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Francesca Caselli, Matilde Faralli, Paolo Manasse, Ugo Panizza

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Abstract

This paper studies whether countries benefit from servicing their debts during times of widespread sovereign defaults. Colombia is typically regarded as the only large Latin American country that did not default in the 1980s. Using archival research and formal econometric estimates of Colombia's probability of default, we show that in the early 1980s Colombia's fundamentals were not significantly different from those of the Latin American countries that defaulted on their debts. We also document that the different path chosen by Colombia was due to the authorities' belief that maintaining a good reputation in the international capital market would have substantial long-term payoffs. We show that the case of Colombia is more complex than what it is commonly assumed. Although Colombia had to re-profile its debts, high-level political support from the US allowed Colombia do to so outside the standard framework of an IMF program. Our counterfactual analysis shows that in the short to medium run, Colombia benefited from avoiding an explicit default. Specifically, we find that GDP growth in the 1980s was higher than that of a counterfactual in which Colombia behaved like its neighboring countries. We also test whether Colombia's behavior in the 1980s led to long-term reputational benefits. Using an event study based on a large sudden stop, we find no evidence for such long-lasting reputational gains.

JEL Codes: F34; F32; H63
Keywords: Sovereign Debt; Default; Reputation

*Caselli is at the International Monetary Fund, Faralli at Imperial College, Manasse at the University of Bologna, and Panizza at the Graduate Institute Geneva & CEPR. The views expressed here are those of the authors and do not necessarily represent the views of the IMF, its Executive Board, or IMF management. We would like to thank without implications James Boughton, Catherine Schenk, Susan Seagall, Ted Truman, and Mark Walker for providing invaluable insights on the evolution of the Latin American debt crisis and Edoardo Altamura, Sebastian Alvarez, Khalid El Fayoumi, Rui Esteves, Juan Flores Zendejas, Jiro Honda, Geoffrey Keim, Paolo Mauro, Marialuz Moreno Badia, José Antonio Ocampo, Babacar Sarr, and Jeromin Zettelmeyer for useful comments and suggestions. The usual caveats apply.

1 Introduction

A defining characteristic of sovereign debt is its limited enforceability. Moving from this consideration, the economic literature focuses on the incentives to repay that sustain a burgeoning market for sovereign debt. Building on a seminal paper by Eaton and Gersovitz (1981), the general message of the literature is that, given that sovereigns cannot be forced to repay, they will do so only if the actual cost of paying is lower than the expected costs of default. As creditors will only lend if they think that debtors will repay, the costs of default are what makes sovereign debt possible (Dooley, 2000).

Empirical work on the costs of sovereign default has focused on studying the consequences of not repaying on several economic outcomes, such as access to the international capital market, GDP growth, and international trade. These variables proxy for the different "punishment" mechanisms emphasized by the theoretical literature.[1]

In this paper, we take a different approach. We study the benefits of repaying during times of widespread default. We focus on the case of Colombia, the only large Latin American country that is generally deemed as not having defaulted in the 1980s.[2] We find that Colombia enjoyed short-term benefits from not defaulting but that it did not gain any long-term advantage in terms of reputation with international creditors. To the best of our knowledge, this is the first paper which evaluates, using both archival research and formal econometric techniques, the potential benefits of repaying amidst widespread sovereign default in neighboring countries.

Studying the benefits of repaying when everybody else defaults only makes sense if the economic situation of the country under examination is similar to that of the countries that defaulted. In the first part of our analysis, we show that in the early 1980s Colombia's fundamentals were not significantly different from those of the Latin American countries that defaulted on their debts. We also document that the different path chosen by Colombia was due to the authorities' belief that maintaining a good reputation in the international capital market would have substantial long-term payoffs.[3]

Archival research also shows that the case of Colombia is more complex than what it is commonly assumed. Although Colombia had to re-profile its debts, the Colombian authori-

[1] Besides Eaton and Gersovitz (1981), seminal theoretical contributions in this literature include Bulow and Rogoff (1989a), Bulow and Rogoff (1989b), Fernandez and Rosenthal (1990), Kletzer (1994), Sachs and Cohen (1982), Kletzer and Wright (2000), Cole and Kehoe (1995), and Cole and Kehoe (1998). For surveys and a quantitative assessments of the various models, see Uribe and Schmitt-Grohe (2017), Tomz and Wright (2013), and Aguiar and Amador (2014).

[2] Unlike most empirical papers that consider Colombia as not having defaulted in the 1980s, Beers, Jones, and Walsh (2020) reports Colombia as being in default for most of the 1980s and 1990s.

[3] Junguito (1985) and Garay (1991) provide a detailed description of the views of the Colombian authorities. The latter also mentions that Colombia's strategy was aimed at avoiding the nationalization of the external debt of the the Colombian private sector. This strategy was not fully successfully as the Colombian government had to take over the external debt of Banco de Colombia.

ties wanted to stand out from the rest of Latin America by avoiding at all costs official debt rescheduling under an IMF program.[4] Recently declassified documents reveal that the Colombian authorities were able to achieve this objective thanks to high-level political support from both the US administration, which saw Colombia as a key ally in the war on drugs, and the US Federal Reserve, which wished to demonstrate that it was not using a cookie-cutter approach in the rescheduling of Latin American debts. The minutes of a key IMF Board meeting demonstrate that most IMF directors had strong reservations against Colombia's request for a *shadow program* and that Colombia's preferred strategy was only approved becuase of strong support from the United States.

Next, we use synthetic control (Abadie and Gardeazabal, 2003) and synthetic difference-in-differences (Arkhangelsky, Athey, Hirshberg, Imbens, and Wager, 2020) to assess whether Colombia's decision to avoid a formal debt rescheduling had a short and medium-term impact on GDP growth and macroeconomic stability. We find that Colombia did better in terms of output growth with respect to a counterfactual in which it behaved like its neighboring countries. Our results are in line with those of Trebesch and Zabel (2017) and Asonuma and Trebesch (2016) who find that conflictual and long-lasting restructuring processes are associated with larger output losses.

Theoretical work in the tradition of Eaton and Gersovitz (1981) postulates that willingness to repay is driven by the desire to maintain reputation in the international capital markets.[5] Presumably, reputational gains should be higher if a country shows willingness to service its debts when faced with a very large negative shock. According to Tomz (2012), this is exactly why the Argentinean Minister of Finance Alberto Hueyo argued that it was key that Argentina continued servicing its debt in the 1930s. In his words, "To fulfill one's contracted obligations is extremely honorable, but to do so when everyone is defaulting and in times of crisis is a thousand times more valuable." (quoted in Tomz, 2012, p. 177). Along similar lines, the lead debt negotiator for Colombia in the 1980s emphasized that maintaining the role of "good debtor" and being an exceptional case in Latin America and in most of the developing world could improve Colombia's future market access (Garay, 1991, p. 86.)

To test this idea, we use the sudden stop episode that followed the Russian default of August 1998 to assess whether the good reputation gained in the early 1980s improved Colombia's market access during a deep crisis.[6] Our event study shows no evidence in support of the

[4]Throughout the paper we often use the terms "rescheduling" and "reprofiling" interchangeably, but more precisely Colombia's strategy was to issue new debt to refinance its maturing debt. Hence, strictly speaking, it did not reschedule its debt. However, the new debt issuance was never fully voluntarily bought and hence Colombia's strategy was *de facto* equivalent to a rescheduling (Garay, 1991).

[5]Two main lines of criticism to theoretical models in the spirits of Eaton and Gersovitz (1981) are that the threat of permanent exclusion from future lending is not credible (Kletzer, 1994) and that debtor could use alternative methods to smooth consumption over the business cycle (Bulow and Rogoff, 1989a).

[6]Note that we cannot use the "Tequila" crisis of December 1994 because data on spreads for Colombia are only available from mid-1997 . Similarly, lack of data also prevents us from conducting event studies around the

hypothesis that Colombia's behavior in the 1980s had a long-lasting reputational payoff. If anything, we find that in the aftermath of the Russian default, Colombian spreads increased faster than those of other Latin American countries that defaulted in the 1980s.

We offer two possible interpretations for this result. The first is simply that reputation is short-lived. The second interpretation is that investors saw through what happened in the 1980s and realized that, while Colombia is normally classified as a non-defaulter, it did receive debt treatments which were similar to those of the countries who explicitly defaulted in the 1980s.[7] This latter interpretation is problematic for both the empirical and the theoretical sovereign default literature. It is problematic for the empirical literature because it suggests that the standard binary measures used to evaluate the event of a sovereign default are too rough (this is also a key conclusion of Meyer, Reinhart, and Trebesch, 2019). If Colombia in the 1980s is misclassified, other countries may also be misclassified.

