

The dollar debt of companies in Latin America: the warning signs

Working paper

February 2022

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Abstract

A decade of low interest rates in the major currencies and failings in the regulatory oversight of international bond markets have led investors to take more and more risk in their search for higher yields. Non-financial corporations (NFC's) in Latin America have taken full advantage, and their dollar indebtedness is now heavier than for corporations in most other emerging market regions. This paper documents the many warning signs of macroeconomic and financial instability in the region from such indebtedness. Macroeconomic data show that the NFC sector has become much more leveraged and faces increased currency mismatches. Microeconomic data drawn from a sample of more than 160 companies confirm that several balance sheet indicators have deteriorated for firms in both the tradable and the non-tradable sectors. As dollar debts were rising, profits were declining, capital expenditures falling and solvency risk rising. This situation warrants careful and continuous monitoring by the authorities in the region. Macroprudential policies in Latin America need to address with urgency the vulnerabilities created by international market-based finance and ensure that local banks remain resilient to external financial shocks. Interest rates will rise and, given the recent warnings of the Bank for International Settlements (BIS) and the Financial Stability Board (FSB), some regulatory tightening affecting bond markets is likely.

Keywords: Non-financial corporate debt, Latin America, currency mismatches, global liquidity, corporate balance sheets, FSB, IMF, BIS.

JEL classification: D25, E44, F30, F34, F65, G15, G18, G28

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I. Introduction¹

A decade of exceptionally low long-term interest rates, followed in 2020 by renewed monetary policy easing in the advanced economies after the COVID-19 shock, has encouraged investors in global bond markets to seek the higher yields by taking greater risks. The dollar bonds of many emerging market companies -some tapping international capital markets for the first time- proved to be especially attractive.

It is also true that better macroeconomic policies in most emerging market economies (EMEs) have also played a part. The substantial and sustained strengthening of the external balance sheets of governments made foreign investors more willing to lend dollars to EME companies. In particular, larger official foreign exchange reserves reassured investors that central banks could provide dollar liquidity support to EME companies during a crisis, enabling them to service their dollar debts. And investors have been further enticed by the development of bond funds which offer the liquidity of a daily price even when the underlying securities are illiquid.

The rise in the dollar debts of non-financial corporates (NFCs) in the emerging markets has been one of the most significant developments since the Global Financial Crisis (GFC). Latin America has been no exception to this trend. The threat of growing currency mismatches to macroeconomic and financial stability in the region is clear. Borrowing in dollars is dangerous for companies which do not earn dollars, notably those producing non-tradable goods and services.² And the aggregate effect of such borrowing is to make the exchange rate less effective as a stabilizing mechanism in the face of external shocks. The debt servicing costs of companies come to depend on Fed interest rate policies (for short-term or floating rate debt) or on global bond markets. Local currency borrowing costs, in contrast, can be influenced by the country's own central bank and so be responsive to domestic macroeconomic conditions.³

More generally, large dollar debts of non-US borrowers could also become a source of systemic risk in the global financial system.⁴ And such debts increase the risk of mistakes in global monetary policy. A decision by the Fed to

¹ The opinions in this paper are those of the authors and do not commit FLAR or its directory board.

² In principle, tradable goods are priced in world markets (so the local currency price rises when the dollar appreciates). In the absence of trade or other restrictions, therefore, producers of such goods in effect earn dollars even if the goods are sold at home.

³ Currency mismatches, the common element in virtually every financial crisis in emerging economies in the 1980s and 1990s, were in large part the result of weak policies and institutions in emerging economies themselves (Goldstein and Turner (2004)).

⁴ See in particular the recent report of Robert Triffin International (RTI (2019)). Issued in December 2019, this report identified as a major risk a rise in dollar interest rates, justified perhaps by strong US growth, but which would severely damage EME companies with large dollar debts. But this fear proved unfounded because COVID-19 was a global shock which hit the US economy hard, and therefore required lower dollar interest rates. Aldasoro et al. (2021) also draw attention to the EMEs' great sensitivity to global financial conditions.

increase interest rates could force non-US companies to cut production and households to cut demand. The most indebted borrowers could even face bankruptcy. The Fed has historically found it very difficult to assess in time the impact of financial fragilities overseas on US GDP, and has made big mistakes in both directions (Turner (2021)).

Currency mismatch risks can assume systemic dimensions because of the strong feedback effects with other dimensions of risk such as excessive leverage, unwarranted narrowing of credit risk spreads, underpricing of liquidity risks and so on. Such feedback effects could concentrate default risk in particular companies and magnify losses during a crisis. There are at least three dimensions with potential implications for financial stability.

The first is that many companies with large currency mismatches have become more fragile - surviving only when global interest rates are very low and credit abundant. Aggregate leverage in the corporate sector in Latin America as a whole has increased appreciably over the past 15 years. Many of the companies with large dollar debts are also those which are highly leveraged.

The second dimension is that some firms have become much bigger players in the domestic financial system.⁵ Very favorable international financing conditions have encouraged companies to borrow more than needed for their core businesses. Often excess funds have been placed with local banks or invested in domestic securities. Higher interest rates at home are a strong temptation especially when domestic interest rates rise sharply against the dollar. Not only does this increase the financial risk exposures of these firms but it also means that non-financial corporate stress is more likely to spill over to local banks and markets. The financial system has become more vulnerable to any sudden withdrawal of funds: Achayra *et al.* (2015) and Chui *et al.* (2018).

Third, foreign exchange hedging markets in many Latin American currencies are comparatively thin. Companies will often hedge long-term dollar debt with 3-month swaps. This is an imperfect hedge because the terms of such hedges typically turn against firms which are short dollars in periods of stress just when those with dollar debts really need them. Some markets even disappear.

When currency mismatches are large, the potential for a malign impact of exchange rate fluctuations on corporate activity is magnified: see Krugman (1999), Cespedes *et al.* (2004), Bruno and Shin (2015) and Jiang *et al.* (2019). Aguiar (2005), Kalemli-Özcan *et al.* (2016), and Kalemli-Özcan (2019) find empirical evidence to suggest that an exchange rate depreciation in the presence of balance sheet currency mismatches has real negative effects on

⁵ NFC's acting as financial intermediaries can have multiple implications for the financial system: see Powell (2014), Caballero *et al.* (2015), and Chui *et al.* (2018). Although this is not considered in the paper, some NFCs in Latin America are state-owned enterprises (or quasi-SOEs) - generating contingent fiscal liabilities.

investment and output -despite the improvement in price competitiveness that a lower exchange rate brings. Chow *et al.* (2016), and Shin and Turner (2015) explain that an exchange rate appreciation improves the formal balance sheet of company carrying large dollar debts- even if such an appreciation makes the firm fundamentally weaker. Even further credit expansion is facilitated increasing the risk of insolvency crisis. The medium-term risk is that subsequent currency depreciation, especially if sudden, makes the ensuing crisis all the worse.

At present, the highest near-term risk is perhaps of an unexpectedly sharp rise in yields in international benchmark bond markets. The increase in inflation risk premia in dollar bond markets points in this direction. Increased supply from greater private and public dollar debt issuance simultaneously also point to higher real bond yields in global bond markets.⁶ A premature or excessive tightening of monetary policy in the United States is a danger (FLAR, 2021). It could generate much turbulence in the region, lifting risk premia, cutting corporate profits, and lowering the market value of companies. Under such circumstances, the authorities should be prepared now to ensure that companies and the financial system are resilient during periods of heightened market stress.

Three risk dimensions not directly related to aggregate dollar exposures merit attention. The first is that companies in the non-tradable sectors as well as those in the tradable sectors have significant dollar debts. The second is that the overall leverage of the non-financial corporate sector in Latin America has risen sharply, and that those companies in the tradable sector which are more heavily indebted in dollars seem also to be the most leveraged. Finally, credit spreads between companies (as measured by average borrowing costs) have narrowed, and are below historical norms.

There is, however, one very good reason why companies have been able to maintain risky financing strategies through some severe shocks, notably COVID-19 recently. This is that the shift from short-term dollar bank credits to long-term bond issuance has virtually eliminated maturity or liquidity risks on their international borrowing. Companies are therefore not exposed to the “sudden stops” in capital flows which have proved so devastating to Latin America in the past.

This article analyzes the rise in the dollar debt of NFCs in FLAR+4 countries in the last twenty years.⁷ The decade-long rise in dollar corporate debt of Latin American NFCs was mainly financed through international bond markets. Estimates of the development of aggregate currency mismatches are reviewed. As the risks

⁶ Corporate credit spreads have recently become increasingly correlated with real yields in benchmark risk-free bond markets.

⁷ FLAR+4 countries are the FLAR member countries (Bolivia, Colombia, Costa Rica, Ecuador, Paraguay, Peru, Uruguay, and Venezuela) plus the four greatest non-member countries (Argentina, Brazil, Chile, and Mexico), representing 95% of Latin America GDP. Throughout this article, we use “FLAR+4” and “Latin America” interchangeably.

from currency mismatches often interact with other corporate risks from increased leverage and low profitability, this paper uses large sample of firms to analyze such interlinkages. Microeconomic data thus help to illuminate the macroeconomic analysis.

II. The dollar debt of Latam companies: the international context

The share of bank loans in international credit has dropped appreciably since the Global Financial Crisis (GFC) and the share of international bond issuance has risen. This was partly because central banks in the main financial centers bought government bonds to drive down long-term interest rates relative to expected future short-term rates. The term premium in government bond markets in the reserve currencies turned negative. But it was also partly because new international regulations clamped down on banks but left bond market intermediation and some less-regulated non-bank financial institutions (NBFIs) virtually unscathed. Bank regulators in effect pushed risks from banks into bond markets.⁸

This controversial regulatory issue is now on the top of the international agenda. A string of serious episodes of instability in the US treasury market and the strong post-pandemic growth of the dollar debts of non-US borrowers mean that the G20 authorities can no longer ignore this dangerous trend.⁹ By the summer of 2021, the FSB had completed their long and very comprehensive consultation process about the risks to global financial stability of the huge international expansion of (mainly dollar) credits via bond markets. Bond funds, often leveraged and disguising substantial liquidity mismatches, have been major drivers of this development.¹⁰

But the FSB failed to find a consensus on global minimum standards for bond funds. Nevertheless, the outgoing chairman (Randal Quarles, then-Vice president of the Federal Reserve) said it was not just “jurisdiction-specific circumstances” but also “cross-border spillovers” and he stressed the need to avoid regulatory arbitrage. The regulation of the NBFIs was, he said, “unfinished business” at the end of his term.¹¹

In an unusual and well-publicized step, the head of the BIS used the BIS’s *Quarterly Review* of December 2021 to warn in strong terms about the financial stability risks created by non-bank financial institutions- NBFIs

⁸ See the section of gaps in the macroprudential tool kit (pp 90-93) in Turner (2021) for a fuller discussion.

⁹ For an up-to-date summary, see Hinge (2021) “Fixing market-based finance: duct tape or deep reform” *Central Banking Publications*. August 2021.

¹⁰ See FSB (2021).

¹¹ Mark Sobel’s OMFIF interview of 25 January 2022.

(Carstens (2021)). Such institutions, he emphasized, have been the main cause of several episodes of extreme market dysfunction and the regulatory framework governing them is not fully “fit for purpose”. How and when such regulatory issues are resolved in the jurisdictions where the NBFIs operate is likely to have a major impact on the international financing strategies of Latin American companies.

The impact of COVID-19 has made recent trends in international dollar credit difficult to read. Over the 4 quarters to mid-2021, total international dollar credit to non-banks in the emerging economies rose by 4.4%. But credit to Latin America declined by 1%, with credit to borrowers in Argentina and Brazil falling sharply.¹²

Figure 1 shows that the decade-long shift to international bond markets has been especially marked in Latin America. The dollar bonds outstanding of non-banks in Latin America had risen from 30% of exports in 2010 to 60% of exports by 2019. Interpretation of this ratio after the pandemic is harder - because of the sharp fall in exports in 2020 and the rise of the dollar against most Latin American currencies in 2021.¹³ But dollar international bank loans rose only slightly: 21% of total exports in 2010 to 24% by 2019, and then declined after the pandemic. In Southeast Asia, by contrast, dollar international bank loans and debt securities grew at similar rates for much of the decade.

