.8	13.5	9.3	10.4	10.5	26.2	26.5	46.6	89.3	75.8	95.7	71.1
Other[1]	1.0	1.4	0.5	0.2	1.1	0.2	0.2	7.8	13.7	20.3	8.5	37.8	37.7
Total	82.8	88.2	30.1	19.0	29.6	101.8	149.0	194.0	501.9	839.3	905.3	1,465.4	1,388.8

[1] Including offshore centres and international organisations.
Sources: Bank of England (Allen (1990)); Bank for International Settlements; Dealogic Loanware.

3. Data and methodology

We work with a sample of 10,304 syndicated credit facilities granted to developing country borrowers from 1993 to 2001. These data were extracted from the database of Dealogic Loanware, a primary market information provider on individual syndicated credit facilities, in particular the characteristics of the loans (amount, maturity, currency, pricing) and the borrowers (name, nationality, business sector). A large part (80%) of the facilities were contracted in US dollars.

We also use macroeconomic data for our study, corresponding to characteristics of the borrowers' countries. Our data sources for these variables were the BIS-IMF-OECD-World Bank Joint Statistics on external debt, the IMF's *International Financial Statistics*, the IMF's *World Economic Outlook* database and the International Institute of Finance's developing country database. We linked the macroeconomic variables and the microeconomic information contained in the loans database on the country and the date. For instance, for a loan granted to an Argentine borrower in 1995[2], our real GDP growth variable represents Argentina's real economic growth for 1995.

3.1 Loan pricing

In our sample of 10,304 syndicated loan contracts, the spread charged to the borrower (over Libor, Euribor or another pricing reference) is available for 6,831 deals. Several research articles (Cantor and Packer (1996), Kamin and von Kleist (1999), Kleimeier and Megginson (2000)) have analysed this indicator. However, spreads are only one component of the true economic cost of a syndicated credit facility that the borrower has to pay, with the rest corresponding mostly to a variety of fees. The pricing structure of a syndicated credit is described in detail in Appendix 1. In our loan pricing analysis we look at the so-called *drawn return*, a proxy for the full economic cost of loans priced over Libor. The drawn return, which can be calculated for 5,010[3] observations in our sample, is the annual return expressed in basis points (spread plus utilisation fee, participation fee, facility fee and underwriting fee) that will accrue to a senior fund provider if the facility is drawn throughout its life.

3.2 Explanatory variables

3.2.1 Macroeconomic explanatory variables

Our macroeconomic variables can be classified into six subgroups: indicators of (1) solvency, (2) liquidity, (3) economic growth and its sustainability, and (4) economic openness for the country of the borrower; (5) outside economic factors; (6) sovereign ratings.

[2] In the case of loan facilities already funded by the lenders but not yet signed, we took the funding date as a reference.

[3] This sample size is considerably larger than in several other studies analysing the determinants of developing country credit spreads; Edwards (1986) and Kamin and von Kleist (1999) use 113 and 358 loan spread observations, respectively.

1. Solvency of the borrower's country

The ratios of *external debt*[4] *to GDP* and of *debt service to exports of goods and services* are solvency measures that gauge the burden of a country's debt relative to its earnings. The higher this ratio, the more likely the country is to be distressed and therefore to default. Hanson (1974), Harberger (1980), Sachs (1984), Eaton and Gersovitz (1981) and Edwards (1983) discuss how higher debt/export or debt/output ratios result in higher sovereign loan spreads. Boehmer and Megginson (1990) further find that developing countries' deteriorated solvency can reduce the secondary market price of their debt. We expect the ratio of external debt to GDP to raise the pricing of syndicated credits, therefore. We also employ an indicator of whether the borrower's country has received *assistance from the IMF* – defined as *use of Fund credit by operating the General Resources Account (GRA)* during the year in which the syndicated credit was granted – as a proxy for potential problems in the economy of the country concerned. We expect this indicator to be positively related to the pricing of loans. The use of this variable is equivalent to testing the effects on pricing of a *sovereign debt rescheduling history* or *debt repudiation*, which several authors have done. Gooptu and Brun (1992) find that the declaration of a moratorium on commercial bank debt service payments has a negative impact on the availability of short-term credit lines. Besides, the existence of a current World Bank or IMF adjustment programme is a significant determinant of the amounts of short-term trade lines that are available during a given year from commercial banks. Boehmer and Megginson (1990) find that the level of incurred payment arrears, the unilateral debt moratoriums by Brazil and Peru and the loan loss provisions by US banks have a significantly negative impact on secondary loan prices on these borrowers' debt. The adoption of legislation for debt conversion programmes is associated with a decline in secondary market loan prices for the sovereign debt of the countries concerned.

2. Liquidity of the borrower's country

Relatively high values of the ratio of *short-term external debt to total external debt* indicate that a country can be the victim of a liquidity crisis if it cannot roll over existing credits – especially if its short-term debt exceeds its foreign currency reserves. We expect this ratio to be positively associated with the pricing of syndicated loans. The ratio of *reserves to debt or reserves to short-term debt* is also used as an indicator of such vulnerability. The *ratio of international reserves to GDP* measures the relative level of international liquidity held by a sovereign borrower and is determined to have a negative effect on spreads (Edwards (1983)). However, Gersovitz (1985) argues that in a willingness-to-pay framework, a country can choose not to use reserves for debt service if it can protect them from seizure. The very liquidity of resources in the form of reserves may make them ideal for surviving sanctions after default. The first period after repudiation may find the country most vulnerable since it will take time to set up alternatives to the banks for facilitating international trade. A foreign exchange war chest can be especially important in this transition period. In the early 1980s, rumours that developing countries were choosing to rebuild reserves rather than service debts were viewed as particularly ominous in this context. Argentina, for instance, appeared prepared to threaten its creditors with having to classify its loans as non-performing rather than use its increased reserves for debt service (Gersovitz (1985)). Therefore under a willingness-to-pay approach to foreign borrowing, higher international reserves may reduce creditworthiness and will result in an increase in the country risk premium.

High values of the ratios of *investment to GDP* and *credit to GDP* can forecast a future improvement in the country's general economic situation and are also signs of confidence on the part of banks and investors, provided they do not spill over into an unsustainable credit boom (see below). The *investment/GDP* ratio captures the country's perspectives for future growth. As shown in Sachs (1984) and Edwards (1983), it is negatively related to spreads. However, the willingness-to-pay approach also applies to *economic investment*. Gersovitz (1985) argues that borrowers may use foreign funds to reduce the cost of the penalty in case of default. Thus, higher investment ratios will reduce creditworthiness and increase spreads. As for the ratio of credit to GDP, it can be best thought of, in a cross section, as an indicator of financial depth or development.

3. Economic growth and its sustainability

Real GDP growth is an indicator of the evolution of the country's wealth, and relatively high values can point to the debt burden becoming easier to bear in the future. Eichengreen and Mody (2000) find that high country *growth rates* enhance the ability to repay and reduce spreads; highly variable export growth, on the other hand, raises the risk of non-payment and increases the spread. At low levels of

[4] This includes both private and public debt.

financial development and low growth rates, policy measures to improve financial intermediation bring value and reduce the costs of external borrowing. Even so, when they spill over into unsustainable credit booms, they are regarded by the markets with alarm and worsen the terms of access to external funds. To all intents and purposes, high values of the real GDP growth variable are supposedly associated with relatively cheaper syndicated credits, unless they reach unsustainable levels. In order to control for the sustainability of growth, we also included *inflation* as an explanatory variable in our model. As Cantor and Packer (1996) explain, "a high rate of inflation points to structural problems in the government's finances. When a government appears unable or unwilling to pay for current budgetary expenses through taxes or debt issuance, it must resort to inflationary money finance [ie to printing money]. Public dissatisfaction with inflation may in turn lead to political instability." We expect the inflation rate to be positively associated with the pricing of syndicated credits.

4. Economic openness

Relatively high values of the ratio of *imports to exports* and *imports to GDP* can point to excessive foreign dependence of the country in the sense that it has to import a relatively high amount of goods and services in order to export a given amount of goods and services or to generate a unit of domestic economic wealth. As suggested by Frenkel (1983) and Balassa (1986), to the extent that more open economies are more vulnerable to foreign shocks, we expect that higher values of the ratio of imports to GDP will raise loan pricing. Balassa (1986) notes that, between 1973 and 1983, outward-oriented countries suffered considerably larger external shocks than inward-oriented ones in the first instance[5].