It is also problematic for the theoretical literature which assumes that the decision on whether to default or not is made by a social planner who weighs the costs of defaulting against those of repaying. Defaults are thus strategic and driven by "willingness" to pay. Our archival research shows that the Colombian authorities did everything they could to remain current on their debts and to be as creditor friendly as possible. If we were to consider Colombia's debt rescheduling in the 1980s as a default episode, we would need to conclude that this was a clear case of *inability* to pay rather than a case of *unwillingness* to pay, as it is normally assumed in the economic literature.[8] It is also worth noting that, while the Colombian authorities insisted on being a good debtor in order to preserve reputation in the international capital markets, quantitative models of sovereign debt show that reputation plays a negligible role in sustaining realistic debt levels.[9]

Our paper is closely related to three strands of the empirical literature on sovereign default. The first strand focuses on empirical models aimed at predicting debt crises and at assessing the timing of default (for a survey, see Claessens, Kose, Laeven, and Valencia, 2014). Here, we build on work by Manasse, Schimmelpfennig, and Roubini (2003), Manasse and Roubini (2009), and, following Manasse, Savona, and Vezzoli (2016), Fioramanti (2008), Savona and Vezzoli (2015), and Moreno Badia, Medas, Gupta, and Xiang (2020), use machine learning

Asian Financial crisis. Moreover, unlike the Russian default episode, the Tequila crisis originated within Latin America and hence was not a pure external financial shock.

[7] We would like to thank Michel Habib for suggesting this interpretation. Note that if Colombia had been rated in the 1980s, rating agencies would have classified the various debt reschedulings described by Garay (1991) as default events (Beers and Chambers, 2006).

[8] Borensztein, Levy Yeyati, and Panizza (2006) and IMF (2013) suggest that these considerations apply to many other defaults. For a discussion of debt crises without default, see, instead, Mitchener and Trebesch (2021)

[9] Uribe and Schmitt-Grohe (2017) point out that while "quintessential element of the Eaton-Gersovitz model is that default is punished by exclusion from international credit markets" (p. 536), "exclusion from credit markets plays a negligible role for the quantitative performance of the Eaton-Gersovitz model. The main mechanism supporting debt in equilibrium is the output loss associated with default." (p.538). This implicitly suggest that the model does not require policymakers with a long-term horizon. Collard, Habib, and Rochet (2015) provide an alternative modelling strategy which focuses on inability to pay.

techniques to select a parsimonious set of predictors. Our work is also related to Tomz and Wright (2007) and Gelpern and Panizza (2021) who study whether countries always default in "bad times."

The second strand of literature to which we contribute focuses on the short-term macroeconomic effects of default. Cross-country regressions suggest that defaults are associated with a short-term decrease in GDP growth of approximately 2 percentage points (Sturzenegger, 2004, Borensztein and Panizza, 2009, De Paoli, Hoggarth, and Saporta, 2009, Jorra, 2011, Kuvshinov and Zimmermann, 2019 and Esteves, Kelly, and Lennard, 2021).[10] Output costs of 2-3% are standard in calibrated models of sovereign debt and default (e.g., Arellano, 2008). One problem with these cross-country studies relates to the fact that defaults tend to happen in period of low growth. Levy Yeyati and Panizza (2011) try to address this issue by using higher frequency data. They find that output collapses tend to precede defaults and that output starts growing after the quarter in which the default took place. Estimating the link between default and growth is also complicated by the fact that the type of debt restructuring matters. For example, less conflictual restructuring processes and "decisive" debt restructurings tend to have lower output costs (Trebesch and Zabel, 2017, Asonuma and Trebesch, 2016, Reinhart and Trebesch, 2016, and Asonuma, Chamon, Erce, and Sasahara, 2019).

Finally, our paper is related to the literature on the reputational costs of sovereign default. As mentioned, a central idea in the sovereign debt literature is that willingness to repay is driven by the desire to maintain reputation in the international capital markets (Eaton and Gersovitz, 1981). However, the results of the empirical literature are mixed. While there is evidence of capital market exclusion in the immediate aftermath of a default, most countries regain access rather quickly (Gelos, Sahay, and Sandleris, 2011), with global credit cycles being a more important determinant of access than individual default episodes (Panizza, Sturzenegger, and Zettelmeyer, 2009).[11] Focusing on borrowing costs, Borensztein and Panizza (2009) find short-lived effects for a set of recent default episodes and Flandreau and Zumer (2004) find that similar results hold for the Gold Standard period.[12] However, Ozler (1993) finds that countries that defaulted in the 1930s or in the postwar period faced slightly higher spreads in the 1970s, Catão and Mano (2017) find that the costs of default are persistent, and Cruces and Trebesch (2013) show that post default spreads increase with the size of the haircut imposed on creditors. Covering more than 200 years of data Meyer, Reinhart, and Trebesch (2019) show that bonds issued by serial defaulters have positive ex-post excess returns. However, it is not clear whether these higher spreads are driven by default history or by a third factor which contemporaneously affects spreads and the probability of default.

[10] Note that these short-term effects on GDP *growth* can have long-term effects on output levels.

[11] Mauro, Sussman, and Yafeh (2002) show that global factors were more important in the 1990s than during the Gold Standard.

[12] Focusing on the same period, Esteves and Jalles (2016) find long-lived effects of sovereign default on private sector access to the international capital market.

The two studies which are closest to ours are Tomz (2012) and Jorgensen and Sachs's (1989) analyses of Argentina's behavior in the 1930s. The former suggests that that Argentina obtained reputational gains from not defaulting in the 1930s, the latter concludes that "when the countries returned to the international capital markets in the 1950s, no apparent systematic difference between defaulters and nondefaulters emerges" (p. 79). While these authors reach opposite conclusions, they do not provide any formal test. To the best of our knowledge, we are the first to formally test Minister Hueyo and the Colombian authorities' belief that repaying when everybody else defaults can yield large reputational gains.

The rest of the paper is organized as follows. Section 2 briefly describes the evolution and resolution of the Latin American Debt crisis and then describes the results of our archival research on the case of Colombia's "non-default." Section 3 estimates Colombia's default probability in the 1980s and compares it with the estimated default probabilities of actual defaulters. Section 4 builds a counterfactual analysis aimed at estimating what would have happened to Colombia's GDP, inflation, and trade balance if the country had behaved like its Latin American neighbors. Section 5 uses an event study to estimate whether Colombia obtained long-term reputational benefits by being especially creditor-friendly in the 1980s. Section 6 concludes.

2 Sovereign Debt Re-negotiations in the 1980s: Colombia and the Rest of Latin America

In the 1970s, many countries in Latin America and the Caribbean experienced rapid GDP growth and large current account deficits financed with loans by international banks (especially, large US money-center banks) which were reinvesting the surpluses accumulated by oil exporting countries in the Middle East. Total outstanding debt of Latin American borrowers went from less than $30 billion in 1970 to more than $320 billion in 1982. In the same year, outstanding loans to developing countries by the largest nine US banks were nearly three times the capital of these banks, and loans to Latin America were close to 180% of the banks' capital (Sachs, 1988). Most of these loans were in US dollars with a floating interest rate linked to US short-term rates. When anti-inflationary policies in the United States and other advanced economies led to a large and rapid increase in nominal interest rates, a strong appreciation of the dollar, a global recession, and tighter financing conditions from global banks, developing countries started facing problems servicing their debts.

The beginning of the Latin American debt crisis is usually associated with the weekend of August 13-15, 1982, when, after closing the country's foreign exchange market, Mexican finance minister Jesùs Silva Herzog traveled to Washington to inform the International Monetary Fund and the US Treasury that Mexico was no longer able to service its $86 billion of

external debt (Boughton, 2001, and Truman, 2020).[13]

Mexico was soon followed by Argentina, Brazil, Chile, Ecuador, and several other countries in Africa, Asia, and Europe. In total, 26 countries "defaulted" between 1982 and 1983 and other 29 in the rest of the 1980s (Table A1 in the Appendix). Latin America and the Caribbean was the most severely affected region. Out of the region's 23 countries with more than one million inhabitants, 22 "defaulted" between 1980 and 1989.[14] Colombia was the only large Latin American country that did not "default" in this period.