Figure 2 shows that the growth in international debt securities issued by NFCs since the GFC (amounts outstanding) has been greater in Latin America than in the G20 or in South-east Asia. The dollar is still the dominant foreign currency, accounting for over 80% of international debt securities issued by NFCs in Latin America. For 2019, international debt securities of NFCs in Latin America, as a percent of GDP, was 1.5 times that in G-20 countries. And three times the figure in the Southeast Asia region where exports provide a larger natural hedge to exchange rate shocks than in the FLAR+4 countries. Note also that G20 NFCs debt was beginning to rise strongly from 2019 - which is relevant for any assessment of the current risks.

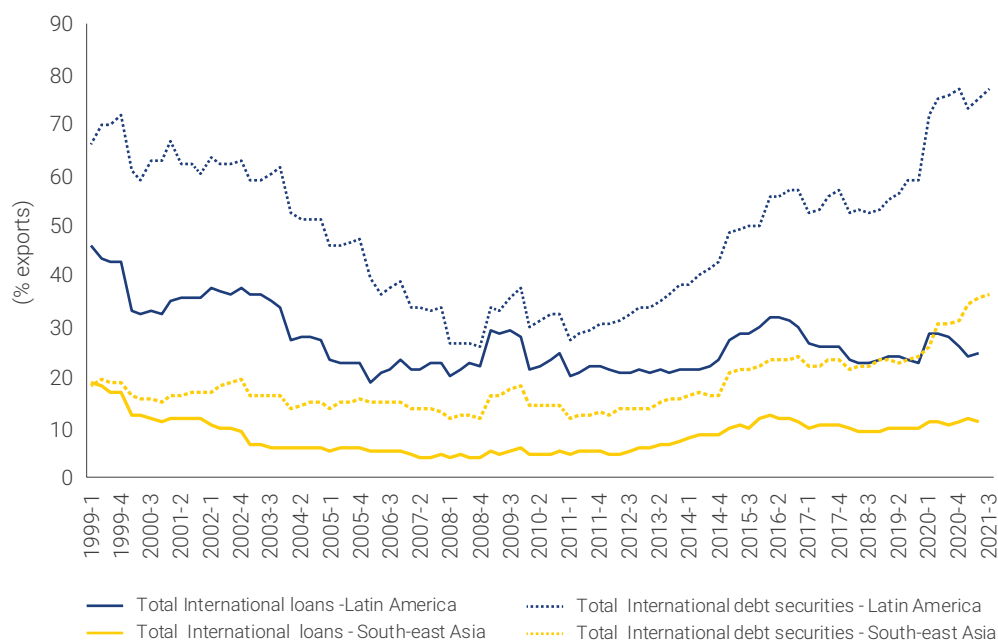
The decade-long rise in the dollar-denominated debt of Latin American companies was part of significant net capital inflows and a large current account deficit for the region as a whole.¹⁴ This has some macrofinancial relevance given the key role of capital inflows historically in increasing credit expansion and asset prices in recipient countries (Merrouche and Nier (2010)).

¹² Year to 2021 Q2, the latest quarter for which data are available (Table E2 *BIS Statistical Explorer*).

¹³ The year 2010 for Latin America is arguably a depressed starting point because the effects on the 1980s debt crisis lingered for many years with the disruption of external finance and a sharp reduction in public investment.

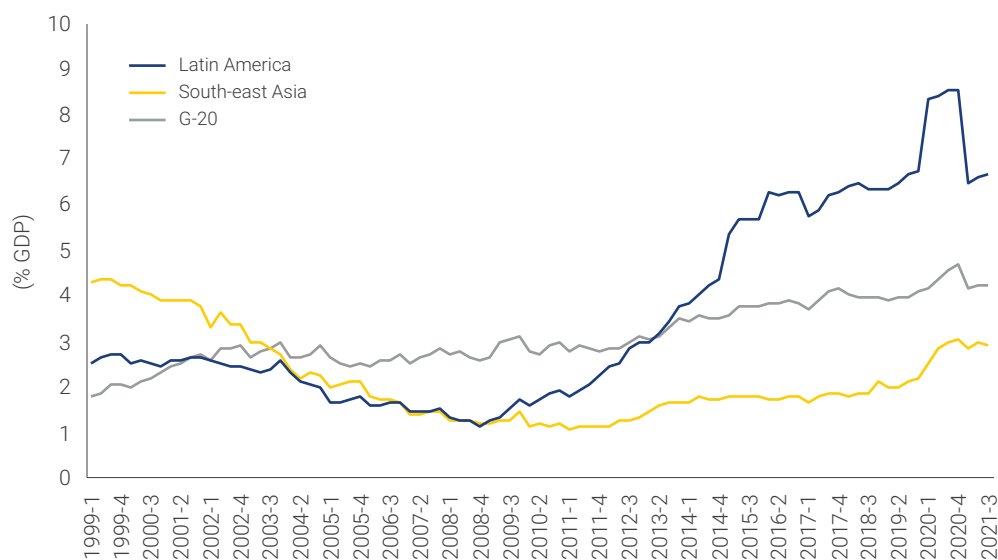
¹⁴ The IMF estimates that the current account deficit for Latin America and the Caribbean averaged 2.5% of GDP over the period 2011-19. Before the GFC, Latin America had a current account surplus of 1% of GDP, which implies that capital flows did not add to domestic credit.

Figure 1. International dollar debt of non-banks



Source: BIS. South-east Asia (Indonesia, Malaysia, Philippines, and Thailand), and Latin America (Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Paraguay, Peru, and Uruguay).

Figure 2. Total international debt securities of the non-financial corporate sector



Source: BIS. G-20 without Argentina, South-east Asia (Indonesia, Malaysia, Philippines, and Thailand), and Latin America (Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Paraguay, Peru, and Uruguay).

III. Measuring currency mismatches

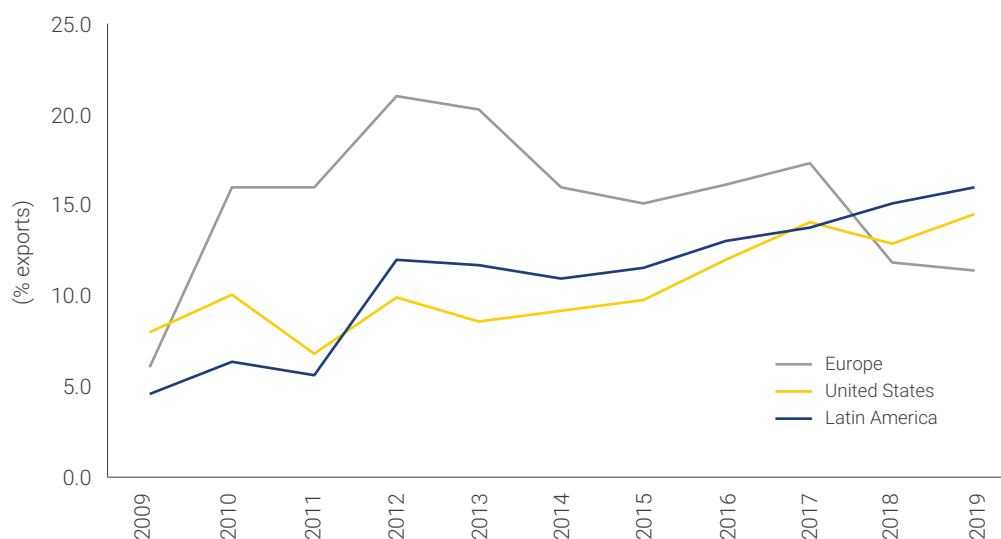
Latin American companies were able to raise dollars on international bond markets on such a scale not only because of abundant global liquidity but also because of official financing policies more prudent than they had been in the 1990s. As a matter of policy, governments in the region were no longer borrowing dollars on a big scale, and central banks had built up large foreign exchange reserves.

Before delving into the implications of this for currency mismatches, the IMF's recent balance of payments data deserve a mention. Figure A1 in the Annex shows that it was the net international investment position (IIP) of governments -not companies- which improved in the decade before the GFC. The positive net IIP of governments reached an estimated 45% of exports by 2009, but then declined to 10% of exports. This decline seems to reflect increased non-resident holdings of government bonds (mostly in local currency).

In sharp contrast, the net IIP of the non-government sector (and particularly companies) has traditionally been negative. For Latin America, the negative balance has been around 200% of exports, compared with about 100% of exports in South-east Asia. There was a sharp deterioration in both regions in 2008 (as presumably as equity prices fell worldwide).

The data discussed in previous section covered only debts (bank and bond debts). Companies which are expanding their international presence, however, will typically borrow in order to acquire equity exposures in companies located abroad - typically recorded as foreign direct investment (FDI).¹⁵ Since 2009, foreign direct investment (FDI) of Latin American companies has indeed risen more quickly than exports. Total outward FDI has risen from (4.6%) of exports in 2009 to (15.9%) by 2019 (**Figure 3**). There has been a substantial increase in FDI assets in other Latin American countries (Mazouz *et al.* (2021)). This increase, however, is comparatively small, and so does not lessen concern about the very much larger increase in dollar debt. It is true that investments in (and exports to) affiliates in other Latin American countries will often be denominated in dollars. But this does not provide the same insulation from a Latin America-wide shock as would investments in the United States.

¹⁵ Unlike debts, equity assets are not included in currency mismatch calculations. This is because, unlike debt contracts, they have no fundamental currency of denomination. Hence the shares in international companies in New York, although quoted in dollars, earn profits in many different currencies.

Figure 3. Outward Direct Investment (ODI) of Latin America

Source: International Monetary Fund (IMF).

A second complication is that data on external assets and liabilities (even if the currency of denomination is known) give an incomplete and potentially misleading picture of currency mismatches. One reason is that some external liabilities are denominated in local currency. The most important such element is the rise on non-resident holdings of domestic government bonds denominated in local currency. Another reason is that some internal domestic claims are denominated in foreign currency. A major component of this is the dollarization of the local banking system. Bank deposits of residents denominated in dollars may be used to finance domestic bank loans in dollars (that is, transactions between residents and not external transactions).¹⁶ Foreign currency transactions between residents also create risks that do not cancel out.

To address these complications, the statistics developed in Goldstein and Turner (2004) and extended in Chui *et al.* (2018) sought to measure a country's aggregate currency mismatch more accurately than measures based only on external debt and assets.¹⁷ **Figure 4** shows one key element of their estimation: net

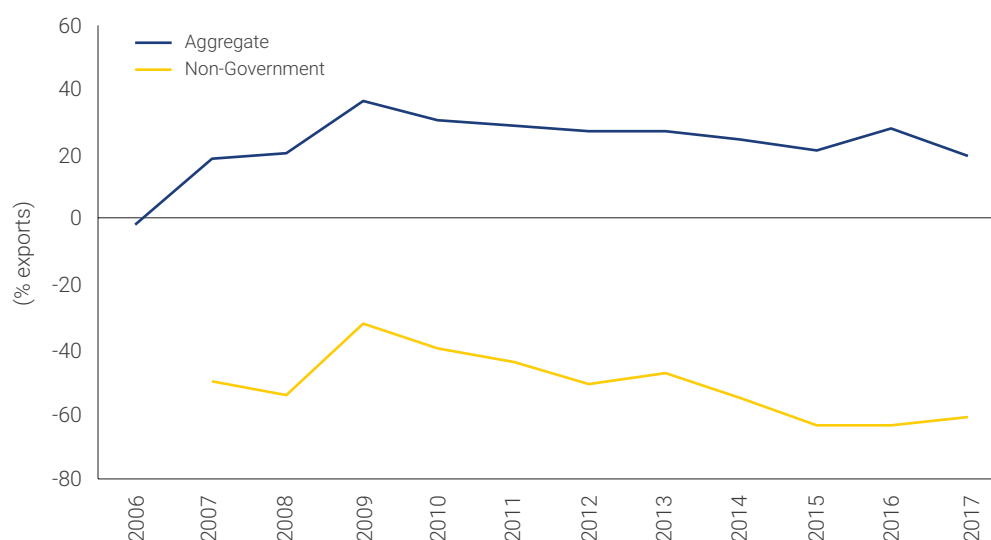
¹⁶ During the past decade, the proportion of domestic bank loans denominated in foreign currency has been reduced (often by deliberate policy) to 32% (2017) from 55% a decade earlier.