5. Outside economic factors

We included as explanatory variables the *country's purchasing power parity share of world GDP*: this is an indicator of the country's economic weight in the world. We also controlled for *growth in world trade*: if world trade is booming, one could expect that there is more competition for funds as these are more difficult and therefore more expensive to come by. We also included the *yield on three-year US Treasury bills* in our regression models in order to control for the price of the alternative, risk-free investment available to the lenders. The extent to which lenders are willing to extend funds to potentially riskier borrowers from developing countries instead of investing in US Treasuries is an indicator of their appetite for risk. In a study of the evolution and determinants of US banks' claims on developing countries, Goldberg (2001) suggests that foreign claims of US banks are correlated with real US interest rates, but generally uncorrelated with foreign real interest rates. Tighter real lending conditions in the United States are associated with lower real claims on industrialised countries and higher claims on Latin American countries. Finally, we incorporated the JP Morgan Emerging Market Sovereign Bond Index as a proxy for general market sentiment towards emerging markets. Higher values of this index correspond to adverse market sentiment and are expected to result in higher loan prices and vice versa.

6. Sovereign ratings

Cantor and Packer (1996) find that a number of rated countries' macroeconomic characteristics are reflected in their sovereign ratings, especially per capita income, GDP growth, inflation, external debt, level of economic development, and default history. For the purposes of econometric analysis, we converted the Standard & Poor's sovereign ratings into five rating classes, using the conversion table shown in Appendix 2. We associated these rating classes with the credits based on the nationality of the borrower and the date of the loan facility. The resulting distribution is shown in Table 3 below. We expect the good rating classes to be negatively associated with the pricing of syndicated credits and vice versa.

[5] Nevertheless, Balassa also demonstrates that while outward-oriented countries accepted a temporary decline in economic growth in the immediate aftermath of external economic shocks in order to limit reliance on foreign borrowing, their economic growth accelerated subsequently, owing to the output-increasing policies applied.

Table 3: Number of syndicated loan facilities corresponding to each sovereign rating class

Rating class	Ratings included[1]	Number of observations
Missing	-	281
Default or not rated or not disclosed	SD, NR, R	1,257
Poor	CC to BB-	1,823
Speculative	BB to BBB-	2,832
Investment grade	BBB to A	2,856
Best	A+ to AAA	1,255
	Total	10,304

[1] See Appendix 2 for more detail.
Sources: Standard & Poor's; Dealogic Loanware; authors' calculations.

3.2.2 Microeconomic explanatory variables

Our microeconomic explanatory variables pertain to loan maturity and size, the existence of risk mitigants, business sector and loan purpose, as well as the structure of the market for syndicated loans granted to developing countries.

Maturity indicates the lifetime of the loan, expressed in years, and hence the period for which the lender is exposed to credit risk. Kleimeier and Megginson (2000) report that loan maturity and spread are significantly and positively related, except for project finance loans. The effect of maturity on the pricing of loans is generally not found to be uniform in the academic literature (see, for instance, Smith (1980)).

We also included the natural logarithm of *loan size* (and the resulting bank exposure) expressed in millions of US dollars. Kleimeier and Megginson (2000) confirm a negative and significant relationship between loan prices and size for most syndicated credits in their sample, except for project finance loans. This could point to the ability of more creditworthy borrowers to arrange larger loans or to the presence of economies of scale when banks arrange syndicated credit facilities.

We computed dummies to indicate the presence of *risk mitigants*, such as the loan being *secured* (notably on an asset or receivables the borrower might have), *sponsored* or *explicitly guaranteed* by a third party. Eichengreen and Mody (2000) do not control for the presence of risk mitigants. Kleimeier and Megginson (2000) do include dummies for the existence of a third-party repayment guarantee or of collateralisable assets; these are explicit guarantees, though. While the authors find the presence of a *third-party guarantee* to reduce the spread on most syndicated credits, the effect of collateralisable assets depends on the type of credit. As an innovation on this previous article, we distinguish between *explicit guarantees* (written pledges from a third party to guarantee the loan) and *implicit guarantees* (eg when the borrower is a developing country subsidiary of a multinational firm from an industrialised country) and examine their effects separately. In the rest of the existing empirical literature, the findings about the effects of risk mitigants on the pricing of loans are mixed (Smith (1980), Bester (1985), Besanko and Thakor (1987), Smith and Warner (1979), Berger and Udell (1990)).

We also calculated dummies to identify subsamples within our dataset that corresponded to particular *borrower business sector* and *loan purpose* groups that we might expect to have different risk characteristics and therefore incur different pricing of their loans. Our control for the borrower business sectors and the industrial structure of borrowing countries is more refined than in Kleimeier and Megginson (2000), who determine a dummy variable for the existence of collateralisable assets based on the borrower's industry, and Eichengreen and Mody (2000), who control for only four industrial sectors: manufacturing, financial services, other services, government. The authors report that when *financial institutions* borrow on the syndicated loan market, they seem to be able to obtain lower spreads than non-financial borrowers. This is consistent with the emphasis some observers have placed on tacit or explicit guarantees provided to financial institutions by monetary authorities (lenders of last resort). We created 10 *business sector* subcategories: construction and property, financial services (banks), financial services (non-banks), high-tech industries, infrastructure-related industries, services provided to the population, services provided by the state, traditional industry, transportation, and utilities firms, based on the 188 groups described in Appendix 3. Our *loan purpose* classifications are partially based on Kleimeier and Megginson (2000), who notably report that merger and acquisition purpose loans are relatively more expensive than others. Eichengreen and Mody (2000) further find that spreads on loans to finance infrastructure projects are usually higher than on other types of loans. We distinguished between the following loan purposes: corporate control, capital

structure, general corporate purpose, project finance, property, transport, other or not available and multipurpose. For a full list of purpose codes included in the various groupings, please refer to Appendix 4.

3.2.3 Market structure indicators

We included variables to control for the *structure of the loan market*, an approach which has not been adopted so far in the literature on the pricing of developing country syndicated credits. First, we included a dummy variable showing whether the credit facility is *transferable* or not. This is an indicator of the market's liquidity, ie the extent to which the loan can be traded on the secondary market. It may be easier for a bank to offload loans from its balance sheet and manage its exposure to certain developing country borrowers if the loans concerned are transferable.[6] This may have an impact on the pricing of the loans. Second, we used a dummy to indicate if the amount of the loan has been *increased* from the original amount. When this dummy is equal to 1, it can indicate that the market had a positive reaction to the deal during syndication or that the banks have shown flexibility in adapting their financing package to a change in the borrower's needs. Third, we controlled for the *size of the syndicate* of lending banks for each facility. We defined a first dummy to indicate the case when the number of fund providers was greater than two, and a second one to indicate that the deal is a *club deal* or a *bilateral deal*.[7] The conditions of bilateral or club deals are expected to reflect the relationship of the borrower to its core banks and may therefore be more favourable than on other deals. Fourth, we included among our control variables the *share of the borrower's country in total lending to all countries* during the year concerned: this ratio indicates the relative presence of the country on the market for syndicated credits relative to others. A high country share may indicate relatively high financing needs for a nation, possibly leading to more expensive credits, but also, conversely, to an established presence on the market, resulting in more favourable financing conditions.

3.3 Descriptive statistics

As an exploratory analysis, we now present some descriptive statistics to help understand the characteristics of our sample[8] of loans and its subsamples, in particular in terms of average, median and dispersion.

As Table 4 below shows, with the exception of 1996, the mean and the median of the drawn return in our sample have been following a generally upward trend, peaking in 1999 – the mean was then 252 basis points, possibly reflecting higher risk premia demanded from developing country borrowers in the aftermath of the Asian and Russian financial crises. Loan prices subsequently levelled off. The mean and the median are quite close to each other, suggesting a symmetrical statistical distribution of the data. Higher drawn returns have generally been associated with higher dispersion. Table 5 further suggests that loan size has been increasing over time; even so, the relatively high standard deviation indicates dispersion in loan sizes, although the coefficient of variation is relatively stable.

Loan size and drawn return seem to differ significantly according to the borrower's industry (Table 6), with the highest median loan size associated with the utilities sector ($91 million) and the lowest one with the construction, property and non-bank financial services sectors ($30 million). We observe the highest median drawn returns for infrastructure- and population-related services, more than twice as high as the median return observed for the transport industry (the sector with the lowest median drawn return).

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[6] Although this may not be an indispensable condition if credit derivatives are used.

[7] A club deal is reserved for a limited number of insider banks instead of being widely sold down on the market; in a bilateral deal, there is only one participant bank.

[8] Our comprehensive sample is approximately equal to the population.

Table 4: Evolution of drawn return (bp) over time

Year	N	Mean	Median	Standard deviation	Coefficient of variation
1993	317	120.4	100.0	74.7	0.62
1994	400	125.3	111.2	74.7	0.60
1995	615	124.0	95.0	105.7	0.85
1996	945	111.9	79.5	95.0	0.85
1997	1,132	132.5	92.8	116.5	0.88
1998	558	180.4	145.0	137.6	0.76
1999	412	252.2	225.0	181.0	0.72
2000	552	190.6	150.0	133.1	0.70
2001[1]	79	204.8	187.5	139.1	0.68
Total	5,010	149.0	106.7	125.3	0.84

[1] first quarter data only.
Sources: Dealogic Loanware; authors' calculations.