We used quotation marks around the word default because, while empirical research on sovereign debt labels these events as default episodes, default is rarely a binary process. Most of the countries listed above continued servicing their debts until the Brady exchanges of the late 1980s. However, debt service was only possible because these countries had entered formal debt rescheduling agreements coordinated by the official sector. As these rescheduling agreements often implied large net present value (NPV) losses for the creditors, these countries were in *de facto* default.[15] Nevertheless, bankers and the international community maintained that countries were not in default, in order to prevent write-downs which would have wiped out the capital of several large financial institutions (Sachs and Huizinga, 1987).[16]

Only after bank balance sheets had been repaired in the late 1980s, it became possible to acknowledge the default and proceed to a face value debt reduction through the Brady plan. In this respect, Colombia was different, because it never entered any official rescheduling framework. It is worth noting that rating agencies consider any debt exchange, including consensual ones, that results in less favorable terms for the creditors as a default event (Beers and Chambers, 2006). Hence, all the exchanges that we describe below (including those of Colombia) would have been classified as default episodes had the Latin American issuers that we study been rated in the 1980s.

[13] Boughton (2001), p. 289-284, provides details of the events and negotiations during what become to be known as the "Mexican weekend."

[14] The list includes four small countries in the region that defaulted before Mexico. Bolivia and Nicaragua defaulted in 1980 and Honduras and Jamaica in 1980. There were also many defaults in Sub-Saharan Africa, but in this case "only" 50% of countries defaulted. The number of defaults was instead low in East Asia, Emerging Europe, and the Middle East and North Africa. Specifically, there were two defaults in East Asia (The Philippines and Vietnam), four in Emerging Europe (Poland, Romania, Turkey and Yugoslavia), and four in the Middle East and North Africa (Iraq, Jordan, Morocco, and Yemen).

[15] The fact that rescheduling implied NPV losses for the creditor is confirmed by the observation that, in the secondary market, the loans to Latin American countries traded at a large discount. Note that banks were able to sell part of their loans at a discount without booking large losses in their balance sheets. This was accomplished by putting a small part of the loans in segregated accounts which were marked-to-market, while the remaining part was evaluated at face value. Some of the loans acquired at a discount were then used for debt-to-equity swaps.

[16] The fact that bankers formed "advisory" committee rather than "debtor's" committee was part of the pretense that debt was not in default.

2.1 The Three Phases of the Latin American Debt Crisis

Broadly speaking, the debt crisis had three phases (Truman, 2020, Cline, 1995, and Devlin and Ffrench-Davis, 1994).[17]

The first phase (1982-85) was characterized by the predominant view that the crisis was due to temporary liquidity problems (Cline, 1984). The consensus was that fiscal adjustment and coordinated reprofiling of principal repayments (conditional on IMF programs) would allow countries to stay current on interest payments.[18] The fiscal adjustment led to a quick turnaround in the current account which, in the case of Latin America and the Caribbean, went from a 5% deficit in terms of the region's GDP in 1982, to a surplus of nearly 1% in 1984. During this phase, there were three rounds of negotiations.

The first round focused on concerted lending by commercial banks which operated in close cooperation with the IMF (Boughton, 2001). The new terms of the loan contracts settled on spreads over the LIBOR of about 2%-2.5%, maturities of 6-8 years, and required the payment of large upfront cash commissions. These terms were almost identical across borrowers (Diaz-Alejandro, 1984, see also Table A2 in the Appendix). Devlin and Ffrench-Davis (1994) show that these conditions led to a steep increase in debt servicing costs. A second round of negotiations led to a slight reduction in the cost of credit and a third round in 1984 pushed the cost of credit below the pre-crisis level.[19] Taken together, the restructuring of the first phase led to an increase in the present value of developing countries debt. Concerted lending also led to complicated interactions between creditor banks and the IMF, especially in the case of small countries (Boughton, 2001 p. 405-409.)

The second phase (1985-89) was opened in 1985 by US Treasury Secretary James Baker's announcement of a new US approach to the Latin American debt crisis (hence, the "Baker Plan"). The Baker Plan shared some features with the first phase but it also involved commitments to substantial amounts of "new" money from both the private and official sectors. It also led to a greater involvement of the World Bank and of the regional development banks. Restructurings under the Baker plan had financial conditions which were much softer than those applied in previous rounds. Spreads over LIBOR were lowered to the order of 0.8%-0.9%, amortization periods were extended, and there were no commissions.[20]

[17] Note that Table 6.1 of Boughton (2001) lists 5 overlapping stages: (i) Onset, 1981-82; (ii) Concerted lending, 1982-86; (iii) Multiyear rescheduling arrangements (MYRA) and enhanced surveillance, 1984-85; (iv) Experimentation, 1985-88; and (v) Debt relief, 1989.

[18] Coordination took place through the creation of the aforementioned "advisory committees." These were usually led by the banks with the largest exposure in any given country, with the International Monetary Fund coordinating talks between debtor countries and the advisory committees.

[19] Devlin and Ffrench-Davis (1994) build an index of the composite cost of credit which equals to 100 in 1981. After the first round, the index ranged between 144 (Brazil) and 349 (Uruguay). During the the second round, it ranged between 93 (Chile) and 160 (Mexico). It dropped to between 43 (Brazil) and 114 (Argentina) in the third round.

[20] In this wave of restructurings, the Devlin and Ffrench-Davis (1994) index of the composite cost of credit was always below 100 and ranged between 40 (Argentina) and 50 (Chile). Besides lower spreads, the reduction in

Until 1987, there was no official support for debt relief in the form of a reduction in the face value of bank loans. However, in 1987, departing IMF Managing Director Jacques de Larosière suggested that banks may need to change their strategy, and that "the reality of the marketplace may well have to be taken into account by the banks to ensure the success of future financing packages and the maintenance of solidarity among the financial community" (IMF, 1987b). A first timid step in this direction became known as the "market-based menu approach," consisting of debt buybacks, exit bonds, and debt swaps (Bouchet and Jonathan, 1989 and Lamdany, 1989).[21] Through these exchanges, via lower interest rates and extended maturities, the second phase led to a modest reduction in the present value of developing countries' debts.

Contrary to the first two phases, the third phase, announced by US Treasury Secretary Nicholas Brady in March 1989, focused on debt reduction with direct financial support from the official sector. The Brady plan envisioned a transformation of defaulted bank loans into collateralized bonds. It included four key elements (Truman, 2020): (i) the use of zero-coupon US Treasury bonds to collateralize the newly issued bonds (the purchase of these bonds was financed with loans from the international financial institutions and bilateral lenders); (ii) the continuation of debt buybacks; (iii) the waiving by commercial banks of legal clauses that hampered debt restructuring (for example "negative pledge" clauses which limited the bond issuers' ability to pledge collateral to secure new debt); and (iv) a change in the IMF policy that prevented the Fund from lending into arrears.[22]

Over the period 1990-1998, 11 countries implemented Brady exchanges. The launch of the Brady plan marks the beginning of the end of the 1980s debt crisis. It also helped that, by the early 1990s, growth had picked up, global financial conditions had eased, and many emerging market countries had regained access to the international financial market. This time, not through syndicated bank loans, but with the issuance of global bonds.

2.2 The Strange Case of Colombia's Non-Default

Colombia's exceptionalism in terms of being the only country in Latin America and the Caribbean that did not default is not associated with either especially favorable economic performance or sound fiscal and external indicators in the early 1980s. During the coffee bonanza of 1975-78, President Alfonso López adopted conservative macroeconomic policies which led to a reduction of external debt. However, the administration of President Julio

the cost of credit was also due to the fact that the base rate changed from the US prime rate to the LIBOR, with the latter being 100-150 basis points lower than the former.

[21] Helpman (1989) provides a theoretical discussion of voluntary debt reductions. Seminal papers on debt overhang are Krugman (1988) and Sachs (1989).

[22] The Brady Plan was preceded by an exchange offer launched by Mexico and led by JP Morgan. The bonds issued with this exchange became known as "Aztec Bonds." The principal of the Aztec Bonds was collateralized with zero coupon bonds similar to those used in the Brady exchanges. However, unlike the Bradies, they did not include collateral for interest payments.