¹⁷ The two elements of this measure are the net foreign currency position and the percentage of total debt denominated in foreign currency: see Chui *et al.* (2018). Figure 4 shows that net foreign currency assets rose as a percentage of exports. In addition, the foreign currency share fell from around 40% of total debt (including local debts) to under 20% in recent years (not shown in the graph). For a discussion of alternative currency mismatch measures applied to Latin America, see Tobal (2013).

foreign currency assets as a percentage of exports. For much of the 1990s, large dollar debts meant that Latin America had a net foreign currency liability position. For most of the 2000s it was positive. On this measure, aggregate currency mismatches in Latin America have been largely eliminated. The “best” year was 2009 when net foreign currency assets reached 36% of exports: since then, however, it has been slowly downhill. This positive net foreign currency position is hugely important because it means that a currency depreciation now improves the country’s external balance sheet position (and the associated net investment income). It therefore adds to the stabilizing effects of currency adjustments on the trade balance. And the reduced foreign currency share of total debt has reduced the risk that currency depreciation might aggravate adverse debt dynamics.

Indeed, the greater use of bond markets, domestic and international, reduced the refinancing risks which have so often made even short-lived financing crises hard to manage. The development of deep domestic currency markets for government bonds gave central banks in countries with credible fiscal and other policies greater latitude to use their balance sheets to counter external financial shocks.¹⁸

Figure 4. Net foreign currency assets Latin America



Source: Chui *et al.* (2018) and BIS (2018). The aggregate figure is the weighted average by GDP of Brazil, Chile, Colombia, Mexico, and Peru.

¹⁸ On this, see Turner (2018) and Benigno *et al.* (2020). A report by the Center for Global Development and the Inter-American Development Bank reached this conclusion for Latin America and the Caribbean (Powell and Rojas-Suarez (2020)).

The great macroeconomic payoff from reforms (notably central bank independence) and market deepening is that monetary policy can be more focused on domestic objectives - less constrained by having to support the exchange rate. Kamin and Kearns (2021), using Taylor rule reaction functions for decisions on the policy rate, have shown that central banks in Latin America no longer automatically respond to exchange rate movements. In 2021, several central banks in Latin America did raise their policy rate to counter inflation but at the same time accepted quite large currency depreciation. This is important because a régime of exchange rate flexibility helps to make those who borrow dollars aware of the risks they face. There is indeed evidence that the independence of the central bank and reduced inflation volatility help to contain currency mismatches (Venkatesh and Hiremath (2021)).

The elimination of aggregate currency mismatches over the past 15 years, however, was due entirely to changes in the government's financial position - not only increased forex reserves but also government debt denominated in local currency (not dollars). Between 2007 and 2017 (the latest year for which these data are available) net foreign currency liabilities in the non-government sectors increased by more than \$350 billion (**Table 1**). This concentration of currency exposures in the private sector has significant implications for exchange rate dynamics. Because firms with dollar debts rush to hedge their exposures whenever expectations change, downward pressure on the exchange rate is accentuated. Such an effect is likely to be greater if it is the more leveraged companies which have more marked currency mismatches.¹⁹

These calculations are based on balance sheet positions and take no account of the use of derivatives to hedge foreign currency risks. Companies which have large dollar liabilities but lack the natural hedges of dollar earnings or assets often claim that they have used financial derivatives to hedge their exposures.

Table 1. Net foreign currency assets Latin America*
(\$US billion)

	1997	2007	2012	2017
Aggregate	-65	90	181	32
Of which non- government	n.a.	-129	-365	-490
Monetary authorities**	n.a.	280	540	593

* Information for Brazil, Chile, Colombia, Mexico and Peru.

** Includes deposit money banks.

Sources: Goldstein and Turner (2004) and BIS (2018).

¹⁹ The investigation of company-level data reported below suggests that high leverage and marked currency mismatches tend to go together in the more vulnerable companies whose debt service costs are high relative to profits.

It is true that forex derivative contracts have multiplied in recent years and now cover many more emerging market currencies.²⁰ Nevertheless, the use of imperfect (but cheap) hedging strategies and the fragility of forex hedging markets in many Latin American currencies warrant taking such claims with a strong pinch of salt. As noted above, 3-month swaps (inexpensive in normal times and often used) are not satisfactory hedges for long-term dollar debts because forex hedging markets have proved vulnerable to liquidity strains. If forex hedging were riskless, covered interest parity between two currencies would prevail, and generally did so before 2007.

Since then, however, spreads in forex swaps markets (cross-currency basis) have widened and become more volatile (Barajas *et al.* (2020)). Companies have found during forex crises that the cross-currency basis turns against them (making hedging more expensive) when the central bank is raising local interest rates (Kalemli-Özcan (2019)).²¹ In addition, companies may use inexpensive spread options to hedge forex risks only in a narrow range - and so irrelevant during large exchange rate swings. On occasion, some forex hedges will even disappear for a time, destabilizing companies with dollar debts.

IV. Leverage and debt maturities

A world-wide development of concern is the increased leverage of non-financial companies. Just before COVID-19 struck, global corporate leverage had reached an historical high of 91% of GDP. This was almost entirely because the corporate debt-to-GDP ratio in the emerging economies (including China) rose very rapidly and reached that prevailing in the advanced economies.²² The IMF estimates that the pandemic led to a further rise of 11.5 percentage points of GDP.²³

One comprehensive measure of aggregate corporate leverage is the BIS's calculation of total debt of (or credit to) NFCs as a percentage of GDP. This includes all forms of international and domestic debt: bank loans, bond

²⁰ BIS data show that global notional outstanding forex contracts rose by a factor of 3 from 2005 to 2020 (Table D6 *BIS Statistical Explorer*).

²¹ Remember that in a crisis it is not only companies with dollar debts which seek to hedge. Foreign holders of local currency bonds may at the same time seek swaps to receive dollars.

²² Shäublin and Turner (2018) document how, contrary to popular myth, private non-financial sector debt (that is, including households but excluding government) for the advanced economies as a whole actually fell as a percentage of GDP in the decade following the GFC. The fall was sharper in those countries which pursued QE than in those which did not.

²³ Between the end of 2019 and the third quarter of 2020 (IMF (2021)). However, the sharp fall in nominal GDP exaggerates the increase. Between 2010 and 2019 the corporate debt-to-GDP ratio in the advanced economies was virtually flat.

debt and so on.²⁴ **Table 2** shows that, on this measure, the debt of NFCs in Latin America rose sharply from 2007 to 2015 but still remained well below that in the United States and the euro area. Chile stands out as an exception. From 2015 to 2019, however, the debt-to-GDP ratio for Latin America was constant. There was a sharp rise in 2020, but part of this also reflected the decline in GDP (real GDP fell by 7% according to the IMF).²⁵

Table 2. Total credit to NFC's
(As a % of GDP)

	2007	2010	2015	2019	2020	2021Q1
Latin America*	26.4	32.1	43.2	43.1	48.0	47.8
Of which						
Brazil	29.7	35.6	47.5	48.2	54.0	53.6
Chile	65.2	70.9	106.0	110.1	116.0	114.7
Colombia	27.0	30.2	40.5	31.5	34.7	34.7
Mexico	14.7	16.6	24.5	25.1	27.4	27.3
Memorandum						
Euro area	93.3	101.2	108.9	104.9	114.2	115.6
United States	69.8	66.6	70.9	75.9	84.7	85.4

* GDP-weighted average of the countries shown.

Source: BIS.

Access of Latin American companies to international bond markets seems to have been well sustained. The average maturity of the international bond debt of Latin American NFCs has been around 10 years over the past decade. Although there was a shortening of maturities in 2017, there is no evidence of companies on average being forced to borrow short (**Figure 5**).

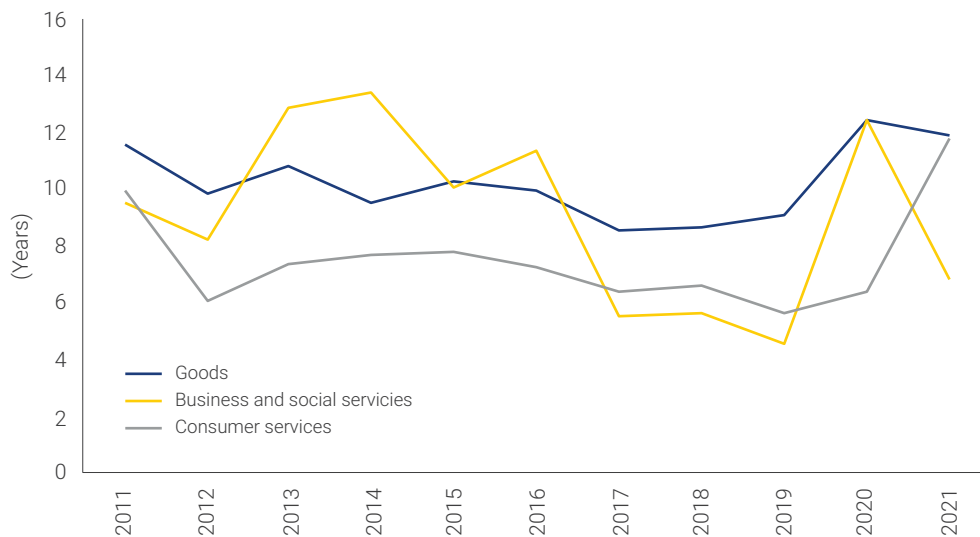
Developments over time in some countries suggest that increased bond borrowing has often replaced international bank borrowing by NFCs. Such a development would reduce the net impact of increased bond issuance on leverage in the non-financial corporate sector and increase the (stabilizing) impact on average debt maturities. It is possible that the forex exposures of NFCs could have risen indirectly via increased cross-border dollar interbank borrowing by Latin American banks. This would typically be on lent to companies or households.

²⁴ Unfortunately, there is no foreign currency/domestic currency breakdown in these data. This is a serious statistical gap which could and should be corrected.

²⁵ Central bank funding for banking schemes introduced during the crisis may distort these estimates.

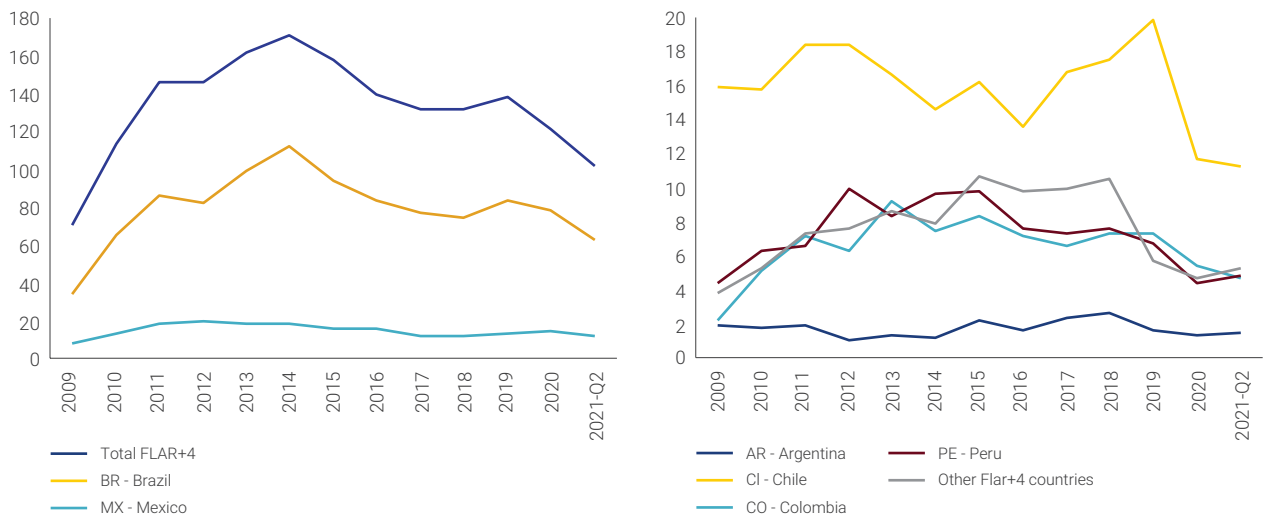
Changes in such interbank borrowing, however, have been too modest over the past decade for this to have been a major factor. Cross-border interbank borrowing by banks in Latin America, which had grown strongly up to 2014, has actually declined in more recent years (**Figure 6**).

Figure 5. Maturities of average gross issuance of private non-financial corporate parents in Latin America and Caribbean



Source: Aldasoro *et al.* (2021).

Figure 6. Bank cross-border liabilities to BIS reporting banks in US dollar billions



Source: BIS.

V. A company-level database: leverage, currency exposures and liquidity risks

Financial instability often has no single cause but is instead triggered by the coincidence of multiple risk exposures. Apparently distinct risk exposures (in this paper, leverage, currency mismatches and liquidity risks) are often concentrated in the same companies. The majority of firms may look financially sound by the conventional metrics. But the unexpected bankruptcy of a few companies will make others look shaky. It could also weaken those banks where the losses are concentrated. Even if the threat to the whole financial system can be contained, the negative shock to business investment and GDP will cause problems for policy-makers.