Table 5: Evolution of loan size ($m equivalent) over time

Year	N	Mean	Median	Standard deviation	Coefficient of variation
1993	317	62.2	35.0	104.2	1.68
1994	400	84.1	42.6	166.2	1.98
1995	615	83.7	50.0	167.0	2.00
1996	945	77.8	44.3	123.1	1.58
1997	1,132	107.4	50.0	244.4	2.28
1998	558	126.7	66.3	209.9	1.66
1999	412	129.2	77.6	217.1	1.68
2000	552	140.8	99.3	172.7	1.23
2001[1]	79	162.7	75.0	390.2	2.40
Total	5,010	102.6	50.0	194.1	1.89

[1] first quarter data only.
Sources: Dealogic Loanware; authors' calculations.

In Table 7 we notice that better borrower country sovereign ratings correspond to lower drawn returns. Besides, except for the worst Standard & Poor's rating class, the median maturity of poor rating classes (eg class 1 – "poor") is typically short (never above two years between 1993 and 1999), potentially indicating that lenders are reluctant to extend funds to poorly rated borrowers for longer periods of time. This may leave these countries in a maturity trap, if the maturity of fresh loans is always only sufficient to refinance maturing credits.

Table 6: Distribution of loan size and drawn return by industry

Industry	Loan size ($m) N	Mean	Median	Standard deviation
Construction and property	170	46.2	30.0	42.1
Financial services – banks	897	83.5	50.0	109.4
Financial services – non-banks	501	63.0	30.0	110.7
High-tech industries	825	104.9	56.8	156.4
Infrastructure	17	89.1	70.0	70.0
Population-related services	149	86.9	50.0	123.0
State-provided services	249	191.4	90.0	354.3
Traditional industry	866	94.2	50.0	170.7
Transport	521	75.7	39.7	207.6
Utilities	794	163.1	91.2	282.3
Industry	Drawn return (bp) N	Mean	Median	Standard deviation
Construction and property	170	131.1	100.0	94.5
Financial services – banks	898	140.6	96.2	134.3
Financial services – non-banks	501	124.0	100.0	96.2
High-tech industries	826	150.3	105.0	132.1
Infrastructure	17	233.0	188.0	163.1
Population-related services	149	258.6	203.6	180.0
State-provided services	249	139.0	100.0	113.5
Traditional industry	866	171.9	130.8	126.6
Transport	522	98.3	75.0	79.6
Utilities	794	164.3	137.5	120.6

Sources: Dealogic Loanware; authors' calculations.

Table 7: Summary statistics by borrower country sovereign rating and year

Median drawn return (bp) by borrower country sovereign rating and year									
Rating class	1993	1994	1995	1996	1997	1998	1999	2000	2001[1]
Default or not rated or not disclosed	150.0	160.0	172.3	150.0	138.3	82.0	105.0	117.7	
Poor	136.3	150.0	170.0	155.0	182.5	220.8	250.0	200.0	249.6
Speculative	142.8	138.6	120.6	90.0	76.4	158.0	255.6	190.0	236.0
Investment grade	97.5	100.0	100.0	82.5	80.0	85.0	132.5	106.6	74.0
Best	70.8	66.0	55.0	61.1	53.2	63.0	85.0	73.7	77.2
Median loan size ($m equivalent) by borrower country sovereign rating and year									
Rating class	1993	1994	1995	1996	1997	1998	1999	2000	2001[1]
Default or not rated or not disclosed	32.0	40.0	36.0	40.3	50.0	120.0	100.0	100.0	
Poor	43.5	50.3	80.8	60.0	50.0	61.8	60.0	95.0	72.5
Speculative	50.0	42.8	67.5	75.0	50.0	75.0	83.0	100.0	70.0
Investment grade	29.0	31.0	40.0	40.0	48.4	52.7	86.5	91.9	95.0
Best	40.0	50.0	33.4	30.0	56.3	60.0	52.5	77.0	60.0
Median maturity (years) by borrower country sovereign rating and year									
Rating class	1993	1994	1995	1996	1997	1998	1999	2000	2001[1]
Default or not rated or not disclosed	5.0	5.0	4.0	5.0	5.0	7.0	8.4	7.0	
Poor	1.5	2.0	1.1	1.5	1.0	1.0	2.0	3.3	3.0
Speculative	5.0	2.5	4.2	5.0	5.0	3.0	4.5	3.3	4.0
Investment grade	5.0	5.0	5.0	5.0	5.0	5.0	3.0	3.0	3.0
Best	3.0	5.0	5.0	3.0	5.0	5.5	3.0	3.0	3.0

[1] first quarter data only.
Sources: Dealogic Loanware; authors' calculations.

We now present the methodology used to further analyse these data patterns.

3.4 Methodology

As many of our independent variables are qualitative dummies, a hedonic (ie quality-adjusted) model seems particularly useful for the task at hand. Hedonic prices are the implicit prices of attributes of a differentiated product. Following the approach of Linneman (1980),[9] our equations are of the form:

$\ln DRAWN_i = \alpha + \Sigma_k \beta_k X_{ik} + \Sigma_m \gamma_m Y_{im} + \Sigma_n \phi_n Z_{in} + U_i$

where:

$\ln DRAWN_i$ represents the natural logarithm of the drawn return on loan i,

α is a constant,

(x_1, …, x_k) is a vector of k continuously measurable microeconomic characteristics of the loan or the borrower (eg maturity, natural logarithm of loan size),

(y_1, …, y_m) is a vector of m continuously measurable macroeconomic measures for the performance of the borrower's country (eg ratio of debt to GDP, of debt service to exports of goods and services),

(z_1, …, z_n) is a vector of n qualitative characteristics (eg loan purpose dummies, borrower business sector dummies), and

U_i = is a random disturbance.

(β_1, …, β_k), (γ_1, …, γ_m) and (ϕ_1, …, ϕ_n) are parameters to be estimated.

ϕ_j (j = 1, …, n) can then be interpreted as the hedonic price attached to qualitative characteristic j.

The results of our regressions are presented and interpreted in Section 4.

4. Results and discussion

Insofar as sovereign ratings are expected to be correlated with the other indicators of countries' macroeconomic performance, we analysed the effects of these two sets of independent variables separately in the first instance (for more on this, however, see footnote 16). We estimate models that combine different sets of variables, allowing us to gauge the relative importance of macro- and microeconomic factors influencing loan pricing.

4.1 The effect of sovereign ratings

Table 8 shows that the drawn return is statistically different for each rating class from "poor" to "best" (the 95% confidence intervals for the mean do not overlap). In accordance with Kamin and von Kleist (1999), we find that the pricing of loan issues increases as sovereign ratings deteriorate, suggesting that lenders price sovereign ratings properly into their loan offerings. This is the straightforward result one would expect. Borrowers from countries with a "poor" sovereign rating are having to pay a drawn return of 238.3 bp on their loans on average, almost four times the average drawn return of the borrowers from countries with the "best" sovereign ratings (65.7 bp).

[9] Linneman estimates property values and rental payments for the urban housing market that are hedonic functions of neighbourhood (non-structural) and structural traits associated with each site. The partial derivative of these hedonic functions with respect to any trait describes the marginal change in the total site valuation associated with a change in that trait when all other trait levels are held constant. These partial derivatives reveal the same marginal information as do prices in standard market analyses; for this reason, partial derivatives are often referred to as the shadow prices of the underlying locational traits.

Table 8: Drawn return (bp) by broad sovereign rating category

Rating class	N	Mean	Median	Standard deviation	95% conf. interval
Default or not rated or not disclosed	324	169.4	147.3	116.7	156.6 182.1
Poor	860	238.3	182.5	159.4	227.7 249.0
Speculative	1,617	166.0	125.0	134.7	159.4 172.6
Investment grade	1,509	106.1	93.3	67.0	102.8 109.5
Best	614	65.7	60.0	27.7	63.5 67.9

Sources: Dealogic Loanware; authors' calculations.

4.2 The relative effect of macro- and microeconomic variables

We now investigate the relative effect of macro- and microeconomic factors on the pricing of developing country syndicated credits. The results of the standard OLS estimation, where the drawn return is the dependent variable, are shown in Table 9.