César Turbay (1978-82) ran large fiscal and external deficits, leading to a substantial increase of Colombia's debt ratios. Ocampo (1989) describes this latter period as the "latinamericanization" of the Colombian economy (see also Ocampo, 2015).[23]

A comparison of Colombia with other countries in Latin America and the Caribbean along five standard macroeconomic and debt indicators shows that in the run-up to the crisis Colombia was better positioned than the median country in the region. However, it was never the best performer.[24] Focusing on the external debt-to-GDP ratio in 1981, there were four countries with debt levels lower than that of Colombia and two large countries (Mexico and Brazil) with debt levels only slightly higher than Colombia (6 percentage points of GDP higher in the case of Mexico and 8 points in the case of Brazil). Hence, while Colombia had adopted more prudent external debt policies than other countries in the previous years (Diaz-Alejandro, 1984, Ocampo and Lora, 1988, Ocampo, 1989, and Cline, 1995), in 1981 its level of external debt was not significantly lower than that of some defaulting countries. In the case of the primary fiscal balance, over 1978-81, Colombia was close to the region's median level. The same applies to the rate of GDP growth and inflation. In terms of the current account, Colombia was in a better position relative to the region's median, but also in this case, Colombia was not among the top four performers in Latin America and the Caribbean. The fact that Colombia was not in an exceptionally favorable situation in the run-up to the debt crisis was also reflected in its cost of borrowing. Colombia's interest spread over the US prime rate was a bit higher than those of Venezuela and Mexico and just below those of Chile and Ecuador.[25]

Two dimensions along which Colombia entered the crisis in a more favorable position with respect to the other large Latin American economies are the stock of international reserves and the composition of external debt. In 1981-82, Colombia had a reserves-to-imports ratio which was about 2.5 times the average of Argentina, Brazil, Chile, Mexico, Peru, and Venezuela (about 9 months versus 3.5 months). However, Colombian reserves dropped rapidly. By 1983, the Colombian reserves-to-imports ratio was similar to the regional average and in 1984 it became lower than the regional average (3 months versus 5 months), with Argentina being the only large country in the region with a lower reserves-to-import ratio (the same holds if we focus on reserves over external debt). With respect to the composition of external debt, Colombia had lower levels of debt with private creditors and higher levels of debt with official creditors (especially the World Bank and the Inter-American Development Bank, see Junguito, 1985, and Garay, 1991).

[23] The adjustment to the crisis was in two stages: a weaker adjustment which worsened the imbalances over 1982-83 and a stronger adjustment over 1984-85 (see Ocampo, 1989, and chapter 3 of Ocampo, 2015).

[24] The differences between Colombia's fundamentals and the Region's average were never statistically significant (Table A3 in the Appendix).

[25] For a discussion of borrowing costs before the Latin American debt crisis see Rockerbie (1993) and Altamura and Flores Zendejas (2020).

Like in other countries in Latin America and the Caribbean, the economic situation of Colombia deteriorated in the first half of the 1980s. In particular, during 1982-83 net capital inflows collapsed, although to a lesser extent compared to other large Latin American economies (Diaz-Alejandro, 1984, and Ocampo, 2015). From the second half of 1982, Colombia was unable to access the international capital market (Garay, 1991).[26]

The Colombian balance of payment, after registering surpluses of about 3% of GDP over the period 1976-80, deteriorated to a zero balance in 1981, when a rapid increase in imports and a decline in coffee exports led to a four percentage points increase of the current account deficit, which was mostly financed by private capital inflows (IMF, 1982). Economic conditions deteriorated rapidly in 1982 when stagnating exports, together with higher imports, pushed the current account deficit to 10% of GDP (Table A4). Tighter international financial conditions did not allow Colombia to fully finance this growing current account deficit and pushed the balance of payment into deficit for the first time in more than six years, leading to a 15% drop in international reserves.

In the second half of 1982, the Central Bank had to extend emergency assistance to the financial sector, providing liquidity to nine financial institutions. Together with the continuous monetization of the government deficit (which had increased from 2.5% of GDP in 1980 to 7.6% in 1982), these policies led to a substantial expansion of the balance sheet of the central bank (IMF, 1983). At the end of 1982, the further deterioration of the economic situation led the government to declare a 5-day state of economic emergency, under which drastic policy measures targeted to raise tax revenues and to cut transfers to local governments were imposed. However, most of the measures implemented in these five days were invalidated by the Supreme Court (IMF, 1983).

During the 1983 Article IV consultation with the IMF, the Colombian authorities expressed concerns about reserve losses in 1983. The authorities feared that if reserves dropped by more than $1 billion there could be widespread market panic (IMF, 1983). In 1983, reserves fell by even more, with a total loss of $1.6 billion (from $4.9 to $3.3 billion), and with debt service absorbing nearly 40% of export revenues (up from 15% in 1980). Reserves dropped again, by $1.6 billion, in 1984. In total, Colombia lost two thirds of its reserves over a period of two years (from $4.9 billion in 1982 to $1.7 billion in 1984).

By mid-1984, it had become clear that Colombia was unable to service its external debt. However, rather than suspending its payments like the rest of its Latin American neighbors, Colombia opted for negotiating with its foreign creditors a series of arrangements that would refinance the majority of payments coming due between 1985 and 1994. Even though participation in these exchanges was not voluntary, the Colombian authorities strove to maintain

[26] Financial contagion might have played a role. In the words of Diaz-Alejandro (1984), p. 389: "A popular story alleges that banks forced to lend to Brazil and Mexico, but facing self-imposed, arbitrary lending ceilings to Latin America as a whole, simply cut back lending to Colombia."

their reputation of "good debtor" in the international capital market (Garay, 1991). In the words of IMF staff:

> Colombia external debt strategy has been to achieve a return to normal access to international capital markets. Consistent with this strategy, the authorities have avoided a formal debt rescheduling and have tried to maintain the exposure of commercial banks and multilateral institutions to Colombia that roughly match amortizations payment as they fall due. (IMF, 1989 pages 39-41)

Over the period 1985-1990, the Colombian authorities negotiated 4 of such arrangements: the "Jumbo" arrangement of 1985 ($1 billion); the "Concorde" arrangement of 1987 ($1 billion); the "Challenger" arrangement of 1989 ($1.5 billion), and the "Hercules" arrangement of 1991 ($1.8 billion).[27] These arrangements had maturities ranging between 9 and 12 years, grace periods ranging between 3.4 and 6.2 years, and spreads over LIBOR ranging between 87 and 150 basis points. However, effective average costs reached 193 basis points over LIBOR (Table 1) These conditions were substantially worse than the average interest rate in 1982, which was 1.1% over LIBOR. While none of these arrangements were fully voluntary, Garay (1991) claims that participation in the Concorde and Challenger loans was semi-voluntary, while in the Hercules loan, commercial bank were more willing to participate. In 1984, the Colombian authorities also set rescheduling parameters for non-financial private sector firms that were unable to service their external debt.[28]

The fact that between 1987 and 1990, Colombian loans traded in the secondary market at prices that ranged between 58 and 64 cents on the dollar, demonstrates that these conditions implied significant NPV losses for the lenders (see Table 2). However, secondary market valuations of Colombian loans were the highest in the region during the 1980's, and were only second to Chile in the first half of the 1990's, outperforming valuations of Argentinian, Brazilian, and Venezuelan loans, not to mention Peru's.[29] According to some in the opposition, this market response signaled that the various Colombian arrangements were "excessively" creditor friendly. As consequence, members of the opposition suggested that Colombia should ask for outright rescheduling, with conditions similar to those applied to other countries in the region. However, the Colombian authorities insisted that their chosen strategy "offered better prospects for a subsequent return to voluntary lending" (Cline, 1995, p 281, Garay,

[27] Debt contracted with bilateral creditors and with Spanish and German banks to finance the construction of the metropolitan train in Medellin was also rescheduled.

[28] Central Bank's Resolution 33 stated that, in order to obtain liquidity support, non-financial firms had to obtain a rescheduling agreement with a minimum of 6 years including a 3-year grace period and a maximum interest spread over LIBOR of 2.5%.

[29] Chile entered the debt crisis with high levels of private debt which was then reduced with a series of debt-for-equity swaps. The low spreads of Chilean debt on the secondary market in the early 1990s were probably associated with these low post-swap levels of external debt and with the country's reputation for being the top reformer in Latin America.