This paper therefore uses microeconomic, or firm-level, data to deepen insight into financial stability and macroeconomic risks. We use the financial data for non-financial corporations in Latin America from the S&P Capital IQ platform. The database contains financial information about 162 listed companies and 1713 debt issues from 2000 to 2020. Firms are mainly in Brazil (24.3%), Mexico (24.3%), Argentina (16.2%), and Chile (14.3%). The variables used in this paper are summarized in Box A.

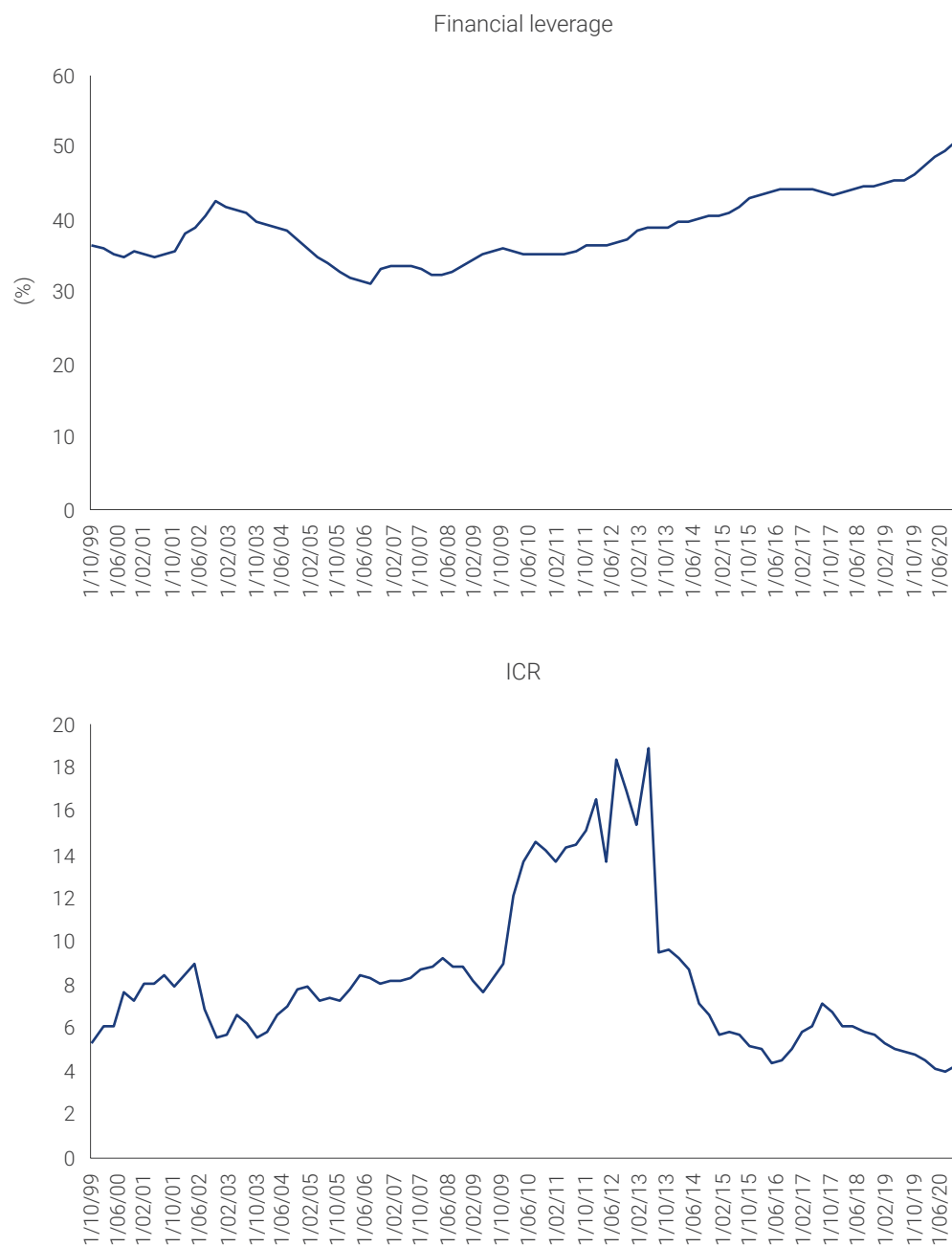
Box A. Variables in the corporate database

Average borrowing costs: Interest payments/total debt
 Capital expenditure
 Earnings before interest, taxes and depreciation (EBITDA)
 Equity
 Financial leverage= Total debt/ Equity
 Interest payments (INT)
 Interest coverage ratio (ICR) = EBITDA/INT
 International bonds in dollars (issuance and outstanding) or \$DEBT
 Profitability - Return on equity (ROE)
 Revenues
 Total assets
 Total liabilities (or DEBT)

A. Leverage

The top panel of **Figure 7** shows that the leverage of corporations (as measured by total debt/equity) in our sample has risen substantially since 2011, with the pandemic leading to a particularly sharp increase in the past two years. The lower panel of **Figure 7** shows the simplest measure of solvency which is the interest coverage ratio (ICR), that is EBITDA divided by interest payments. The ICR can be interpreted also as the rate of return on assets divided by the product of leverage and average borrowing costs. This decomposition is summarized in section 6 below.

Figure 7. Debt Financial leverage and interest coverage ratio NFC's Latam (4-quarter moving average)



Source: S&P Capital IQ; authors calculations.

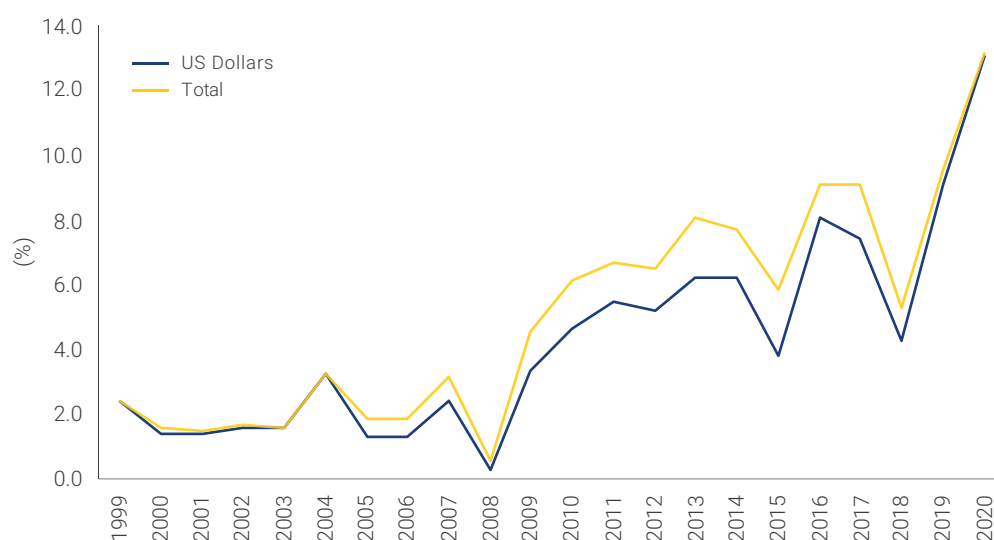
The ICR seems to have reached a local peak around 2011 and 2012 and by 2020 had fallen to around 4. Hence higher leverage has reduced the ICR. As for the other determinants of the ICR, the decline in the average interest rate paid on debt has been offset by lower profitability. These broad trends are similar to those observed by Beltran and Collins (2018). The obvious question is: what will happen once higher global interest rates increase their borrowing costs of companies?

B. Currency exposures

It is not possible using this database to compute currency mismatches for individual firms in a way comparable to the macroeconomic measures outlined in Section 3 above. However, data on dollar international bond issuance -the main vehicle for international dollar borrowing by corporations in Latin America- give a good idea of how currency exposures have increased. Bond issuance has mainly been by firms in Mexico (38.6%), Argentina (18.6%), Chile (15.8%), and Brazil (14.8%).

Figure 8 presents the international bond annual issuance of non-financial corporations in the sample as a percentage of total revenues. International bond issuance was about 2% of revenues in 2007, dipped to 0.3% in 2008, and then surged to 9% of revenues by 2019 (13% of COVID-19 - depressed revenues in 2020). This debt is almost entirely denominated in dollars.

Figure 8. International bond issuance as percentage of total revenues



Source: S&P Capital IQ; authors calculations.

Note that in recent years significant but temporary declines in dollar bond issuance seem to have coincided with periods when dollar benchmark yields (that is, on 10-year US treasuries) were comparatively high as in 2014/15 and again in 2018. The strong surge in 2019 and 2020 also suggests a pattern of companies taking advantage of very low benchmark interest rates in timing their bond issuance in international markets.²⁶ Some may have borrowed ahead of their investment plans. Others may have wanted to build up a buffer of liquid dollar holdings to cope with a future deterioration in global financial conditions. Such strategies can make the balance sheets of companies more resilient to financial shocks. But some firms will have engaged in some form of carry trade by buying higher yielding financial assets. Such speculation exposes the future profits of firms (and their future balance sheets) to risks not related to their core businesses.

In order to deepen the analysis of currency mismatches, firms can be divided according to the main sector within which they operate into the tradable and non-tradable sectors.²⁷ Companies producing tradables may have a natural hedge to their dollar debts in terms of dollar earnings. 52% of total firms are in the tradable sector (that is, industrials, airlines, oil and gas extraction, and metal & mining). The rest 48% are in the non-tradable (that is, utilities, transport, communications, retail trade, real estate, and other services).²⁸

Figure 9 shows the decomposition of debt issuance for companies of FLAR+4 countries into the tradable and non-tradable sectors. Given the lack of local corporate bond markets in domestic currency, most debt issuance is in dollars. High dollar debt levels increase the currency mismatch risks, especially for firms in the non-tradable sector whose normal business does not generate dollar earnings. Before 2008, annual debt issuance in dollars was roughly similar in the tradable and non-tradable sectors. Although the tradable sector has accounted for the lion's share of dollar debt issuance since then -which on the face of it should have limited currency mismatches- dollar debt issuance by the non-tradable sector is significant.

One feature of companies in our sample has an important bearing on any assessment of the risk management of currency mismatches. This is that more than half of them have a parent. 61% of the companies are supported by 99 ultimate parent companies in Mexico (25.9%), Brazil (20.6%), Argentina (15.2%), and Chile

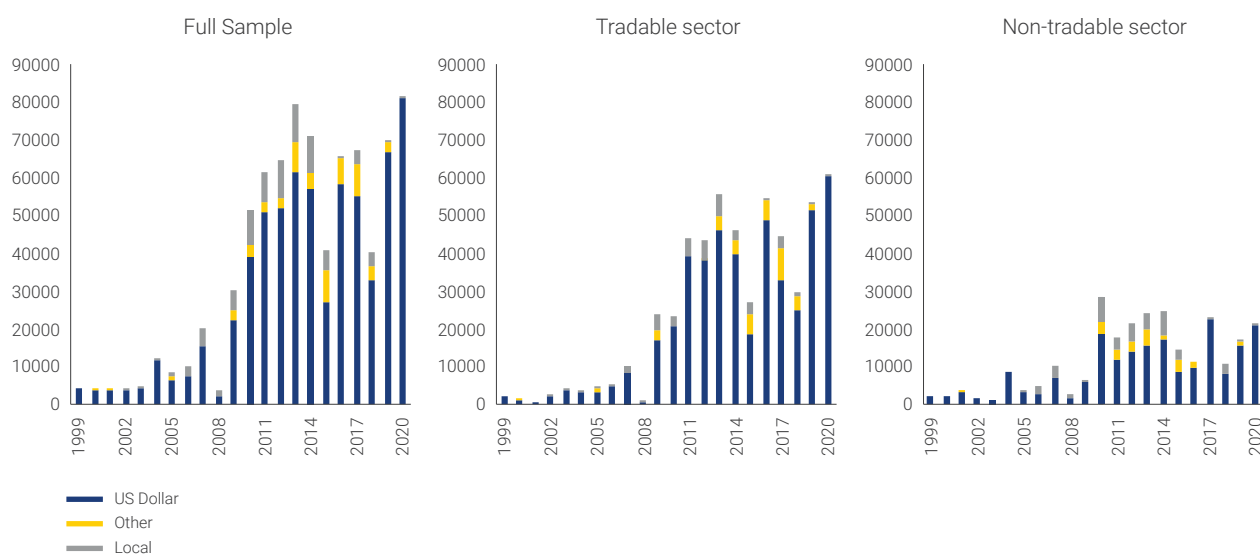
²⁶ Issuance weakened in the first half of 2021. Financial conditions tightened in Latin America during 2021, partly reflecting bad news about the pandemic. The dollar appreciated against Latin American currencies, sovereign spreads on dollar paper widened and a number of central banks raised interest rates. See pp 17-19 BIS (2021b).