We begin by estimating a model with only macroeconomic explanatory variables (left-hand column of Table 9) and loan maturity. The significant and positive coefficients on the ratio of debt to GDP and of debt service to exports are in accordance with the results of the academic literature (Feder and Just (1977), Sachs (1984), Eichengreen and Mody (2000)): lenders seem to be concerned about the weight of countries' debt service as a proportion of their income and therefore charge higher prices to borrowers from countries whose ratios of debt or debt service to income are higher. The dummy controlling for assistance from the IMF is also positive and significant: likewise, Eichengreen and Mody (2000) find that loans granted to countries with a history of debt rescheduling are more expensive than those to countries with no such history. Lenders seem to regard with suspicion the necessity of the borrower's country to rely on assistance from the IMF. They impose a penalty for this.[10]

The ratio of reserves to GDP is significantly and positively related to drawn returns: although sovereign borrowers normally default only in extreme circumstances, the willingness-to-pay argument developed by Gersovitz (1985) seems to prevail in creditors' eyes over any possible good impression conveyed by relatively high reserves about borrower countries' finances or prospects (Edwards (1983)).[11]

The significant and negative coefficients on real GDP growth and the ratio of domestic credit to GDP are also in accordance with Eichengreen and Mody (2000): investors seem to grant a discount on loans to borrowers from countries whose fortunes may be expected to improve, presumably at least as long as the situation does not spill over into an unsustainable inflationary credit boom (the coefficient on the inflation variable is significant and positive).

Although the ratio of imports to exports of the country of the borrower does show up as a significantly positive determinant of loan pricing, growth in world trade does not. This may point to the fact that (1) only a limited portion of syndicated loans granted to developing countries does in fact accompany their participation in world trade, and that (2) the participation of developing countries in world trade is significantly lower than that – we would suspect – of industrialised countries.

Countries' purchasing parity power share of world GDP is significantly and positively related to the pricing of syndicated loans: lenders seem to extract a premium from relatively "wealthier" borrowers. Financial institutions granting syndicated credits to developing country borrowers may have been exploiting their market power.[12]

The yield on the three-year US Treasury bill, the alternative, risk-free investment to extending credit to potentially riskier borrowers from developing countries, is significantly and negatively related to the pricing of syndicated credits. We interpret this as survival bias in the sense that only the best developing country borrowers are able to obtain credits in a time of higher industrialised country

[10] Surely the effects of this variable are not limited to the year of signature of the loan. The results reported in this paper use an IMF assistance dummy equal to 1 if Fund assistance was received during the year of signature of the loan. An alternative model specification (not shown) with a dummy for Fund assistance *preceding* the year of signature of the loan gives very similar results.

[11] See footnote 12.

[12] The estimation results on this variable as well as on the ratio of reserves to GDP could be influenced by endogeneity issues; caution should therefore be exercised in their interpretation.

interest rates. The coefficient on the JP Morgan Emerging Market Sovereign Bond Index is significant and positive, suggesting that developing country borrowers are penalised by higher loan prices when there is general adverse market sentiment towards emerging markets.

Countries' share in syndicated lending to the whole world is significantly and positively related to the loan prices in this regression: investors seem to interpret high country shares as relatively high and/or more urgent financing needs for a nation and therefore demand a higher price for extending credit. This could point to the market power of lenders being exploited, or banks charging more for higher perceived concentration of risk.

When microeconomic factors are examined on their own (middle column of Table 9), the coefficient on loan size is negative as in Kleimeier and Megginson (2000), suggesting either that banks extending syndicated credits to developing country borrowers are enjoying economies of scale, or that safer borrowers are able to arrange larger loans, or both. Longer loan tenors result in lower pricing; this is unusual, but in accordance with Fons (1994). In reference to the junk bond market, Fons argues that for good-quality borrowers, the passage of time only offers an opportunity for a deterioration of creditworthiness, while very poor credit risks that survive during the tenor of the bond are likely to experience an improvement in their creditworthiness.[13]

Bilateral loans and club deals are relatively cheaper than others, possibly reflecting more favourable conditions stemming from borrowers' relationship with their core banks. Large syndicate sizes do not appear to reduce loan pricing, indicating that competition among banks bidding for the facility does not lower the pricing of loans.[14] Loans whose amount has been increased from the original amount are relatively more expensive, possibly because banks have found their pricing attractive. The causality may also play in the opposite direction, with the interpretation then being that if the borrower needs to increase the original amount of the loan because of increased financing needs, the lenders may raise the price. In sum, the previous two arguments can point to bank market power potentially being exploited: (1) discounts appear on club and bilateral deals, rather than on facilities where a large number of lending institutions bid for the loan, and (2) despite the fact that larger loans are cheaper, the pricing of loans may no longer be competitive if their original amount has been increased.

In accordance with Kleimeier and Megginson (2000), our results also indicate that loans sponsored or explicitly guaranteed by a third party cost less, although the ones that are secured actually carry a premium, potentially because they are very risky. The latter finding is in accordance with Smith and Warner (1979) and Berger and Udell (1990) on collateral. The presence of implicit guarantees attached to syndicated credits does not seem to lower loan pricing, possibly because lenders regard them as insufficient (non-binding).

Turning to the effects of borrower sector, in the same way as Eichengreen and Mody (2000), we find that banks enjoy cheaper pricing on their loans. Loans granted to borrowers involved in infrastructure projects carry a premium, although this is also the case in traditional industry. There is a small discount on loans to the high-tech and transport sectors. The insignificance of the sectoral dummy for state[15] and the positive and significant coefficient in population-related services may be related to the insufficiency of state and public and population-related services provided in these countries and the unwillingness of international lenders to grant relatively better conditions on loans geared to fund such services.

Regarding the effects of loan purpose, corporate control loans are pricier than other loans, meaning that the borrower is prepared to pay a premium if a facility is urgently needed for an acquisition – this is in accordance with the rest of the academic literature. Further, we find that loans arranged for transport finance, general corporate, project finance and capital structure purposes are cheaper than others (for a definition of these purposes, see Appendix 4), with transport finance loans carrying the steepest discount.

[13] This interpretation is also known as survival bias.

[14] In fact, the dummy for large syndicate sizes is significant and positive when macroeconomic conditions are also controlled for – see the right-hand column of Table 9.

[15] See Appendix 3 for the full list of sectors included.

Table 9: The relative effect of macro- and microeconomic factors on syndicated loan pricing

We estimated three specifications of the model below, using standard OLS, one with macroeconomic variables only, another with microeconomic ones only, and a third with the two sets of variables combined.

$$\textbf{ln drawn} = \beta_0\,\textbf{Intercept} + \beta_1\,\textbf{maturity} + \beta_2\,\textbf{debtgdp} + \beta_3\,\textbf{tdstoxgs} + \beta_4\,\textbf{gra} + \beta_5\,\textbf{restogdp} + \beta_6\,\textbf{st\_tdebt} + \beta_7\,\textbf{invgdp} + \beta_8\,\textbf{credgdp} + \beta_9\,\textbf{growth} + \beta_{10}\,\textbf{cpi} + \beta_{11}\,\textbf{impexp} + \beta_{12}\,\textbf{pppsh} + \beta_{13}\,\textbf{trade} + \beta_{14}\,\textbf{trsyld} + \beta_{15}\,\textbf{embi\_svg} + \beta_{16}\,\textbf{c\_share\_w} + \beta_{17}\,\textbf{lnsize\_l} + \beta_{18}\,\textbf{nbprov3} + \beta_{19}\,\textbf{clubilat} + \beta_{20}\,\textbf{secured} + \beta_{21}\,\textbf{spgtr} + \beta_{22}\,\textbf{g\_implic} + \beta_{23}\,\textbf{transfer} + \beta_{24}\,\textbf{increase} + \beta_{25}\,\textbf{constrpt} + \beta_{26}\,\textbf{finservb} + \beta_{27}\,\textbf{finservn} + \beta_{28}\,\textbf{hightech} + \beta_{29}\,\textbf{infrastr} + \beta_{30}\,\textbf{popserv} + \beta_{31}\,\textbf{state} + \beta_{32}\,\textbf{tradind} + \beta_{33}\,\textbf{transpor} + \beta_{34}\,\textbf{cc} + \beta_{35}\,\textbf{cs} + \beta_{36}\,\textbf{gen} + \beta_{37}\,\textbf{oth} + \beta_{38}\,\textbf{prj} + \beta_{39}\,\textbf{pty} + \beta_{40}\,\textbf{tr} + \varepsilon$$

where:

- ln drawn = natural logarithm of drawn return, in bp
- maturity = maturity of loans, in years
- lnsize_l = natural logarithm of loan size, converted into millions of US dollars

MACROECONOMIC INDEPENDENT VARIBLES

Solvency indicators for the country of the borrower:
- debtgdp = ratio of debt to GDP for country of the borrower, for year concerned (end-year)
- tdstoxgs = ratio of debt service to exports of goods and services for country of the borrower, for year concerned
- gra = dummy for assistance received by the country of the borrower from the IMF – use of Fund credit by operating the General Resources Account (GRA) – during the year concerned

Liquidity indicators for the country of the borrower:
- restogdp = ratio of reserves to GDP for country of the borrower, for year concerned (end-year)
- st_tdebt = ratio of short-term external debt to total external debt for borrower's country, for year concerned (end-year)