Table 1: Colombia's Debt Renegotiations

Date and Name	Amount	Disbursement	Grace Period	Spread	Maturity	Notes
Apr. 1985, Jumbo	$1 billion	$515 mill. planned for 1985 $485 mill. planned for 1986, but all disbursed in 1986	3.4 years	LIBOR +150 bps for the first 4 years, LIBOR+138 bps (1+3/8) for the remaining 6 years. Effective average cost: LIBOR+1.93	8.4 years	Quarterly disbursements conditional on IMF monitoring
Jan. 1988, Concorde	$1 billion (corresponding to 70% of payments due to banks in 1987-88)	Planned for 1987-88, but only signed and disbursed in 1988	5.0 years	LIBOR+93 bps (15/16). Effective average cost: LIBOR+1.42	10 years.	Authorities had to share copies of Article IV reports with creditors
Jun. 1989, Challenger	Syndicate Loan of $1.47 billions and facility of $185 millions	1989-90 (first disbursement October 1989)	6 years for the syndicated loan and 5 years for the facility (average 5 years)	LIBOR+87 bps (7/8) for the syndicate loan and LIBOR+93 bps (15/16) for the facility. Effective average cost: LIBOR+1.11	12 years for the syndicated loan and 10 years for the facility	
Dec. 1990, Hercules	Syndicate Loan of $1.575 billion & facility of $200 million. (corresponding to 90% of principal payments coming due over 1991-94)	1991-94	6.2 years	LIBOR+100 bps for the syndicate loan & LIBOR+150 bps for the facility. Effective average cost: LIBOR+1.24	12.6 years	

Source: IMF Article IV 1988, 1989, 1991, and Garay (1991)

1989). In his description of Colombia's external debt management in the 1980s, Luis Jorge Garay (Colombia's chief debt negotiators at the time) mentions more than 50 times that the country wanted to maintain its reputation of "good debtor" (Garay, 1991). The Colombian authorities were thus disappointed by the fact that their efforts to act as good debtor did not grant them a better treatment. According to Garay (1991) (own translation):

> in accordance with its exceptional status of good debtor country, the international financial system should have given Colombia a more favorable treatment, rewarding Colombia by differentiating it from other countries with payment problems would have set a clear precedent (page 18)....the commercial banks should be criticized for not having given better recognition to a good debtor in the midst of a generalized debt crisis (page 29).

While Colombia needed external support, the Colombian authorities considered an IMF program not politically viable. Due to disagreement on IMF conditionality in past programs, in 1967 Colombia had decided to remain independent from the Fund (Junguito, 1985, p. 75).[30] The Fund was nevertheless involved in negotiations. Colombia's largest creditor was the World Bank, and World Bank's lending to Colombia was monitored in part by the IMF with a "shadow program" (Boughton, 2001). Moreover, in order to disburse the funds of the four arrangements described in Table 1, private creditors' "advisory" committees requested to be granted access to IMF Article IV staff reports and that Colombia should be subject to a

[30] Steiner (1991) points out that countries that adopted more confrontational approaches to debt restructuring ended up having to accept more intrusive conditions from the international financial institutions.

Table 2: Secondary Market Prices of Syndicated Loans

	1986	1987	1988	1989	1990	1991	1992	1993	1994
Argentina	66	35	21	13	21	32	43		
Brazil	75	46	40	22					
Chile	67	61	57	59	73.3	90	90	90	95
Colombia	84	63	58	64	64	75	75	85	90
Ecuador	65	37	13	14	19.8	22	28	52	
Mexico	56	50	43	36					
Panama	67	35	20	12	13	21	29	53	53
Peru	18	7	5	6	4	11	19	67	56
Venezuela	74	57	41	34					

Source: Klingen, Weder di Mauro, and Zettelmeyer (2013)

form of IMF "enhanced" surveillance in which the Fund would certify and monitor Colombia's adjustment program exactly as if a stand-by arrangement were in place.[31]

Given its unprecedented nature, this enhanced surveillance agreement with which the Colombian "authorities wanted to have the Fund's Executive Board's and not just the staff's 'seal of approval' without the stigma that might be associated with a formal stand-by-arrangement" (Boughton, 2001, p. 413) was met with reservations by most members of the IMF Executive Board. Until the last minute, the Colombian authorities doubted that the IMF Board would approve this unusual arrangement (Junguito, 1985, p. 76). However, the arrangement was approved thanks to strong support from the US Federal Reserve and from both the IMF Managing Director and the US Executive Director Charles Dallara. The declassified minutes of an IMF Board meeting that took place on July 26, 1985 report that:

> For cases such that of Colombia, when the Board was asked to make a judgment about an arrangement that had no precise precedent, Mr Dallara said, the Fund ought to develop new techniques only with considerable caution and with awareness of potential risks and benefits. Appropriately, the Fund has never been called an excessively innovative institution, but it had devoted great care and caution in examining the Colombian economy, and the benefits outnumbered the risks... Under the circumstances it was appropriate for the Fund to accept and perform the proposed monitoring role. (IMF, 1985 p. 32)

This high-level political support from the United States was partly a reward for cooperating on drug traffic control, and partly due to the fact that the Reagan administration worried about declining support among traditionally friendly nations in Latin America (Goodsell, 1983). It was, however, the US Federal Reserve that played a key role in supporting Colombia's preferred approach. The Colombian authorities were in constant contact with the Fed,

[31] The basic elements of the concept of enhanced surveillance were put in place in 1985 when Mexico and the IMF agreed that, after the expiration of the EFF arrangement, the Fund would review every two years the Mexican economy and inform creditor banks about the outcome of these reviews (Boughton, 2001, p. 368).

whose Chairman, Paul Volcker, wanted to make the point that the US was not using a one-size-fits-all approach towards Latin America's debt problems. The Colombian authorities' determination to be a "good debtor" (Garay, 1991) made Colombia an excellent candidate for a more favorable treatment. With this objective in mind, Volcker and his staff engaged with the World Bank President, the IMF Managing Director, and the US Treasury from the early stages of the crisis and convinced them to support the novel approach favored by the Colombian authorities (Junguito, 1985, p. 56, p. 73, and p. 77).[32]

The "Hercules" arrangement lasted until 1994. However, by 1992 Colombia had regained market access and could take advantage of decreasing global interest rates by issuing dollar bonds to repay World Bank loans that carried higher interest rates. By mid-1993, the secondary market discount on Colombia's loans had dropped dramatically and the Colombian authorities became worried about excessive private inflows. In order to slow down these inflows, Colombia imposed restrictions on private sector foreign borrowing in September 1993 and then tightened these restrictions twice in 1994. The 1980s debt crisis was over.

3 Estimating Colombia's Default Probability

Our archival research shows that Colombia's fundamentals were similar to those of the Latin American countries that defaulted on their debts. In this Section, we probe further by formally testing whether in the 1980s Colombia's default probability was significantly different from that of other Latin American countries.

Following previous research that scrutinized a large set of economic variables in order to find those that are associated with the likelihood of observing a sovereign default (Manasse, Schimmelpfennig, and Roubini, 2003 and Manasse and Roubini, 2009), we proceed in two steps. In the first, we use the least absolute shrinkage and selection operator (LASSO) model to select a parsimonious set of variables which are good predictors of the probability of default. In the second step, we estimate a logit model with the selected variables in order to predict Colombia's default probability and to compare it with the estimated probability of default of Latin American countries in the year in which these countries actually defaulted.

Our raw data cover 87 countries over the period 1976-2017 and include 77 default episodes. The sources of all macroeconomic and debt data are different vintages of the World Bank's World Development Indicators and International Debt Statics.[33] Data on default episodes are based on the updated version of the online dataset by Asonuma and Trebesch (2016). When a country has several consecutive restructurings, as it was common in Latin America in the 1980s, we only keep the first episode (i.e., the year in which the default spell starts) and drop

[32] In July 1986, Paul Volcker received the Cruz de Boyaca, one of the highest honors granted by Colombia.

[33] We use different vintages of the World Bank data because recent versions do not report external debt data for countries that have graduated to high-income status (for instance, Chile and Uruguay).

all years in which the country is in default until the "decisive" restructuring that ends the default spell (Reinhart and Trebesch, 2016).

We start with a set of 22 candidate variables which provide different measures of solvency, liquidity, domestic and external volatility, macroeconomic performance, and political and institutional quality (see Manasse, Schimmelpfennig, and Roubini, 2003, Manasse and Roubini, 2009, Fioramanti, 2008, and Savona and Vezzoli, 2015). Table A6 in the Appendix lists all the variables that we use, together with their summary statistics.

LASSO is a variable selection algorithm which is commonly used in machine learning (Park and Casella, 2008; Tibshirani, 1996). The LASSO-logit estimator is defined as:

$$\beta^L = \arg\max_{\beta} \sum_{i=1}^{N} [y_i X_i \beta - ln(1 + e^{X_i \beta})] - \lambda \sum_{j=1}^{p} |\beta_j| \tag{1}$$

where β^L is the vector of parameters to be estimated, y is the dependent variable, $\mathbf{X}$ is a matrix of controls, and $\lambda|\beta|$ is a penalty scalar to the maximization problem.