²⁷ This is of course a big simplification. Other studies have tried to gauge the currency exposures of individual firms from their annual reports. Kofanova *et al.* (2015) did this for the top 100 EME corporate bond issuers.

²⁸ According to SIC Code classification.

(9.8%).²⁹ It makes sense for companies with foreign parents to manage their currency mismatch risks at the group level because having many affiliates in different countries itself provides some natural diversification of risk. In addition, administrative simplicity would often impose the use of a single common currency by all affiliates. It is of course the dollar that companies with operations in many different Latin American countries are most likely to use. But, to repeat a point made earlier, dollar earnings generated by sales to other Latin American countries do not protect companies from a regional downturn.

Figure 9. Gross issuance of debt securities by FLAR+4 non-financial companies (US\$MM)



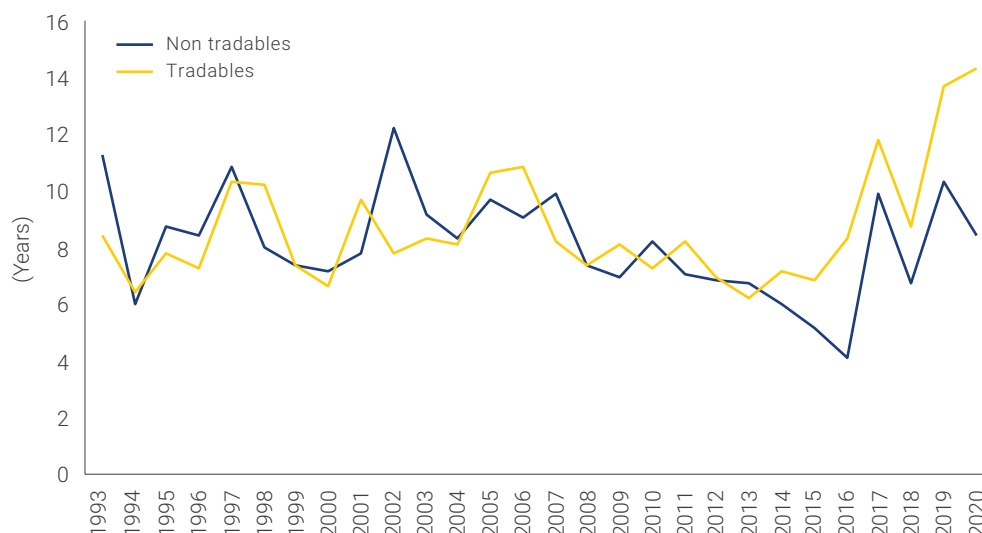
Source: S&P Capital IQ; authors calculations.

C. Liquidity risks of borrowers

The progressive shift over many years of their dollar financing from short-term bank loans to long-term bonds has reduced the liquidity risks of borrowing companies. The maturity term of average debt issued by firms in our dataset has been around 10 years, reflecting the good access of companies in the region to the international bond markets over the period analyzed (**Figure 10**). This feature persisted even during the current health and economic crisis. The trend is very similar among companies from the tradable and non-tradable sectors, although the firms in the tradable sector have had longer maturity terms in the past seven years.

²⁹ This includes domestic as well as foreign parents. The currency mismatch dimension arises more with foreign parents, however.

Figure 10. Maturities of average gross issuance of non-financial companies in FLAR+4



Source: S&P Capital IQ; authors calculations.

The risk-free interest rate that is key for their dollar borrowing costs is the long-term yield on US treasuries (influenced by the Fed but dependent on global financial conditions) rather than the Fed funds rate which is directly controlled by the Federal Reserve.

The long maturity term of debt issued shows confidence in international markets about the region. But it does not free borrowers of some underlying risks. One risk is that, with non-residents already holding large stocks of long-dated paper, market yields become more sensitive to risk-on/risk-off swings of sentiment in international capital markets. But immediate rollover risks appear moderate: 11.7% of total debt outstanding matures in 2022 and 11.5% in 2023.

The sample also includes some data on the asset side of the balance sheet of these companies - notably their external assets. The growth in external assets, however, has been dwarfed by that of debt issuance. By 2020, the external assets for the firms in our database had reached \$75 billion (61% in the tradable sector and 39% in the non-tradable). Yet total dollar debt securities issued only in 2020 reached \$81 billion.

In addition, \$71.2 billion (95% of the total) are assets inside Latin America. This reflects the tendency of Latin American firms to invest largely in other Latin American countries, Mazouz, *et al.* (2021). This regional concen-

tration of assets probably means that most of the earnings of their affiliates are generated in Latin America.³⁰ Such companies are therefore exposed to shocks affecting the region as a whole.

Many of the firms in the sample have a foreign parent and, as noted above, this alters risk assessments. We define a firm as foreign if foreign ownership (i.e., capital) is more than 50% and domestic if it is less than 10%. Under this classification, 31% of firms in the sample are foreign-owned and 39% are domestic-owned. Almost two-thirds of the foreign-owned companies operate in the tradable sectors compared with less than one-half of the domestic-owned companies.

As an initial exploration, **Table 3** presents the results of panel regressions of dollar bond debt (normalized by the assets) on a measure of leverage (total debt/equity) and on dummies for foreign and domestic ownership. This is done for both the tradable and the non-tradable sectors.

Table 3. Dollar debt, leverage, and ownership

Variables	(Tradables) Dollar debt	(Non Tradables) Dollar debt
Leverage	0.0002 *** (7.50e-05)	0.0005 (0.0005)
Foreign	0.157 *** (0.0543)	-0.0341 (0.0720)
Domestic	0.0661 (0.0416)	0.0498 (0.0920)
Constant	0.116 *** (0.0251)	0.281 *** (0.0599)
Observations	1,298	1,180

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

These regressions, which are no more than suggestive, are part worrying, part reassuring. First, the worry. There is a strong cross-firm relationship between dollar debt and leverage. The firms most indebted in dollars are also the most leveraged. However, this is statistically significant only in the tradable sector. To some extent, this is reassuring: leveraged currency mismatches would have been more dangerous in the non-tradable sector. Any link between dollar debt and leverage merits further analysis using constant exchange rates. The rise of the

³⁰ The word "probably" deserves emphasis because we are not aware of any studies which quantify this.

dollar against most Latin American currencies will automatically increase the leverage ratio in local currency. In any event, the choice of dollar finance still means that the profits of a company producing tradables will rise by less after currency depreciation than they would have done if local currency finance had been used. This effect -which becomes larger as leverage rises- may have been significant in the past few years given substantial real depreciations in the real effective exchange rates of many Latin American countries.

The second implication is that foreign-owned firms in the tradable sector have greater dollar debt than domestic-owned firms. In this context, domestic firms therefore seem less likely to face currency mismatches.

The next section looks into these interactions by breaking down the ICR into its constituent parts, by distinguishing between the tradable and non-tradable sectors and by focusing attention not on the median or average but on those companies which appear more vulnerable.

VI. Decomposing the ICR

It is important to “look behind” the ICR because several financial and macroeconomic variables are likely to be impacted simultaneously by any shock large enough to be systemic. A tightening in US monetary policy, for instance, will not only increase interest rates but may also lead to a stronger dollar. It may also induce a shift to risk-off mode in global financial markets which would hurt highly leveraged borrowers. In addition, the scale of the resulting bankruptcies (entailing defaults that would weaken banks) would depend less on the balance sheet position of the median or average company (with buffers that would help it survive) but more on the balance sheet position of the most vulnerable firms.

Accordingly, this section reports three simple statistical elaborations which can help to illuminate financial stability risks. First, the ICR is broken down into three components: leverage (inverse relation), profitability (positive) and the average borrowing cost (inverse):³¹

$$ICR = \frac{Profits}{Interest\ expenses} = \frac{Equity}{Debt} * \frac{Profits}{Equity} * \frac{Debt}{Interest\ expenses}$$

The second elaboration is to split the sample into tradable and non-tradable sectors. A dollar appreciation would be more damaging for a company with heavy dollar debts producing non-tradables (e.g., real estate) than for a company producing tradables.

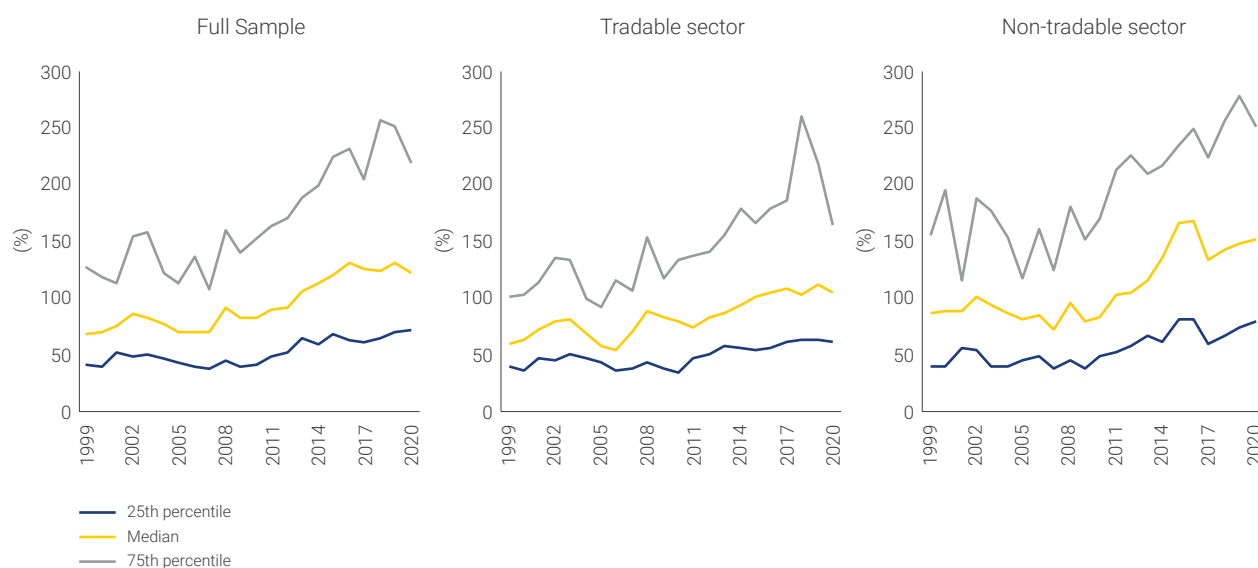
³¹ This is the same decomposition as in Beltran and Collins (2018) but the statistical proxies used are a little different.

The third is that data for the 75th and 25th percentiles are computed - not only the median. The wider the gap between the 75th and the 25th percentiles for any variable the less meaningful is the median as an indicator of vulnerability. In some cases, the clearest warning signals come from changes in the width of this gap.

Figure 11 shows the breakdown for the leverage ratio reported in the previous section. Of particular significance is that the largest increase in leverage has taken place in the more indebted firms. Leverage in the less indebted companies has risen more modestly. By 2018, the gap between the 75th and 25th percentiles had reached a record high.

Debt in the highly indebted segment (the 75th percentile) rose from 108% of equity in 2007 to 250% in 2019 and around 220% in 2020. This broad pattern of higher debt at the 75th percentile is shared by companies in both the tradable and non-tradable sectors. However, the forced reduction in leverage in 2020 as the pandemic hit was much more brutal in the tradable sector: note how suddenly the gap between the 75th percentile and the median narrowed in this year. It is because, after the COVID-19 shock, some companies in the tradable sector (mainly airlines and some chemistry products) lost value so fast, reaching leaving shareholders with negative equity. Even some of these firms entered into a reorganization plan as a strategy to emerge from the weak financial situation.