Economic growth and its sustainability in the country of the borrower:
- invgdp = ratio of investment to GDP for country of the borrower, for year concerned
- credgdp = ratio of bank credit to GDP for country of the borrower, for year concerned
- growth = real GDP growth in the borrower's country, for year concerned
- cpi = inflation in the borrower's country, for year concerned

Trade and share of the borrower's country in world GDP:
- impexp = ratio of imports to exports for country of the borrower, for year concerned
- pppsh = purchasing power parity share of world GDP of the borrower's country for year concerned (end-year)
- trade = growth in world trade for year concerned

Riskless rate of interest and proxy for overall emerging market risk:
- trsyld = yield on the three-year US Treasury bill, for month concerned
- embi_svg = JP Morgan Emerging Market Sovereign Bond Index, for month concerned

Borrower country's relative dependence on international syndicated loan market:
- c_share_w = share of the borrower's country in world syndicated lending, for year concerned

Table 9: The relative effect of macro- and microeconomic factors on syndicated loan pricing (continued)

MICROECONOMIC INDEPENDENT VARIABLES

Syndicate structure:

- nbprov3; clubilat = dummies for deals with more than two provider banks; for club or bilateral deals

Guarantees and collateral:

- secured = dummy for secured deals
- spgtr, g_implicit = dummy for deals explicitly guaranteed or sponsored by a third party; dummy for implicitly guaranteed deal (eg borrower is a developing country subsidiary of a major US concern)

Loan transferability and size increase:

- transfer = dummy for loan transferability
- increased = dummy to indicate that the original amount of the deal has been increased

Sectoral and loan purpose dummies:

- constrpty, finservb, finservn, hightech, infrastr, popserv, state, tradind, transpor = sectoral dummies for construction and property, financial services (banks), financial services (non-banks), high-tech industry, infrastructure, population-related services, state, traditional industry, transport. Note that the dummy for the utilities sector was excluded from the equation as the case by default as its inclusion would have overspecified the model. See Appendix 3 for the full list of sectors included in each broad grouping.
- cc, cs, gen, oth, prj, pty, tr = purpose dummies for corporate control, capital structure, general corporate purpose, other, project finance, property, transport finance. Note that the multipurpose dummy has been excluded from the equation as the case by default as its inclusion would have overspecified the model. See Appendix 4 for the full list of purposes included in each broad grouping.

Table 9: The relative effect of macro- and microeconomic factors on syndicated loan pricing (continued)

Dependent variable: natural logarithm of drawn return						
	Macro only		Micro only		Macro and micro	
Variable	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Maturity	0.002	(0.003)	-0.0131‡	(0.003)	0.001	(0.003)
Debt to GDP	0.0054‡	(0.001)			0.004‡	(0.001)
Debt service to exports	0.0061‡	(0.001)			0.0054‡	(0.001)
IMF assistance	0.234‡	(0.033)			0.2391‡	(0.032)
Reserves to GDP	0.0124‡	(0.002)			0.0102‡	(0.002)
Short-term to total debt	-0.001	(0.001)			-0.0001	(0.001)
Investment to GDP	-0.0038	(0.003)			-0.0043*	(0.003)
Credit to GDP	-0.0054‡	(0.001)			-0.0048‡	(0.001)
GDP growth	-0.0339‡	(0.004)			-0.0318‡	(0.004)
Inflation	0.0004†	(0.000)			0.0004†	(0.000)
Imports to exports	0.0008†	(0.000)			0.0004	(0.000)
Share of world GDP	0.0667‡	(0.007)			0.054‡	(0.007)
Growth in world trade	-0.0046	(0.005)			-0.0094*	(0.005)
Treasury yield	-0.0652‡	(0.018)			-0.0472‡	(0.017)
EMBI sovereign spread	0.0004‡	(0.000)			0.0004‡	(0.000)
Share of synd lending	0.3405‡	(0.056)			0.3075‡	(0.054)
Log (loan size)			-0.0688‡	(0.010)	-0.0867‡	(0.010)
Syndicate size ≥ 3			0.0021	(0.028)	0.0778‡	(0.027)
Club or bilateral deal			-0.1684‡	(0.028)	-0.1748‡	(0.026)
Secured deal			0.2779‡	(0.028)	0.1979‡	(0.028)
Sponsored or guaranteed			-0.0784‡	(0.026)	-0.0843‡	(0.025)
Implicitly guaranteed			0.0299	(0.042)	-0.0583	(0.042)
Transferable			-0.0227	(0.038)	0.1127‡	(0.036)
Increased			0.2159‡	(0.037)	0.1845‡	(0.037)
Construction or property			-0.0789	(0.064)	0.1285†	(0.061)
Financial services – banks			-0.1892‡	(0.038)	-0.090†	(0.038)
Fin services – non-banks			-0.0709	(0.043)	0.1193‡	(0.043)
High-tech			-0.0828†	(0.036)	0.0083	(0.036)
Infrastructure			0.3759†	(0.179)	0.2849	(0.183)
Population-related services			0.4662‡	(0.065)	0.4058‡	(0.063)
State			-0.0834	(0.053)	0.004	(0.052)
Traditional industry			0.0605*	(0.036)	0.0699†	(0.035)
Transport			-0.1402†	(0.059)	0.0578	(0.057)
Corporate control			0.1337*	(0.072)	0.2401‡	(0.072)
Capital structure			-0.3241‡	(0.048)	-0.2402‡	(0.050)
General corp purpose			-0.1777‡	(0.046)	-0.1547‡	(0.048)
Other purpose			-0.4653‡	(0.044)	-0.2475‡	(0.047)
Project finance			-0.1593‡	(0.048)	-0.0118	(0.051)
Property finance			-0.1366	(0.175)	0.0021	(0.160)
Transport finance			-0.6764‡	(0.070)	-0.4138‡	(0.072)
Intercept	4.4786‡	(0.138)	5.3585‡	(0.070)	4.9406‡	(0.149)
N	4,198		4,921		4,195	
Adjusted R^2	0.2201		0.1466		0.2971	
F-test	F(16; 4,181) = 75.03		F(25; 4,895) = 34.79		F(40; 4,154) = 45.33	

* = significant at the 10% level; † = significant at the 5% level; ‡ = significant at the 1% level.

When we combine microeconomic variables with indicators of countries' macroeconomic performance (right-hand column of Table 9), the signs of the coefficients are mostly the same as when these two sets of independent variables are not combined (left-hand and middle columns). As already noted, though, the dummy for large syndicate sizes of three banks or more now shows up as significant and positive, indicating that large syndicate sizes do not lower loan pricing. We must note that a number of purpose and sectoral dummies (high-tech industry, infrastructure, transport, project finance) are rendered insignificant in this model, possibly because indicators of macroeconomic performance for the borrowers' countries take away some of their information content, at least in the eyes of the lenders.[16]

The dummies for loan transferability and non-bank financial sector borrowers appear significant and positive in this model. We surmise that loan transferability seems unattractive in lenders' eyes once macroeconomic conditions prevailing in the borrower's country are taken into consideration. It may be the case that loan buyers do not trust the group of potential buyers of loan tranches sold by other members of the syndicate in the event of distress. Besides, macroeconomic indicators may deteriorate lenders' perception of the riskiness of non-bank financial institutions. Monetary authorities of developing countries experiencing dire economic straits may be expected only to a limited extent to perform their lender of last resort functions and bail out insolvent financial institutions that are critical to the country's financial system. In Appendix 6, we provide direct tests for these hypotheses by estimating a loan pricing model with microeconomic variables and interaction terms between loan transferability and non-bank financial sector borrower, on the one hand, and the presence of a junk sovereign rating for the borrower's country, on the other.[17] The model is the same as in the middle column of Table 9 but we have added two cross-term dummies, which are, respectively, the products of the loan transferability and the non-bank financial sector borrower variables with "junk" (dummy equal to 1 if the borrower's country has a Standard & Poor's sovereign rating worse than BBB at the time of signing). The model shows that when the loan transferability and non-bank financial sector borrower dummies are considered on their own, they command discounts. We surmise this is because implicit government financial safety nets exist and since loan transferability represents an option held by the lender. However, when the two dummy variables interact with the presence of a junk sovereign rating for the borrower's country at the time of signing, the coefficients become significant and positive. This confirms the behaviour of the standalone non-bank financial sector and transferability dummy variables in Table 9, which compares the effects of the macro- and microeconomic variables on their own and in combination.