The penalty helps selecting a parsimonious specification of the model by assigning a zero coefficient to the redundant components of $\mathbf{X}$. The hyper-parameter λ determines the size of the penalty. Setting $\lambda = 0$ is equivalent to estimating a simple logit model (no variable is excluded from the model) and setting $\lambda = \infty$ forces all coefficients to zero. Choosing a "good" value of λ is thus a critical step in estimating a LASSO model. A standard technique for choosing λ is *k-fold* cross-validation. This approach is designed to improve the out-of-sample properties of the model. The data are divided into k sub-samples of similar size. In turn, each group (test set) is set apart and not used for estimation, while the remaining *k-1* groups are used for estimation (the training set) and employed to evaluate the model predictive capabilities on the test set. After repeating the procedure k times, LASSO selects the value of λ that maximizes the cross-validated log-likelihood (Hastie, Tibshirani, and Friedman, 2009; Goeman, 2010).

We apply this methodology by using a standard 5-fold cross-validation and using as candidates the lagged values of the 22 variables listed in Appendix Table A6. After selecting λ, the routine implements a logistic LASSO for variable selection and then it computes a logit estimation retaining only the selected variable to predict the probability of observing an episode of sovereign default.

The cross-validation procedure determines an optimal value of $\lambda = 0.356$ and the LASSO estimator selects the 17 variables listed in Appendix Table A7. While most of the variables are not individually statistically significant, the estimates in Table A7 show that high interest payments on external debt and large current account deficits are the best predictors of sovereign defaults. Note that we focus on prediction and we do not make any claim of causality.

We then use the logit estimates of Table A7 to compare the predicted default probabilities in the year of default for countries that actually defaulted with the predicted default probability for Colombia in the 1980s. The first row of Table 3 reports summary statistics for all defaulters included in our sample. The average estimated probability of default in the year of default was close to 16.5%, with a median value of approximately 6.6%. The data show that there is a large variance in the estimated probability of default. The country at the 10^{th} percentile of the distribution had an estimated probability of default of only 1% in the year of default, and the country at the 90^{th} percentile of the distribution had an estimated probability of default of about 35%. The standard deviation is nearly 23%.

The second row of Table 3 focuses on all default episodes in Latin America and the Caribbean and shows average and median estimated probabilities of default which are slightly higher than those for the full sample of defaulters. In this case, we also see a much larger range of default probabilities, with the episode at the 90^{th} percentile having an estimated default probability greater than 80%. The bottom row of the table summarizes the estimated default probabilities for Latin American defaults over 1980-85. In this sub-sample, the estimated probabilities of default were even larger, with a mean of 26.5% and a median value close to 20%.

Table 3: Estimated Probability of Defaults for Actual Defaulters

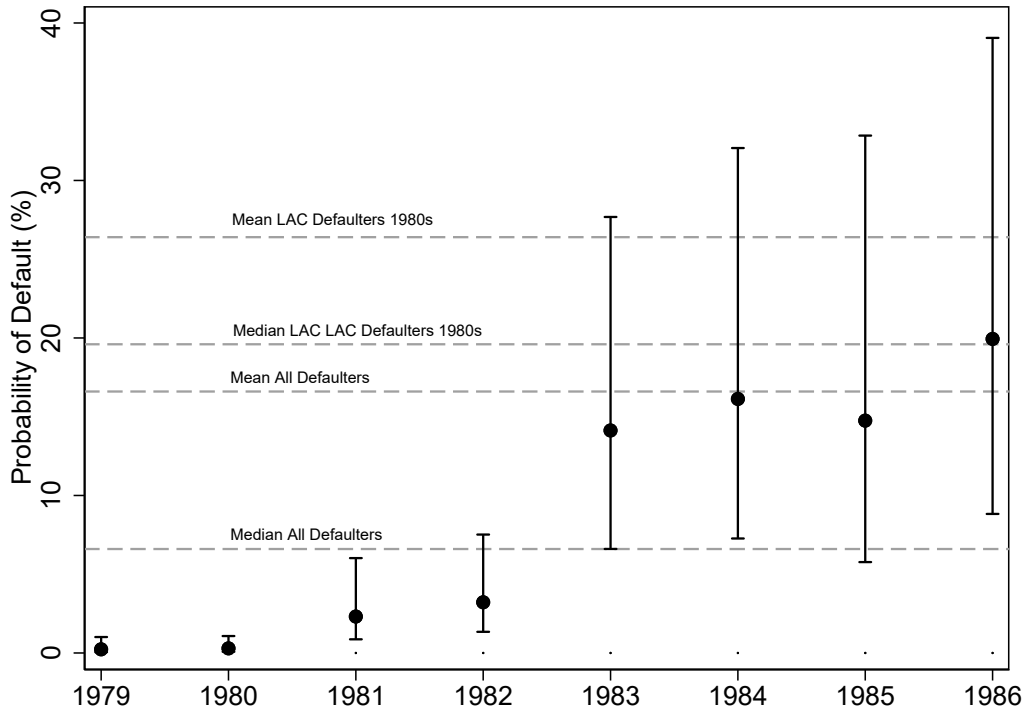
	Mean	Median	St. Dev.	Min.	Max	p10	p90
All Defaulters	16.58	6.61	22.76	0.16	99.47	1.01	35.04
LAC Defaulters	20.74	7.38	27.98	0.67	99.47	0.93	81.78
LAC Defaulters 1980-85	26.45	19.59	31.01	0.93	99.47	3.58	81.78

Note: This table summarizes the estimated probability of default for the countries that did default and in the year of the actual default. The estimated probability are based on the Logit model of Table A7.

Figure 1 plots the estimated probabilities of default (with 95% confidence intervals) for Colombia over the period 1979-86 and compares them with the mean and median values reported in Table 3. Consistently with the historical narrative of Section 2, we find a sudden increase in the probability of default in 1983, with the predicted probability of default varying from 3% in 1982 to 14% in 1983 (as we use lagged explanatory variables, this result implies that the predictors of default increased in 1982) and then ranging between 14% and 20% over 1984-86. The figure also shows that, between 1983 and 1986, the estimated probability of default for Colombia was never significantly lower than the mean and median values reported in Table 3. In fact, in 1983, 1984, and 1986 the estimated probability of default for Colombia was significantly higher than the median value for all defaulting countries in the year in which they did default.

Figure 2 reports predicted default probabilities (with 95% confidence intervals) for Latin American and Caribbean countries that defaulted in the 1980s, always evaluated in the year of the actual default. It shows that the predicted default probabilities in Panama, Bolivia,

Figure 1: Predicted Probability of a Colombian Default



Note: The graph plots the predicted probability of a Colombian default (with a 95% confidence interval) over 1979-86. The dashed lines plot the average and median predicted probabilities of default (measured in the year of the actual default) for all Latin American countries that defaulted in the 1980s and for all defaulters in our sample.

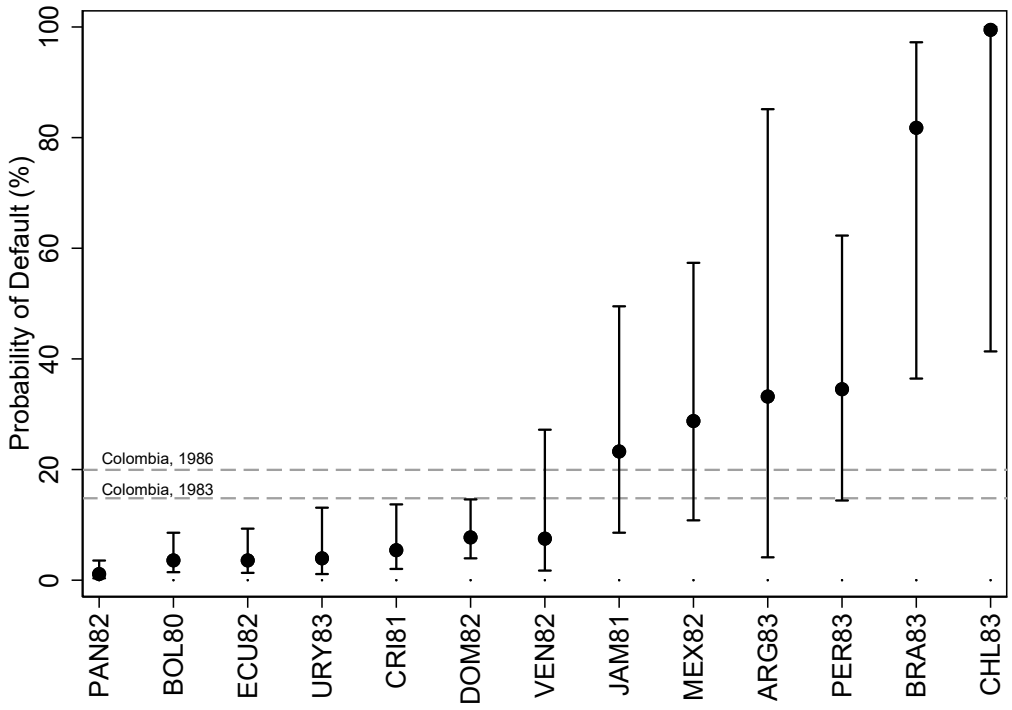
Ecuador, Uruguay, Costa Rica and Dominican Republic were significantly lower than predicted default probabilities in Colombia for the period 1983-86 and that predicted default probabilities in Venezuela, Jamaica, Mexico, Argentina, and Peru were not significantly different from those of Colombia. Only Brazil and Chile show predicted default probabilities which were significantly higher than those of Colombia in the years 1983-86.[34]