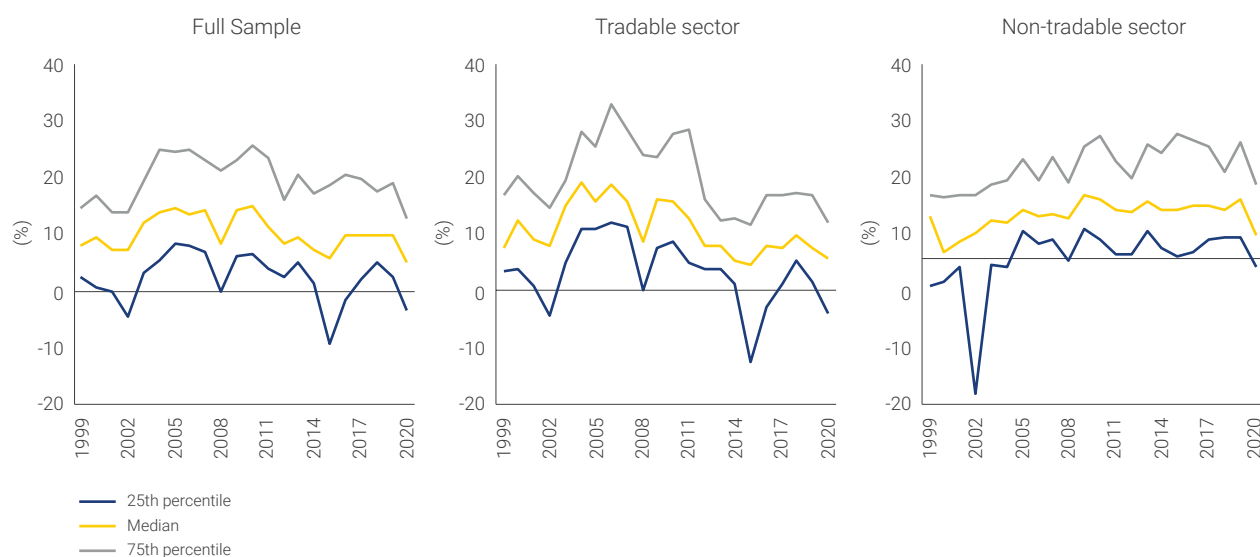
Figure 11. Leverage - Total debt to equity



Source: S&P Capital IQ; authors calculations.

The profitability measure shown in **Figure 12** is the return on equity (ROE). A similar broad trend of profitability has been found by several other studies using different samples of EME companies. The IMF's 2015 study of bond-issuing firms found that profitability on average tended to rise from 2000 to 2005 and decline thereafter (IMF (2015)). The IMF also found that, from 2010, a forward-looking measure of profitability (Tobin's Q) was no longer a significant determinant of capital expenditure, which is a puzzle.

Figure 12. Profitability of FLAR+4 non-financial companies - return on equity



Source: S&P Capital IQ; authors calculations.

A study at the BIS found that the profitability of NFCs in the EMEs during the mid-2000s was higher than that in the advanced economies. The post-GFC decline in 2008-09 was smaller in the emerging markets. But this began to change in 2011, with EME profitability falling below the advanced economies average by 2015 (Chui *et al.* (2018)). Beltan and Collins (2018) found that profitability (measured by return on assets for EMEs excluding China) fell sharply in 2009, rose somewhat to end-2011, but then declined.

In principle, higher leverage allows firms to expand output and revenues without increasing equity. If operational profits (profits/revenues) remain constant, the rate of return on equity should rise. It is therefore surprising that the rate of return on equity (based on the median for the full sample) fell from about 14% to 15% in 2010 below 10% by 2019 (and a COVID-19 -related drop to 5% in 2020). Hence increased debt after GFC has not led firms to higher profitability but may have led firms to expand in areas where the profits/revenue ratio was lower. Accepting lower profits at the margin may have been a rational response to the drop in real interest rates. Or it may have reflected overextension.

This decline, however, is evident only for the firms in the tradable sector.³² Profits in the non-tradable sector have hovered around 10% of equity since 2005 (though falling to 5% in COVID-19-hit 2020). In addition, profitability in the tradable sector has been much more volatile. From the point of view of financial stability, the concentration of debt in the more volatile sector during a boom can be a warning sign. Nevertheless, some volatility over this period was to be expected given this sector's exposure to the GFC and large swings in the prices of commodities.

Nevertheless, the medium-term decline in the profitability of the tradables sector has been very large: from just over 15% in 2010 to about 8% (average of 2016-19). The decline relative to the non-tradables sector is especially puzzling given the large real effective exchange rate depreciations. The Brazilian real is down 40% in real terms, the Colombian peso by more than 30% and the Mexican and Chilean pesos by about 20%.³³ What prevented such sizable depreciations from lifting profits? One hypothesis consistent with the subject of this paper is that companies with large dollar debts were caught out by how much the dollar rose relative to their own currencies.

With the exception of 2002, when three firms from the services sector suffered a substantial decline in the ROE, affecting the distribution, the profitability of the least profitable firms (that is, the 25th percentile) in the non-tradable sector is much more stable than that in the tradable sector. In this segment, the COVID-19 shock led to larger losses in the tradable sector than in the non-tradable sector.

The third element is average borrowing costs (the ratio of interest payments to debt), shown in **Figure 13**. At the beginning of the period there was a sizable reduction on average borrowing costs - from 11% in 2000 to about 8% in 2008 (median, full sample), with a temporary rise to 2006 as the Fed raised interest rates. What is surprising given the decline in the yield on US treasuries is that average borrowing costs fell only slightly. The calculation of Beltran and Collins exhibits a similar pattern.

Of much greater significance, however, is the narrowing of the spread between the companies paying the highest borrowing costs (the 75th percentile in the graph) and those paying the lowest (the 25th percentile).³⁴ This evident narrowing in credit spreads over a period when leverage was increasing most in the companies which were

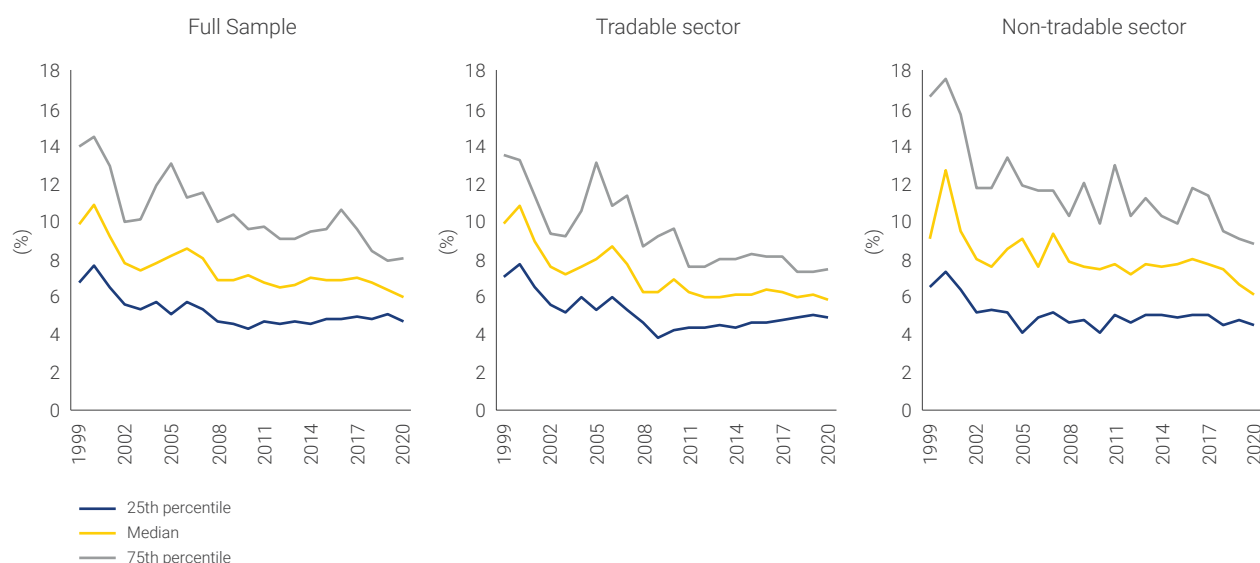
³² Oil price declines probably explain the sharp drops in 2015 (Brent \$52 a barrel), 2016 (\$44) and again in 2020 (\$42).

³³ Changes from 2010 to December 2021.

³⁴ From about 6 percentage points in 2000, to 5 percentage points in 2008 and to 3 percentage points in 2019.

already highly indebted seems counter-intuitive. It suggests that the effect low dollar risk-free rates have been powerful enough to depress (artificially?) credit spreads on risky assets even as the riskiness of the weakest credits rose.³⁵ If so, this is a warning sign about vulnerabilities which are likely to materialize when interest rates rise.

Figure 13. Average borrowing costs of FLAR+4 non-financial companies - interest expenses to debt



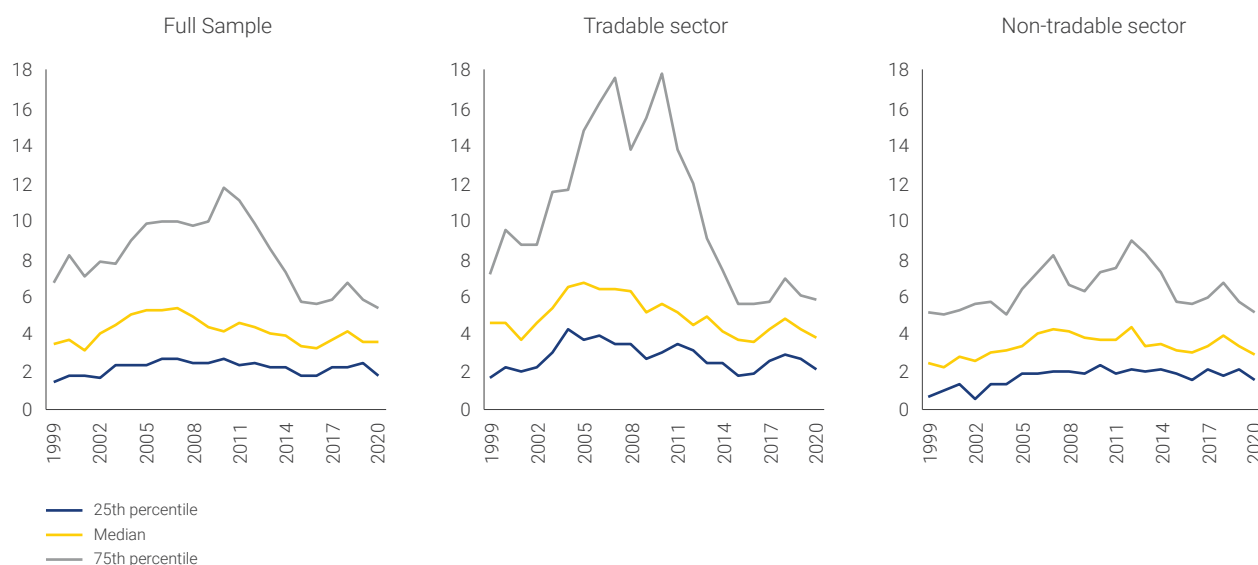
Source: S&P Capital IQ; authors calculations.

VII. The ICR and debt at risk

As noted above, the interest coverage ratio (ICR) is a shorthand measure of default risk, indicating of how far a company's cash flow covers interest expenses. A recent Federal Reserve study on US data from 1970 to 2017 found that for NFCs as a whole an ICR of 3.4 was associated with a default rate of 1.5% and one of 1.7 a default rate of 3% (Palomino *et al.* (2019)).

The ICR for the median of all Latin American companies reached a peak of 5.3 in 2007 notwithstanding the rise in global interest rates from mid-2004 (**Figure 14**). Since then, however, it has fallen (to 3.5 by 2020) even though global interest rates have declined to very low levels. The ICR of the 25th percentile, a better measure of vulnerability to default risk, fell to 1.7.

³⁵ As measured by leverage, ICRs and debt at risk calculations.

Figure 14. Interest coverage ratio of FLAR+4 non-financial companies - EBITDA to interest expenses

Source: S&P Capital IQ; authors calculations.

There is no specific threshold for the ICR which triggers alarm about the risk of defaults. One variable element is the interest rate environment itself - if interest rates are already high the future risks are less than when interest rates are low. A similar consideration applies to credit risk spreads. Another element is the highly cyclical movements of profits. And different sectors tend to have different ICRs (see Table A1 in the annex).

However, a very general and approximate rule is that an ICR lower than two indicates that a firm's risk of default merits attention, and this idea is reflected in some financial stress tests (IMF, 2014). In addition, many debt contracts incorporate covenants which limit how low an ICR can go before lenders can exercise some control over the company's actions. Hence the fact that the ICRs of the weakest 25% has hovered around 2 for some years is a warning sign (Fuentes and Serena (2014)).