Three other specifications of the main model using components of the drawn return (ie the Libor spread, drawn fees and undrawn fees separately) as dependent variables are presented in Appendix 5. The third model is estimated with undrawn fees, ie fees that are charged to the borrower as long as the facility is not drawn, such as the participation fee, as well as the facility and/or commitment fee. However, as discussed above, the fees and the spread over Libor considered separately do not represent the full economic cost of the loans. The findings of the model using the drawn return on the left-hand side are largely confirmed when the Libor spread is used. As far as drawn fees are concerned, they are significantly and negatively related to loan maturity. The relationship is significant and positive between maturity and Libor spreads, and drawn fees contribute to reversing it when total drawn return is used as the dependent variable. Drawn fees show sensitivity to macroeconomic variables, but not to the share of the country in total syndicated borrowing. The sensitivity of drawn fees to sectoral and purpose dummies is weaker than that of the total drawn return. Undrawn fees can be thought of as contracting costs that serve to compensate the lenders for tying up regulatory capital while the facility is not drawn. The undrawn fees show little sensitivity to macro- and microeconomic factors.

[16] In addition, we ran a fourth model specification using a partial forward stepwise estimation technique. We first performed an F-test, which found the four sovereign ratings dummies corresponding to the whole S&P ratings spectrum described in Appendix 2 – less the "default, not rated or not disclosed" rating class – to be jointly significant determinants of the drawn return at the 1% level. We subsequently forced these sovereign ratings dummies into the model together with microeconomic variables. Meanwhile, progressing from the specific to the general, we chose the macroeconomic variables by means of forward stepwise selection, using an entry criterion of 10% significance and a removal criterion of 11%. The results (available from the authors upon request) are very similar to the combined macro-micro model presented in Table 9 without sovereign ratings that uses OLS. Macroeconomic variables (with the exception of the inflation rate and the ratio of imports to exports), as well as sovereign ratings, are significant with the correct sign (favourable sovereign ratings dummies are negative and significant and vice versa). This confirms that there is information contained in macroeconomic variables that is not captured in sovereign ratings.

[17] We are grateful to the Editorial Committee for this helpful suggestion.

5. Conclusion

In this paper we estimated hedonic models to analyse the macro- and microeconomic determinants of the pricing of syndicated credits granted to developing country borrowers using the risk return framework. The following conclusions can be drawn from our findings.

We report that indicators of countries' economic weakness (high ratios of debt to GDP, of debt service to exports, assistance from the IMF) raise the cost of borrowing, while indicators of economic strength (high real GDP growth, high ratio of domestic credit to GDP) lower it. This is in accordance with the previously existing academic literature. We further find that higher reserves/GDP ratios raise the pricing of loans granted to developing country borrowers, in keeping with the willingness-to-pay approach developed by Gersovitz (1985).

We present evidence that corporate control loans granted to developing country borrowers are more expensive than other loans. In accordance with Kleimeier and Megginson (2000), our results also indicate that loans sponsored or explicitly guaranteed by a third party cost less, although the ones that are secured actually carry a premium, potentially because they are very risky. The latter finding is in accordance with Smith and Warner (1979) and Berger and Udell (1990) on collateral. The presence of an implicit guarantee attached to syndicated credits does not lower loan pricing, possibly because lenders regard it as insufficient (non-binding).

We come to the conclusion that certain microeconomic characteristics of developing country syndicated loans generally affect their pricing in the expected way (ie risk raises pricing), albeit more weakly when macroeconomic conditions are also controlled for. In particular:

- First, like Eichengreen and Mody (2000), we find that banks enjoy cheaper pricing on their loans than borrowers from other sectors. However, when we explicitly control for macroeconomic conditions prevailing in the borrowers' countries, we find that loans to non-bank financial institutions cost more than other loans. Macroeconomic indicators may deteriorate lenders' perception of the riskiness of non-bank financial institutions. Furthermore, monetary authorities of developing countries experiencing economic difficulties may be limited in performing their lender of last resort functions. This result can be related to the findings of Martinez Peria and Schmukler (2001), who note that market discipline is present among insured depositors in selected Latin American countries, demonstrating that deposit insurance schemes are not always fully credible.
- Second, absolute values of the coefficients on microeconomic variables are often lower when macroeconomic variables are also present in the model. This suggests that loan purpose and the borrower's business sector have a weaker effect on the pricing of syndicated credits granted to developing country borrowers once indicators of macroeconomic performance of the countries concerned are controlled for.
- Third, loan transferability appears to raise loan pricing once macroeconomic conditions prevailing in the borrower's country are taken into consideration.

We find evidence of banks potentially exploiting their market power in syndicated lending in three respects:

- Borrowers from "wealthier" developing countries (countries with relatively higher purchasing power parity shares of world GDP), or countries that use the world market for syndicated loans more intensely, are having to pay more for their credits. This could be a result of lender market power being exploited, lender brand name recognition, or (in the case of the share of the borrower in world syndicated lending) penalties being charged for a higher perceived concentration of risk.
- Discounts are granted to developing country borrowers on bilateral or club deals rather than on deals where a large number of lending institutions bid (compete) for the loan.
- Syndicated credits whose initial amount has been increased may not be priced competitively.

Lastly, our results reflect the relatively low participation of developing countries in world trade, or at least the low contribution of syndicated credits to supporting such participation. The weak or non-existent discounts on the pricing of loans intended to fund state-provided or transport services may not help improve the quality of such services, let alone enhance the relatively limited role of the state in some developing countries. Some of the most poorly rated developing countries further face a maturity

trap because they are only able to obtain short-term loans, which they can then only use to refinance existing credit lines instead of genuinely improving state services.

Appendix 1: Pricing structure of syndicated credits: spreads and fees

As well as earning a margin over Libor (or any other benchmark) when the loan is drawn, banks in the syndicate receive various fees (described in Allen (1990) and Rhodes (1996)). The arranger and other members of the lead management team, who may be responsible for various aspects of the preparation of the deal and its documentation, generally earn some form of upfront fee. This is often called a *praecipium* or *arrangement fee*. The underwriters similarly earn an *underwriting* fee for guaranteeing the availability of funds. Other participants (those at least on the "manager" and "co-manager"[18] level) may expect to receive a *participation fee* for agreeing to join the facility – the actual size of the fee generally varies with the size of the commitment. Once the credit is established and as long as it is not drawn, the syndicate members often receive an annual *commitment* or *facility fee* (to compensate for the cost of tying up regulatory capital that needs to be set aside against the commitment) again proportional to their commitments. As soon as the facility is drawn, the borrower may have to pay a *utilisation fee*, as often as not a means of concealing from the market part of the spread that he is paying. There is also an *agency fee*, usually payable annually, to cover the costs incurred by the agent to run the loan and the responsibility for supervising the conditions. Loan documents sometimes incorporate a penalty clause, whereby the borrower agrees to pay a *prepayment fee* or otherwise compensate the lenders in the event that he prepays his debt prior to the specified term. Finally, the *conduit fee* is the remuneration of the so-called conduit bank[19] and the *legal fee* that of the legal adviser in the deal. The commitment, utilisation and agency fees are payable per annum; all other fees are one-off fees.

Appendix 2: Conversion of the Standard & Poor's sovereign ratings into rating classes

Sub-investment grade		Investment grade	
Rating	Rating class	Rating	Rating class
SD		BBB	
NR	Default or not rated	BBB+	Investment
R	or not disclosed	A-	grade
CC		A	
CCC-		A+	
CCC		AA-	
CCC+	Poor	AA	Best
B-		AA+	
B		AAA	
B+			
BB-			
BB			
BB+	Speculative		
BBB-			

Note: SD = selective default; NR = not rated; R = rated.

[18] These two titles correspond to senior participants, to establish the fact that they commit to larger amounts and hence receive bigger fees, but they do not actually manage anything.

[19] Institution through which payments are channelled with a view to avoiding payment of withholding tax.

Appendix 3: Full list of borrower business sectors contained in each broad grouping

Construction and property: Construction/Building, Products-Commercial Building, Construction/Building Products-Maintenance, Construction/Building Products-Miscellaneous, Construction/Building Products-Residential Building, Construction/Building Products-Retail/Wholesale, Property/Real Estate, Property/Real Estate-Development, Property/Real Estate-Diversified, Property/Real Estate-Operations, Property/Real Estate-REIT, Construction/Building.

Financial services (bank): Finance-Commercial & Savings Banks, Finance-Student Loan, Finance-Mortgages/Building Societies, Finance-Investment Bank, Finance-Credit Cards, Finance-Development Bank.

Financial services (non-bank): Insurance, Finance-Investment Management, Insurance-Property & Casualty, Insurance-Multi-Line, Insurance-Life, Insurance-Brokers, Insurance-Accident & Health, Holding Companies-Conglomerates, Finance-Leasing Companies, Finance-Brokers & Underwriters, Finance, Holding Companies-Special Purpose Financial Vehicles, Holding Companies.

High-tech: Aerospace & Defence-Aircraft, Chemicals-Fibres, Chemicals-Diversified, Chemicals, Agribusiness-Agriculture, Aerospace & Defence-Products & Services, Aerospace & Defence, Healthcare-Genetics/Research, Chemicals-Plastic, Agribusiness, Services-Management Consulting, Telecommunications-Wireless/Mobile, Telecommunications-Telephone, Telecommunications-Services, Telecommunications-Satellite, Electronics, Telecommunications, Computers, Services-IT, Healthcare-Products, Computers-Internet, Telecommunications-Equipment, Computers-Hardware, Healthcare-Medical/Analytical Systems, Computers-Software, Electronics-Electrical Equipment, Healthcare-Drugs/Pharmaceuticals, Healthcare-Instruments/Surgical Supplies.