4 Counterfactual Analysis

In this section, we study whether Colombia enjoyed short-run benefits by not defaulting in the 1980s. To build a counterfactual, we employ two techniques, namely the synthetic control method (SCM) (Abadie and Gardeazabal, 2003) and the synthetic difference-in-differences method (SDID) (Arkhangelsky, Athey, Hirshberg, Imbens, and Wager, 2020). SDID is a generalization of the standard SCM which further improves identification by accounting for

[34] Edwards (2004) found that the estimated probability of default for Colombia in 1980 was higher than that of Argentina and within 2 percentage points that of most Latin American countries that defaulted in the 1980s.

Figure 2: Predicted Probabilities of Default for Latin American and Caribbean Defaulters



Note: The graph plots the predicted probability of default (with a 95% confidence interval) in the year of the actual default. The dashed lines plot the predicted probabilities of default for Colombia in 1983 and 1986.

unobservable time-invariant factors and common shocks. We start by providing a brief description of these approaches.

4.1 Synthetic Control

The SCM is a data-driven procedure that allows estimating causal effects by building counterfactual outcomes for observational units that are subject to a treatment (Abadie and Gardeazabal, 2003). Unlike a standard difference-in-difference estimation that considers a simple average of the control units, the SCM relies on a weighted average of the control observations (Athey and Imbens, 2017).[35] In our context, the treatment refers to a "non-event", namely the non-default of Colombia.[36]

In a set of Latin American countries $j = 1, \ldots, N$ over T periods, Colombia (country 1) is the only country that receives the treatment in period T_0, since all other countries in the region did experience a default event. For a given value of the non-default indicator $ND_j \in \{0, 1\}$

[35] For recent applications of this methodology in a macro context see Cavallo, Galiani, Noy, and Pantano (2013), Caselli (2017), Freund, Mulabdic, and Ruta (2019), and Campos, Coricelli, and Moretti (2019), among others.
[36] For the estimation of a non-event with synthetic control see also Born, Dietrich, and Muller (2020).

and values of an outcome $Y_{i,t}$, we define potential outcomes $Y_{j,t}(ND_j)$ as follows:

$$Y_{j,t}(ND_j) = \begin{cases} Y_{j,t}(0) & \text{if } ND_j = 0 \\ Y_{j,t}(1) & \text{if } ND_j = 1 \end{cases} \tag{2}$$

Clearly, we do not observe Colombia in both states: while $Y_{1,t}(1)$ is observable for Colombia, $Y_{1,t}(0)$ is not observable. However, the SCM builds a counterfactual for Colombia, i.e. the outcome of interest in the absence of the ND_j treatment. Concretely, it finds the weighted average of all potential comparison units which best mimics the treated outcome during the pre-treatment period based on the idea that a combination of units that were not subject to the treatment (donor pool) may approximate the characteristics of the treated unit significantly better than any control unit alone.

Given a vector of weights $\mathbf{W} = (w_2, ..., w_{n+1})$, the synthetic control estimators of $Y_{1,t}(0)$ and the average treatment effect $\tau_{1,t}$ are defined as:

$$\hat{Y}_{1,t}(0) = \sum_{j=2}^{j+1} w_j Y_{j,t} \tag{3}$$

and

$$\hat{\tau}_{1,t} = Y_{1,t}(1) - \hat{Y}_{1,t}(0) \tag{4}$$

To conduct inference on the synthetic control estimates, we follow Firpo and Possebom (2018) who propose a placebo test-based approach to compute confidence intervals. Building on the permutation test framework described by Imbens and Rubin (2015), this method extends and formalizes the original inference procedure suggested by Abadie, Diamond, and Hainmueller (2010) and Abadie, Diamond, and Hainmueller (2015). Firpo and Possebom (2018) also show the validity of this method in small samples, making it particularly suitable for our analysis.[37]

The approach works as follows: first, we run permutations (placebos) by re-assigning the treatment to one of the control countries in each iteration. This means that we proceed as if each of the countries in the donor pool was treated by a non-default episode. Second, for each $j \neq 1$ country, we compute a test statistic that corresponds to the ratio of the mean squared prediction errors (RMSPE) as:

$$RMSPE_j = \frac{\sum_{t=T_{0+1}}^{T} (Y_{j,t} - \hat{Y}_{j,t}(0))^2)/(T - T_0)}{\sum_{t=0}^{T_0} (Y_{j,t} - \hat{Y}_{j,t}(0))^2/T_0} \tag{5}$$

[37] While Firpo and Possebom (2018) interpret this test as a Fisher randomization test, Abadie, Diamond, and Hainmueller (2015) interpret it as a placebo test that does not require randomization for validity. Firpo and Possebom (2018) also extend the Abadie, Diamond, and Hainmueller (2010) methodology to test any kind of sharp null hypothesis beyond the simplest null hypothesis on no-effect.

where T_0 is the time of the treatment. Intuitively, this is the ratio of the post-treatment to the pre-treatment mean squared prediction errors. By taking the ratio between the two RMSPEs, we avoid discarding countries with poor pre-treatment fit. Finally, we invert the test statistic given by the $RMSPE_j$ to compute the confidence sets.[38]

We build counterfactuals for real GDP, inflation, exports, and imports (see Table A8 for definitions and sources). We choose 1981 as treatment date as it precedes the beginning of the Latin American crisis in 1982 (see Section 2). We exclude Bolivia and Jamaica from the donor pool as they defaulted before 1981 (Table A1).[39] We estimate the effect of non–defaulting up to 1985 to limit the possibility that other shocks might confound the SCM estimates. As a baseline and to avoid to 'cherry-picking' the set of predictors in the SCM, we choose to match the pre-treatment outcomes of interest on their lagged values only, with no additional controls (for a discussion see Doudchenko and Imbens, 2016 and Ferman, Pinto, and Possebom, 2020).[40]

Depending on the variable considered, different countries carry higher weights in the construction of the counterfactual (Table 4). Mexico has the highest weight in the models for GDP, inflation and exports, and Panama has the highest weight in the model for imports. Brazil, Costa Rica, and Venezuela also have relatively high weights in more than one model. In general, the weights are relatively sparse as often happens with synthetic control estimators (see Abadie, 2020 for a technical discussion).

We assess goodness of fit with the ratio of the pre-treatment RMSPE and the RMSPE obtained with a model with zero fit defined as in Adhikari and Alm (2016).[41] If the $RMSPE_j$ is 0, then the ratio index is equal to zero, indicating a perfect fit. A ratio index equal to one suggests that the $RMSPE_j$ is identical to the zero fit model.

The bottom panel of Table 4 shows that the ratio to the benchmark $RMSPE$ is close to zero across all models, suggesting that our synthetic control performs well in approximating the pre-treatment dynamics of the variables considered.

Figure 3 plots the realizations of the four variables of interest (the solid lines) together with the SCM counterfactuals (the dashed lines). The figure confirms the good fit already illustrated in Table 4. For all variables that we consider, the SCM builds weighted averages

[38] While considering the properties of five different test statistics, Firpo and Possebom (2018) conclude that the RMSPE, proposed by Abadie, Diamond, and Hainmueller (2015) is the best performer. They suggest that, in a context with only one treated unit, synthetic control estimator should be used even if the treatment were randomly assigned.

[39] Excluding units subject to similar policies in the pre-treatment period is important to select a meaningful donor pool (Abadie, Diamond, and Hainmueller, 2015).