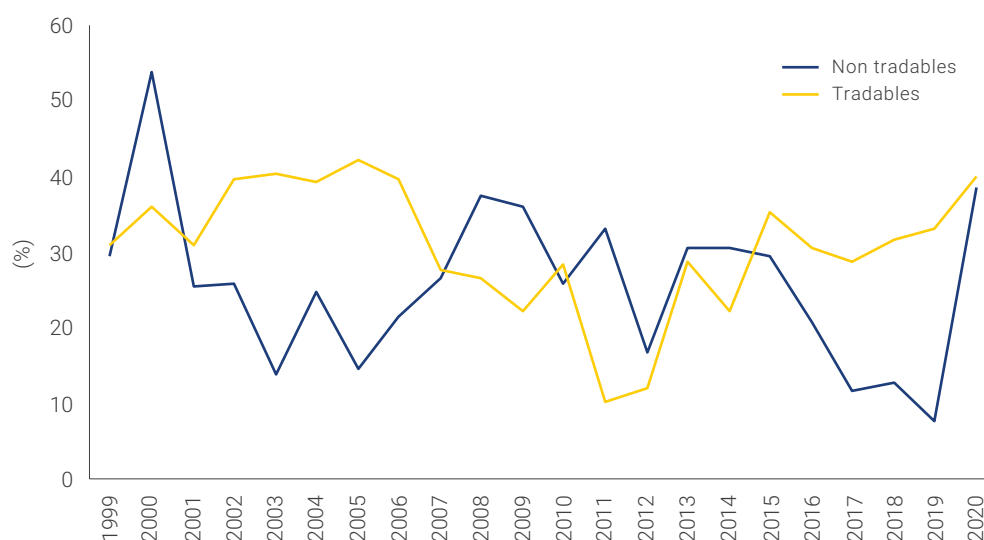
Debt at risk is an aggregate measure which combines the ICR calculations with the size of each company's debt. Debt at risk in a specific sector indicates the proportion of debt issued by firms in that sector with an ICR lower than two. The median ICR in a sector may be high (and so reassuring) but if the most indebted company has the lowest ICR then the debt at risk measure will be high, sounding a warning note. The indicator can also be used to show the evolution of the debt servicing capacity of the NFC sector in aggregate. The Federal Reserve study cited above about one-third of debt was over the period as a whole classified as at risk. The measure is highly cyclical, rising to over 40% in the 2002 and 2009 recessions (Palomino (2019)).

Figure 15 shows the evolution of debt at risk in the region FLAR+4 in the last 20 years for the tradable and non-tradable sectors. The debt at risk reading is volatile, oscillating between 20% and 40% in most years over this period, and any trends difficult to discern. In 2020, 40% of the aggregate debt of the full sample of companies was at risk (that is, with an ICR less than 2). Table A1 shows that the dispersion across industries is very wide, with the airline and transport sectors hardest hit.

Leaving aside 2020, debt at risk in the non-tradable sectors seems to have shown a downward trend over the past decade. On the other hand, debt at risk in the tradable sector does seem to have risen strongly since 2011 when international dollar borrowing began to take off after the GFC from 10% to 40%. This non-tradables/tradables divergence is consistent with the sharper decline in the ICR of the tradable sector (especially at the 25th percentile). These observations together in an environment of low dollar interest rates and still-compressed credit spreads raise some worries about the debt servicing capacity of the tradables sector in Latin America when interest rates rise and credit spreads widen.

As for the tradable sector, debt at risk rose from an exceptional low of 10% in 2011 (when the worst of the GFC had passed) to about 35% by 2015. Similar levels had been recorded in the years before the GFC, however. Nevertheless, this percentage does seem high given very low interest rates. It is perhaps a warning sign about the debt servicing capacity of some Latin American NFCs in the tradable sectors.

Figure 15. Debt at risk of FLAR+4 non-financial companies

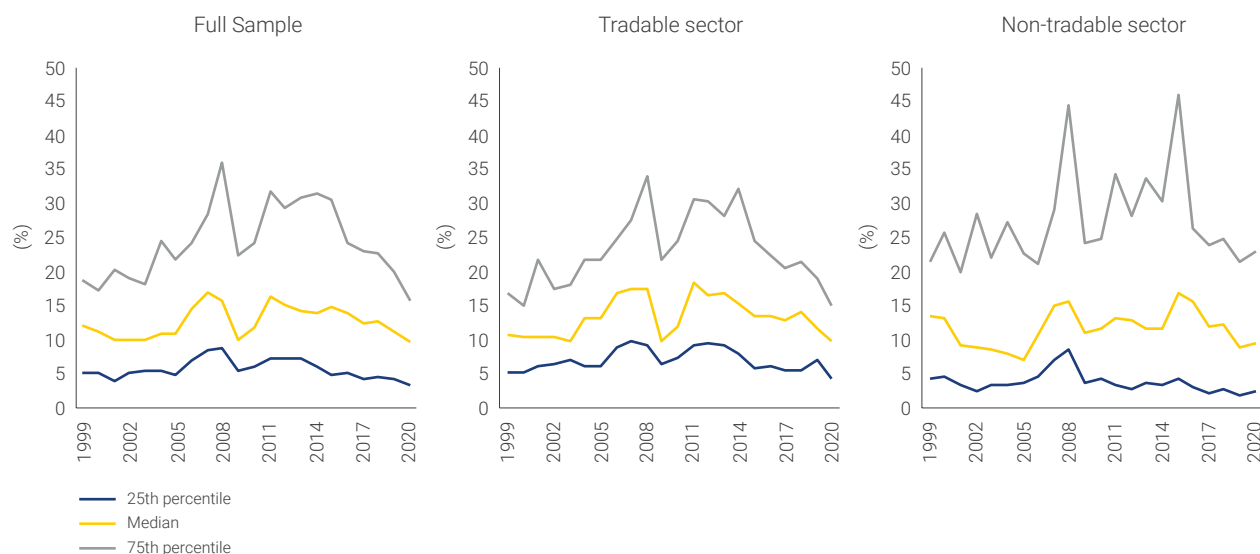


Source: S&P Capital IQ; authors calculations.

Table A2 in the annex summarizes these trends by country. The cross-country differences in the ICR will partly reflect differences in sector. Debt at risk over the whole period has usually been low in Brazil and high in Mexico. NFCs in Argentina had debt at risk reaching 43% in 2020 (7% on average in 2017-19).

There is a puzzle that might reinforce the concern about debt-servicing. It is that increased borrowing was not used to boost capital expenditure. Greater investment might have raised company productivity, and made them more profitable. Yet there was an almost uninterrupted and substantial decline in capital expenditure from 2011 to 2019 (that is, before the pandemic)³⁶ **Figure 16**. It is true that capital expenditure of firms in our sample in 2011 was back to where it had been in 2007 - a stronger performance post-GFC than that of most advanced economies. The recent decline seems to have been most marked in the tradable sectors where firms were spending less on capital expenditure as they were borrowing more.

Figure 16. Capital expenditure to Equity of FLAR+4 non-financial companies



Source: S&P Capital IQ; authors calculations.

³⁶ IMF (2015) found that since 2010 EME companies have tended to use the proceeds of bond issuance not to increase capital expenditure but rather to refinance debt "most likely to take advantage of favorable financing conditions."

It is an open question what explains this puzzle. What other assets were firms acquiring? One possibility is that companies were borrowing to acquire equity in other companies. Another possibility is that firms were acquiring financial assets unrelated to their core business activities (e.g., property, local bonds or bank deposits offering a higher rate of interest). Caballero *et al.* (2015) have argued that non-financial corporations in emerging economies issue debt to have liquidity when intermediation activities become very profitable. A new and significant role for non-financial corporations may be acting as financial intermediaries, Powell (2014).

It is known that non-financial corporations in the emerging economies have been earning profits from financial intermediation - taking credit, currency or maturity risks which may have been very profitable (Caballero *et al.* (2015)). If this is indeed the case at present for Latin American NFCs, this would increase their vulnerability to changes in the global interest rates and liquidity conditions.

VIII. Bond market debt versus bank loans

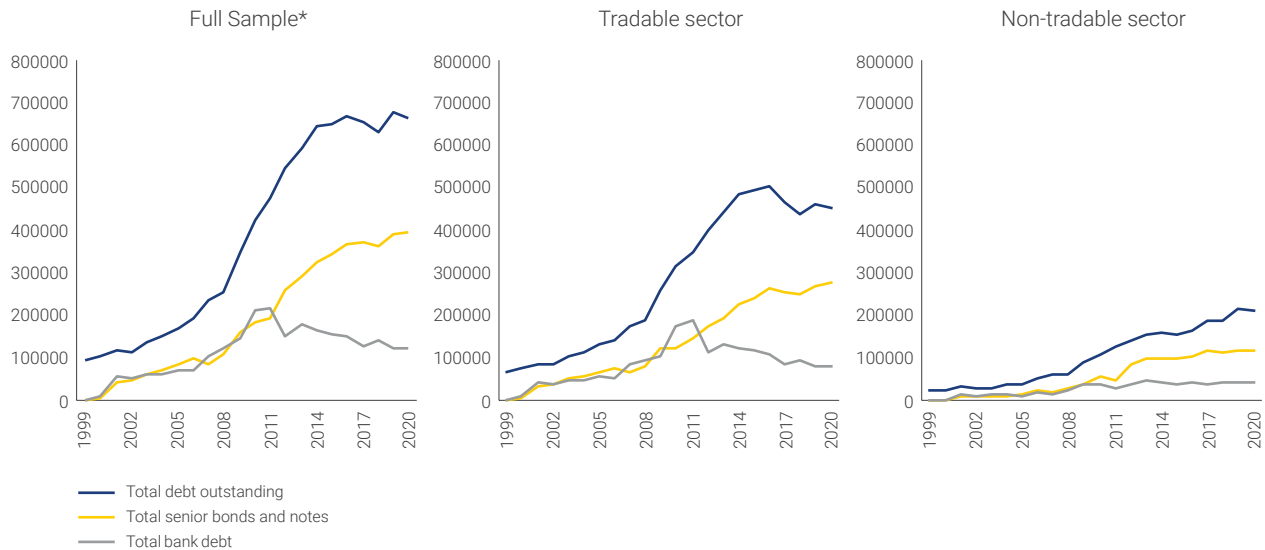
Companies now get more finance from capital market and less from banks. **Figure 17** presents this evolution for our sample of companies by summarizing total principal due in the two main categories: bond securities and bank loans. There is a clear break in 2012 when the market-based finance overtook bank loans (full sample). This shift has been strongest for the tradable sector. Companies in the non-tradable sector still rely on bank loans to a significant extent.

It would, however, be a mistake to suppose that the supply of domestic credit from banks is not also affected by low dollar interest rates. When global liquidity is abundant, domestic banks can readily borrow on international interbank markets, and take more risks. A recent BIS report found that banks in Latin America with the highest share of wholesale funding give more credit to the riskiest firms.³⁷

It is corporates with investment-grade ratings which have taken most advantage of the shift towards market-based finance as they sought to finance themselves more cheaply (**Figure 18**). After the GFC, bank loans probably became more expensive than bond issuance for such companies. Corporates without investment grades are forced to borrow where they can even at a higher cost.

³⁷ See "Capital inflows and credit supply in Latin America" pp 89-91 in BIS (2021a). This report found that large changes - but not small changes - in global liquidity have a significant effect on the supply of domestic bank credit.