Infrastructure: Transportation-Airport, Transportation-Logistics/Distribution, Construction/Building Products-Infrastructure.

Population services: Dining & Lodging-Hotels & Motels, Healthcare-Nursing Homes, Automobile-Repair, Automobile-Sales, Dining & Lodging, Services-Funeral & Related, Retail-Home Furnishings, Retail-Jewellery Stores, Retail-Mail Order & Direct, Dining & Lodging-Restaurants, Retail-Pharmacy, Healthcare-Professional Services/Practices, Retail-Supermarkets, Services, Retail-Department Stores, Services-Advertising/Marketing, Retail-Miscellaneous/Diversified, Services-Legal, Services-Personnel, Services-Printing, Services-Schools/Universities, Services-Security/Protection, Services-Travel, Telecommunications-Cable Television, Telecommunications-Radio/TV Broadcasting, Services-Accounting, Healthcare-Miscellaneous Services, Healthcare, Healthcare-Hospitals/Clinics, Retail-Specialty, Healthcare-Management Systems, Retail-Convenience Stores, Healthcare-Outpatient Care/Home Care, Leisure & Recreation, Leisure & Recreation-Film, Leisure & Recreation-Gaming, Leisure & Recreation-Services, Publishing, Publishing-Books, Publishing-Diversified, Publishing-Newspapers, Publishing-Periodicals, Retail, Retail-Apparel/Shoe, Retail-Computers & Related, Leisure & Recreation-Products.

State: Finance-Export Credit Agencies, Government-Provincial Authority, Government-Local Authority, Government-Central Bank, Government-Central Authority, Finance-Multilateral Agencies, Government.

Traditional Industry: Air Conditioning and Heating, Forestry & Paper, Automobile, Automobile-Manufacturers, Automobile-Mobile Homes, Automobile-Parts, Chemicals-Fertilisers, Metal & Steel-Products, Forestry & Paper-Packaging, Forestry & Paper-Pulp & Paper, Forestry & Paper-Raw Materials, Machinery, Machinery-Electrical, Construction/Bldg Prods-Cement/Concrete, Machinery-General Industrial, Food & Beverage-Wholesale Items, Machinery-Material Handling, Machinery-Printing Trade, Food & Beverage-Miscellaneous, Metal & Steel-Distributors, Machinery-Farm Equipment, Mining, Mining-Excavation, Oil & Gas-Equipment & Services, Oil & Gas-Exploration & Development Onshore, Oil & Gas-Exploration & Development Offshore, Textile, Textile-Apparel Manufacturing, Textile-Home Furnishings, Textile-Mill Products, Textile-Miscellaneous, Metal & Steel, Consumer Products-Footwear, Construction/Bldg Prods-Engineering, Construction/Building Prods-Wood Products, Machinery-Machine Tools, Consumer Products-Cosmetics & Toiletries, Food & Beverage-Sugar & Refining, Consumer Products-Furniture, Consumer Products-Glass, Consumer Products-Home Improvement, Consumer Products-Miscellaneous, Consumer Products-Office Supplies, Consumer Products-Precious Metals/Jewellery, Consumer Products-Rubber, Consumer Products-Tobacco, Consumer Products-Tools, Food & Beverage, Food & Beverage-Alcoholic

Beverages, Food & Beverage-Canned Foods, Food & Beverage-Confectionery, Food & Beverage-Dairy Products, Food & Beverage-Flour & Grain, Food & Beverage-Meat Products, Food & Beverage-Non-Alcoholic Beverages, Consumer Products-Soap & Cleaning Preps, Consumer Products.

Transport: Transportation, Transportation-Ship, Transportation-Road, Transportation-Airline/Aircraft, Transportation-Equipment & Leasing, Transportation-Rail.

Utilities: Utility-Water Supply, Oil & Gas, Oil & Gas-Diversified, Oil & Gas-Pipeline/Distribution, Oil & Gas-Refinery/Marketing, Utility & Power, Utility-Diversified, Utility-Electric Power, Utility-Hydroelectric Power, Utility-Nuclear Power, Utility-Waste Management.

Appendix 4: Full list of loan purposes contained in each broad grouping

Corporate control: LBO/MBO, Employee stock option plan, Acquisition, Acquisition line.

Capital structure: Refinancing, Debtor in possession financing, Recapitalisation, Receivable backed financing, Debt repayment, Securitisation, Standby/CP support.

General: General corporate, Private placement, Public finance, Trade financing, Working capital.

Project: Project financing.

Property: Mortgage lending, Property.

Transport: Shipping, Aircraft.

Other: Spin-off, Empty purpose code.

Multiple purpose code: More than one purpose for the same loan.

Appendix 5: Loan pricing models with alternative dependent variables

Table 10: Dependent variable: natural logarithm of Libor spread						
	Macro only		Micro only		Macro and micro	
Variable	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Maturity	0.0197‡	(0.003)	0.0012	(0.004)	0.0148‡	(0.004)
Debt to GDP	0.0038‡	(0.001)			0.0021†	(0.001)
Debt service to exports	0.0075‡	(0.001)			0.0064‡	(0.001)
IMF assistance	0.2466‡	(0.034)			0.2512‡	(0.034)
Reserves to GDP	0.0113‡	(0.003)			0.0096‡	(0.002)
Short-term to total debt	-0.0032†	(0.001)			-0.0024*	(0.001)
Investment to GDP	-0.0033	(0.003)			-0.0043	(0.003)
Credit to GDP	-0.0049‡	(0.001)			-0.0043‡	(0.001)
GDP growth	-0.036‡	(0.004)			-0.034‡	(0.004)
Inflation	0.0003	(0.002)			0.0003	(0.000)
Imports to exports	0.0006*	(0.003)			0.0004	(0.000)
Share of world GDP	0.0474‡	(0.007)			0.0353‡	(0.007)
Growth in world trade	-0.0036	(0.005)			-0.0085	(0.005)
Treasury yield	-0.0554‡	(0.019)			-0.0394†	(0.018)
EMBI sovereign spread	0.0004‡	(0.000)			0.0004‡	(0.000)
Share of synd lending	0.4112‡	(0.058)			0.3844‡	(0.056)
Log (loan size)			-0.0669‡	(0.011)	-0.09‡	(0.011)
Syndicate size ≥ 3			-0.0371	(0.030)	0.0461	(0.029)
Club or bilateral deal			-0.1611‡	(0.029)	-0.166‡	(0.028)
Secured deal			0.2787‡	(0.029)	0.195‡	(0.029)
Sponsored or guaranteed			-0.0848‡	(0.027)	-0.0769‡	(0.026)
Implicitly guaranteed			0.0509	(0.044)	-0.0358	(0.044)
Transferable			-0.0449	(0.040)	0.0935†	(0.038)
Increased			0.1423‡	(0.039)	0.1248‡	(0.039)
Construction or property			-0.0725	(0.068)	0.151†	(0.064)
Financial services – banks			-0.2652‡	(0.040)	-0.1525‡	(0.039)
Fin services – non-banks			-0.2015‡	(0.046)	0.0163	(0.045)
High-tech			-0.0735*	(0.038)	0.0217	(0.038)
Infrastructure			0.3867†	(0.187)	0.2978	(0.191)
Population-related services			0.5014‡	(0.068)	0.4371‡	(0.066)
State			-0.1004*	(0.056)	-0.0029	(0.054)
Traditional industry			0.0651*	(0.038)	0.0781†	(0.037)
Transport			-0.1645‡	(0.061)	0.0479	(0.060)
Corporate control			0.1841†	(0.075)	0.2881‡	(0.075)
Capital structure			-0.3011‡	(0.051)	-0.2098‡	(0.053)
General corp purpose			-0.169‡	(0.048)	-0.1347‡	(0.050)
Other purpose			-0.4459‡	(0.046)	-0.2156‡	(0.050)
Project finance			-0.1522‡	(0.051)	0.0244	(0.053)
Property finance			-0.2188	(0.183)	-0.0494	(0.168)
Transport finance			-0.669‡	(0.074)	-0.3813‡	(0.075)
Intercept	4.3773‡	(0.144)	5.222‡	(0.074)	4.9024‡	(0.156)
N	4,183		4,905		4,180	
Adjusted R^2	0.2252		0.1470		0.2978	
F-test	F(16; 4,166) = 76.97		F(25; 4,879) = 34.80		F(40; 4,139) = 45.31	

* = significant at the 10% level; † = significant at the 5% level; ‡ = significant at the 1% level.