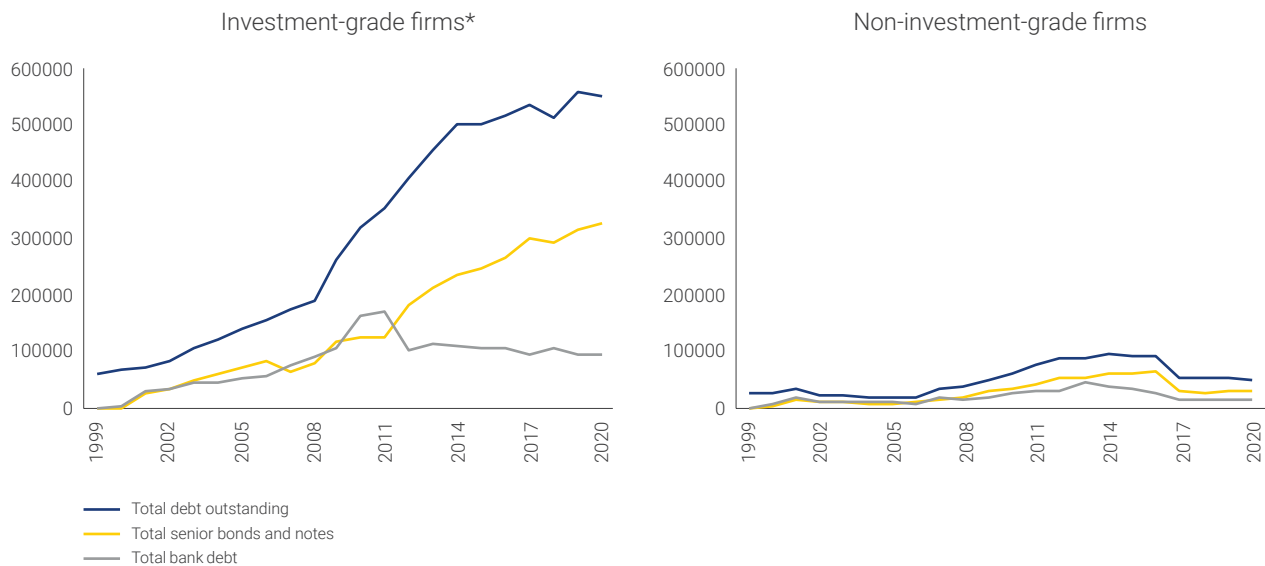
Figure 17. Debt securities vs. bank loans NFC in FLAR+4 (US\$MM)



* The sum of total bonds and total bank debt is not equal to total debt outstanding because there are other small financing instruments that we do not graph for more clarity.

Source: S&P Capital IQ; authors calculations.

Figure 18. Debt securities vs. bank loans for investment and non-investment grade firms (US\$MM)



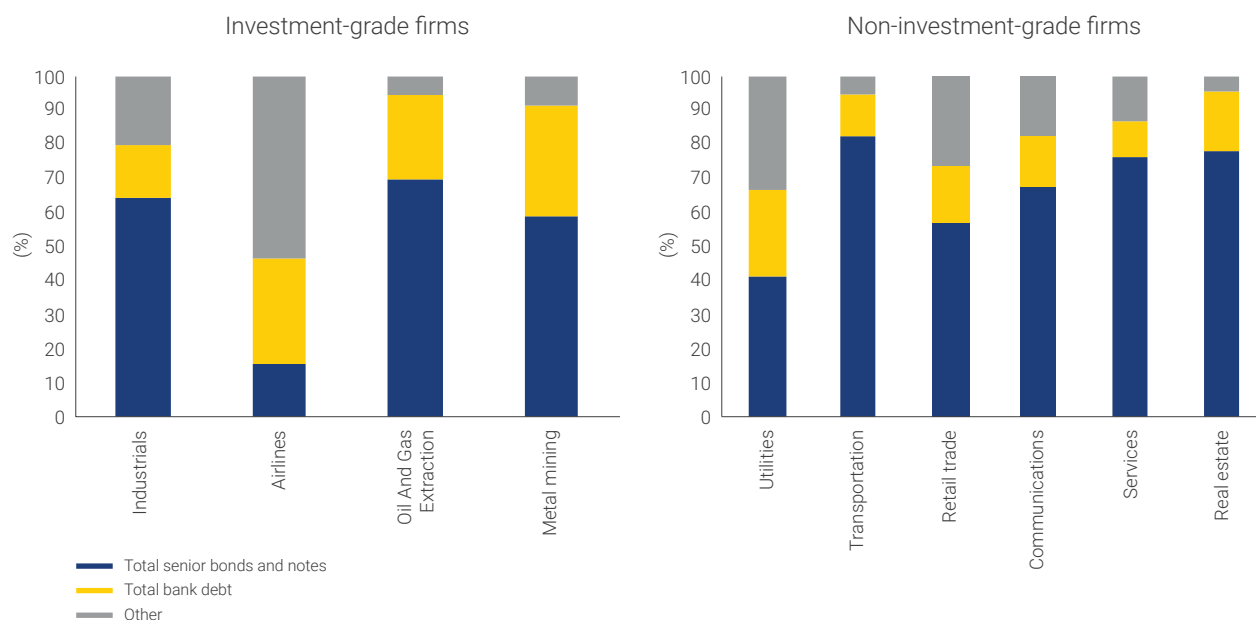
* The sum of total bonds and total bank debt is not equal to total debt outstanding because there are other small financing instruments that we do not graph for more clarity.

Source: S&P Capital IQ; authors calculations.

During the COVID-19 crisis, and the expansion in global liquidity which followed, reliance on international bond finance increased further. As Powell (2014) suggests this is evidence that corporate treasurers took advantage of exceptionally low dollar interest rates in dollars to develop their role as financial intermediaries in their local markets, Powell (2014).

The same pattern of corporate finance sources for companies is observed inside the different sectors. Bond issuance has remained the primary financial source for most sectors in recent years (**Figure 19**). The airline sector appears different from other sectors because most affected level by the crisis and because of exceptional government support. Likewise, the greater importance of other financing sources in 2020 is explained by government support over the current crisis. However, abundant global liquidity continued to make bond issuance the main source of finance for most sectors.

Figure 19. Corporate finance sources by sectors 2020



Source: S&P Capital IQ; authors calculations.

IX. Conclusions

More than a decade of extremely easy global financial conditions has allowed non-financial corporations in Latin America to greatly increase their dollar borrowing in international bond markets. This paper analyses how far this development might threaten macroeconomic and financial stability in the region. It considers a number of potential vulnerabilities which could in bad times interact with each other and increase default risk in several companies. This might have wide financial stability implications given the growing role of NFCs as financial intermediaries.

Six clear warning signs are identified:

- Currency mismatches of non-financial corporations have increased.
- The corporate sector has become more leveraged. For firms in the tradables sector, higher leverage and increased dollar borrowing tend to move together.
- Greater leverage has not increased the return on equity. Profitability has declined especially in the tradables sector despite significant depreciation in the real effective exchange rates of many Latin American currencies.
- Capital expenditure has been reduced.
- The dispersion of average borrowing costs across companies (and thus credit risk premia) has narrowed despite the sizable increase in the leverage of the most-indebted companies. This suggests credit risks are being underpriced.
- Even as global interest rates fell, interest payments took a larger share of profits. The increased interest burden of the weakest firms is a particular concern.

A bright spot for Latin American companies is that near-term dollar liquidity pressures have been eased as long-term bond finance has significantly displaced short-term (or floating rate) bank loans. They are now less vulnerable to sudden reversals of external finance. Their borrowing costs depend less on the Fed funds rate and more on the yield on long-term US government bonds. Access to longer-term finance is an unquestionable benefit as it gives companies and the authorities time to prepare for adverse shocks.

As profitability has been declining, the debt at risk indicator for the tradable sector has been increasing in recent years. It reached 33% in 2019 when interest rates were low and liquidity abundant. It rose to 40% in 2020,

although this is hard to assess given the continuing impact of COVID-19 and sharp rises in commodity prices make it hard to assess the current situation. Nevertheless, dollar interest rates are likely to rise. In addition, the development of new rules for non-bank financial institutions and bond market practices seems likely at least in the jurisdictions of the major lenders. This may increase the credit and liquidity spreads cost of bond issuance by smaller companies whose bonds are in any case illiquid.

Such a scenario would make it all the more important for the authorities in borrowing countries to develop macroprudential rules for non-financial companies borrowing dollars in international capital markets. Bank regulators in Latin America already have in place extensive macroprudential rules for currency mismatches in banks (see Tobal (2014)). A recent IMF study found that measures to curb the foreign currency exposures of banks did help to constrain the build-up of non-financial corporate leverage (IMF (2021)). But this is not enough. There is also IMF evidence that tougher rules on banks in the major financial centers have actually pushed risks into capital markets (Cizel *et al.* (2016)). The lack of regulatory tools directed specifically at nonbank financial institutions is a major policy gap.

What needs to be done? Greater transparency is one suggestion. An almost perennial recommendation is that the public disclosure of corporate currency mismatch risks of EME nonfinancial companies needs to be improved.³⁸ Yet even the simplest statistical building blocks are still missing. The breakdowns of a company's liabilities and financial assets into those denominated in foreign currency and those in domestic currency are not generally available. Nor do we know the exports/home sales split of its gross revenues. Our study therefore had to use disparate statistical sources: key indicators from statistical summaries of corporate financial statements; international banking and bond issuance data; estimates of the foreign currency element of domestic bond issuance and domestic bank loans/ deposits; balance of payments data on the international investment position; and national estimates of aggregate NFC debt. It sought to link currency mismatches with other key dimensions of company behaviors and performance (leverage, profitability, liquidity etc.) paying especial attention to the most vulnerable firms.

Secondly, more light is also needed on the greater role of companies in financial intermediation. The BIS's international banking and financial market statistics on the offshore affiliates of NFCs have helped to provide a fuller accounting of the foreign debts of companies. Before these data became available several national

³⁸ Almost twenty years ago, Goldstein and Turner (2004) noted that the international regulators argued that improved transparency was the way to handle risk oversight of private nonfinancial companies. But they also noted that this "hands-off" approach did not work in the Asian financial crisis. In any event, audited public disclosure by companies of their currency exposures was too poor for transparency to work effectively. In addition, the lack of comparable data across companies and across countries made analysis difficult.

authorities were not aware of the true size of the dollar liabilities of their corporations. Much more needs to be known about the destination of financial resources obtained from global bond markets. Finally, the size and nature of their business dealings with domestic banks (as wholesale depositors, as beneficiaries of credit lines as counterparties for derivative contracts and so on) can change quickly when conditions change in global financial markets.

This global financial environment is changing in two big ways. The monetary policy shift has been well advertised. Markets are aware that dollar interest rates are going to increase. A regulatory shift that is also coming has got less attention. The authorities in the main financial centers are aware that the current prudential oversight of nonbank financial institutions and capital market practices are, to quote the head of the BIS, not “fully fit for purpose”. How and when the rules will be tightened is not yet known.

Our conclusion is that the statistical evidence marshalled in this paper, imperfect as it is, is strong enough for everybody involved (companies, creditors, credit rating agencies and the authorities) to take a hard look at non-financial corporations in Latin America with large dollar debts and ask: what happens when monetary and regulatory policy action in the United States tightens financial conditions in dollar bond markets?

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Annex

Figure A1. Net international investment position



Source: IMF. Latin America (Argentina*, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Paraguay, Peru, and Uruguay), and South-east Asia (Indonesia, Malaysia, Philippines, and Thailand).

* The sum of total bonds and total bank debt is not equal to total debt outstanding because there are other small financing instruments that we do not graph for more clarity.

Table A1. ICR and debt at risk, by sector
(Average by period)

	Number of companies	ICR			Debt at risk (%)		
		2001-05	2017-19	2020	2001-05	2017-19	2020
Total	161	12.9	5.3	4.3	34.20	24.80	39.50
Tradable sector	83	18.2	5.3	4.2	38.40	31.10	39.90
Industrials	62	9.3	5.1	4.5	42.30	32.10	36.80
Airlines	4	4.6	2.6	-1.1	0	21.20	100
Oil and gas extraction	11	10.5	5.5	3.7	0	11	27.70
Metal and mining	6	104.1	9.1	6	30	63.40	58.60
Non-tradable sector	78	4.8	5.3	4.4	20.90	10.70	38.40
Utilities	33	4.2	5.1	5	14.90	3.80	51.10
Transportation	10	2.1	12.1	8.5	55	55.50	87.10
Communications	13	5	5.8	4.4	21.90	2.00	3.20
Real estate	6	1.3	2.9	1.4	100	9.40	15.60
Retail trade	7	5.8	3.8	2.5	12	24.10	41.60
Other services	9	3.1	2.9	1.6	0	19.20	61

Source: S&P Capital IQ; authors calculations.

Table A2. ICR and debt at risk, by country*
(Average by period)

	Number of companies	ICR			Debt at risk (%)		
		2001-05	2017-19	2020	2001-05	2017-19	2020
Argentina	26	7.4	5.5	3.8	33	7	43
Brazil	39	5.3	2.5	3	21	16	20
Chile	23	7	5.6	4.7	8	11	28
Colombia	10	18.3	15.1	10.5	2	7	21
Mexico	39	7.6	5.5	4.2	51	41	60
Peru	19	57	6	4.6	10	0	0

* Countries with less than five firms are left aside.

Source: S&P Capital IQ; authors calculations.



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