Table 11: Dependent variable: natural logarithm of drawn fees						
	Macro only		Micro only		Macro and micro	
Variable	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Maturity	-0.1317‡	(0.004)	-0.1502‡	(0.005)	-0.1276‡	(0.005)
Debt to GDP	0.008‡	(0.001)			0.0083‡	(0.001)
Debt service to exports	-0.0014	(0.001)			-0.0003	(0.001)
IMF assistance	0.0767*	(0.045)			0.0681	(0.045)
Reserves to GDP	0.0015	(0.003)			0.0019	(0.003)
Short-term to total debt	0.0117‡	(0.002)			0.0106‡	(0.002)
Investment to GDP	-0.0124‡	(0.004)			-0.0118‡	(0.004)
Credit to GDP	-0.0020*	(0.001)			-0.0032‡	(0.001)
GDP growth	-0.0287‡	(0.006)			-0.0291‡	(0.005)
Inflation	0.0079‡	(0.001)			0.0063‡	(0.001)
Imports to exports	-0.0003	(0.001)			-0.0005	(0.001)
Share of world GDP	0.1081‡	(0.095)			0.0995‡	(0.009)
Growth in world trade	-0.0005	(0.007)			-0.0042	(0.007)
Treasury yield	-0.1053‡	(0.025)			-0.0932‡	(0.025)
EMBI sovereign spread	0.0004‡	(0.000)			0.0004‡	(0.000)
Share of synd lending	0.127	(0.078)			0.0947	(0.077)
Log (loan size)			-0.0743‡	(0.016)	-0.063‡	(0.016)
Syndicate size ≥ 3			-0.0362	(0.051)	0.0214	(0.048)
Club or bilateral deal			-0.0327	(0.042)	-0.036	(0.040)
Secured deal			0.1501‡	(0.041)	0.1309‡	(0.040)
Sponsored or guaranteed			0.0983‡	(0.037)	0.0033	(0.036)
Implicitly guaranteed			-0.0373	(0.063)	-0.0341	(0.062)
Transferable			0.1524‡	(0.051)	0.2405‡	(0.048)
Increased			0.2912‡	(0.047)	0.237‡	(0.047)
Construction or property			-0.0406	(0.090)	0.1242	(0.085)
Financial services – banks			0.2043‡	(0.054)	0.1645‡	(0.053)
Fin services – non-banks			0.3276‡	(0.060)	0.3643‡	(0.059)
High-tech			-0.1112†	(0.053)	-0.007	(0.052)
Infrastructure			0.0576	(0.330)	0.1126	(0.294)
Population-related services			0.2074†	(0.105)	0.2364†	(0.100)
State			0.052	(0.075)	0.0739	(0.073)
Traditional industry			-0.037	(0.054)	-0.0155	(0.052)
Transport			-0.0764	(0.088)	0.1316	(0.087)
Corporate control			-0.0185	(0.111)	0.1109	(0.114)
Capital structure			-0.4224‡	(0.069)	-0.2824‡	(0.070)
General corp purpose			-0.0725	(0.066)	-0.0155	(0.067)
Other purpose			-0.3744‡	(0.063)	-0.1628†	(0.066)
Project finance			-0.0112	(0.071)	0.0435	(0.073)
Property finance			0.1583	(0.221)	0.0538	(0.199)
Transport finance			-0.2168†	(0.105)	-0.1472	(0.106)
Intercept	2.7006‡	(0.195)	3.5018‡	(0.106)	2.9818‡	(0.218)
N	2,787		3,173		2,786	
Adjusted R^2	0.3959		0.3511		0.4379	
F-test	F(16; 2,770) = 115.10		F(25; 3,147) = 69.66		F(40; 2,745) = 55.23	

* = significant at the 10% level; † = significant at the 5% level; ‡ = significant at the 1% level.

Table 12: Dependent variable: natural logarithm of undrawn fees						
	Macro only		Micro only		Macro and micro	
Variable	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Maturity	0.0364	(0.031)	0.0217	(0.045)	0.0735*	(0.044)
Debt to GDP	0.0127	(0.009)			0.0106	(0.010)
Debt service to exports	0.0092	(0.029)			0.0043	(0.033)
IMF assistance	0.2926	(0.458)			0.3681	(0.447)
Reserves to GDP	-0.0369	(0.035)			-0.1301‡	(0.038)
Short-term to total debt	-0.0081	(0.018)			-0.0428*	(0.023)
Investment to GDP	0.0841*	(0.044)			0.0547	(0.050)
Credit to GDP	0.0168	(0.011)			0.0278*	(0.015)
GDP growth	0.001	(0.043)			-0.0191	(0.052)
Inflation	-0.0093	(0.008)			-0.0154*	(0.009)
Imports to exports	0.0084	(0.009)			0.007	(0.009)
Share of world GDP	-0.1202	(0.087)			-0.2536†	(0.098)
Growth in world trade	-0.1056*	(0.063)			-0.1484†	(0.075)
Treasury yield	0.1888	(0.199)			0.0407	(0.187)
EMBI sovereign spread	-0.0001	(0.000)			0.0002	(0.004)
Share of synd lending	0.0285	(0.756)			-0.3566	(0.793)
Log (loan size)			-0.0358	(0.127)	0.1458	(0.145)
Syndicate size ≥ 3			-0.0533	(0.294)	0.0116	(0.317)
Club or bilateral deal			0.0635	(0.294)	0.0065	(0.284)
Secured deal			0.327	(0.312)	0.5947*	(0.345)
Sponsored or guaranteed			0.9077†	(0.361)	0.5884	(0.363)
Implicitly guaranteed			0.4749	(0.651)	0.4542	(0.860)
Transferable			0.177	(0.344)	0.224	(0.360)
Increased			-0.2024	(0.306)	0.0631	(0.359)
Construction or property			0.0636	(0.878)	1.0121	(1.109)
Financial services – banks			0.0244	(0.595)	1.2715*	(0.689)
Fin services – non-banks			0.9269	(0.588)	2.8477‡	(0.682)
High-tech			-0.6213	(0.587)	0.9233	(0.647)
Infrastructure						
Population-related services						
State			0.4325	(0.572)	2.8404‡	(0.727)
Traditional industry			0.2363	(0.642)	1.3758*	(0.712)
Transport			0.1836	(0.733)	1.3834	(0.995)
Corporate control			2.3608†	(1.177)	1.591	(1.323)
Capital structure			0.2783	(0.406)	0.3893	(0.517)
General corp purpose			-0.2706	(0.348)	-0.2151	(0.451)
Other purpose			-0.4159	(0.404)	-0.2383	(0.511)
Project finance			-1.3568†	(0.568)	-1.4652†	(0.633)
Property finance						
Transport finance						
Intercept	-0.8638	(2.557)	2.7167‡	(0.926)	1.8797	(2.674)
N	118		143		118	
Adjusted R^2	0.1751		0.1612		0.4016	
F-test	F(16; 101) = 2.55		F(21; 121) = 2.30		F(36; 81) = 3.18	

* = significant at the 10% level; † = significant at the 5% level; ‡ = significant at the 1% level.

Appendix 6: Interaction between junk sovereign rating, loan transferability and non-bank financial sector

Dependent variable: natural logarithm of drawn return

Variable	Coefficient	Standard error
Maturity	-0.0124‡	(0.003)
Log (loan size)	-0.0722‡	(0.010)
Syndicate size ≥ 3	0.0135	(0.028)
Club or bilateral deal	-0.1725‡	(0.028)
Secured deal	0.2698‡	(0.028)
Sponsored or guaranteed	-0.0796‡	(0.026)
Implicitly guaranteed	0.0236	(0.042)
Transferable	-0.1098†	(0.044)
Increased	0.2147‡	(0.037)
Construction or property	-0.0712	(0.064)
Financial services – banks	-0.1861‡	(0.038)
Financial services – non-banks	-0.0949†	(0.047)
High-tech	-0.0831†	(0.036)
Infrastructure	0.3908†	(0.179)
Population-related services	0.4708‡	(0.065)
State	-0.0827	(0.053)
Traditional industry	0.0595*	(0.036)
Transport	-0.1454†	(0.058)
Corporate control	0.1248*	(0.072)
Capital structure	-0.3213‡	(0.048)
General corporate purpose	-0.1747‡	(0.046)
Other purpose	-0.4541‡	(0.044)
Project finance	-0.1487‡	(0.048)
Property finance	-0.1138	(0.174)
Transport finance	-0.6618‡	(0.070)
Junk x transferable	0.3718‡	(0.085)
Junk x (fin services – non-banks)	0.1947†	(0.085)
Intercept	5.354‡	(0.070)
N	4,921	
Adjusted R^2	0.1507	
F-test	F(27; 4,893) = 33.33	

* = significant at the 10% level; † = significant at the 5% level; ‡ = significant at the 1% level.

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