[40] If the number of pre-intervention periods in the data is sufficiently large, matching on pre-intervention outcomes allows controlling for heterogeneous responses to multiple unobserved factors. The intuition is that only units that are similar along both observable and unobservable dimensions would follow a similar trajectory during the pre-treatment phase and thus receive positive weights by the SCM (Cunningham, 2021).

[41] Adhikari and Alm (2016) define the RMSPE obtained from a model with zero fit as: $RMSPE_{benchmark} = \sqrt{\frac{1}{11}\sum_{t=0}^{1980}(Y_{1,t})^2}$ where 11 corresponds to the number of pre-treatment years.

Table 4: Country Weights and Goodness of Fit

	Log of GDP	Inflation	Log of Export	Log of Import
ARG	0.038	0.008	0.000	0.000
BRA	0.126	0.000	0.149	0.000
CHL	0.036	0.000	0.000	0.278
CRI	0.231	0.000	0.482	0.000
DOM	0.000	0.181	0.000	0.000
ECU	0.000	0.000	0.004	0.000
MEX	0.276	0.711	0.365	0.032
PAN	0.138	0.000	0.000	0.391
PER	0.000	0.000	0.000	0.000
URY	0.000	0.099	0.000	0.169
VEN	0.155	0.000	0.000	0.130
Pre-treatment RMSPE	0.006	2.194	0.094	0.058
Ratio to benchamark RMSPE	0.000	0.013	0.003	0.004

Note: This table reports the country-specific weights for each of the four models. The last two rows report the Pre-treatment RMSPE and its ratio to the benchmark fit RMSPE. A value of zero indicates a perfect fit.

of the countries in the donor pool that closely track the behavior of Colombia before 1981.

The top left panel of Figure 3 focuses on GDP. Our estimated counterfactual indicates that, under default, Colombia would have observed a slow-down in GDP growth of approximately 1 percentage point per year over the period 1981-85. This effect is about half the size of what it is normally found in cross-country regressions (Borensztein and Panizza, 2009). The top right panel describes the counterfactual for inflation and indicates that a default would have led to a spike of inflation, with inflation peaking at nearly 80% in the counterfactual, against an actual value of approximately 20%.

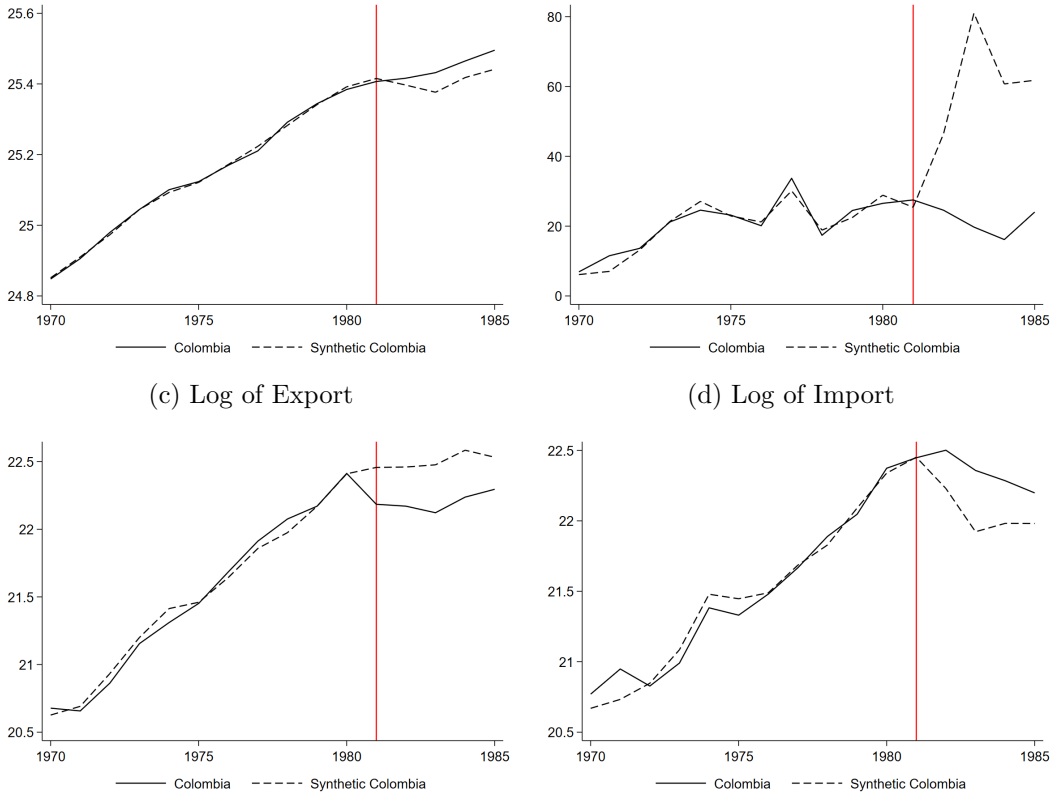
The bottom panels of Figure 3 describe the two main components of the current account: exports and imports. They indicate that a default would have led to higher exports (about 26% higher over a 4-year period) and lower imports (about 36% lower over a 4-year period).[42] Taken together these results suggest that, if it had defaulted, Colombia would have experienced a positive trade balance of about 10% over 1982-85, instead of an actual small trade deficit of about 1%. Our findings are in line with the idea that, by being creditor friendly, Colombia managed to finance a small current account deficit escaping the need of a sudden current account reversal which is often one of the most severe consequences of a financial crisis (Milesi Ferretti and Razin, 2000, Calvo, Izquierdo, and Mejia, 2004, and Edwards, 2004, among others).

[42]The effect on imports is unlikely to be driven by reduced trade credit as Alvarez and Flores Zendejas (2014) show that access to trade credit for Colombia was not different from access to trade credit for countries that defaulted and had an IMF program. The fact that Colombia did not have a major devaluation like the other countries in the sample may have instead played an important role.

Figure 3: Effect of non-defaulting on Colombia macroeconomic conditions

(a) Log of real GDP

(b) Inflation



(c) Log of Export

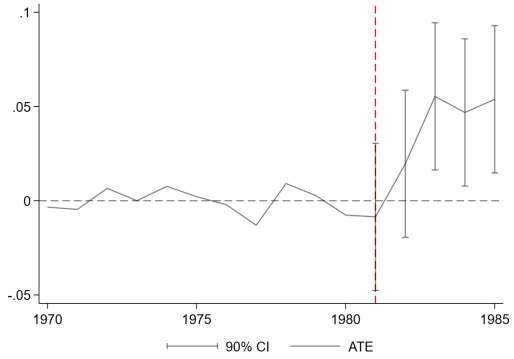
(d) Log of Import

Note: This figure reports Colombia's synthetic controls (dashed line) and the actual series (solid line) for the log of GDP, inflation, the log of export and import. The treatment year is 1981. The synthetic estimate is based on the baseline model which includes all the pre-treatment outcomes as covariates.

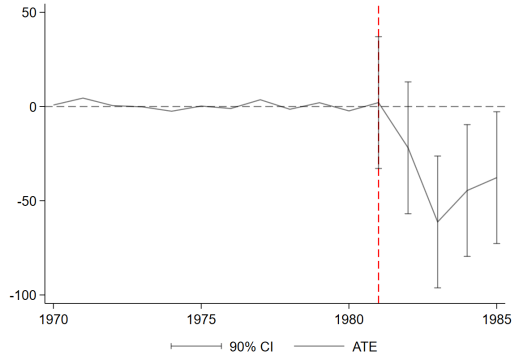
Figure 4 shows the estimated treatment effect (i.e., the difference between the solid and dashed lines in Figure 3) together with 90% confidence bands. The estimated effects are statistically significant at most horizons for GDP, inflation, and exports, but are not statistically significant for imports. In this latter case the estimated effect is large but imprecisely estimated with very wide confidence bands.

Figure 4: Effect of non-defaulting on Colombia macroeconomic conditions – Inference

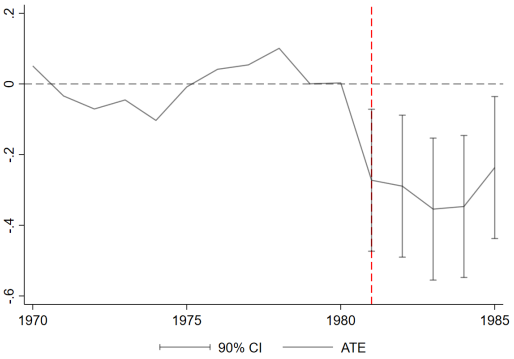
(a) Log of real GDP



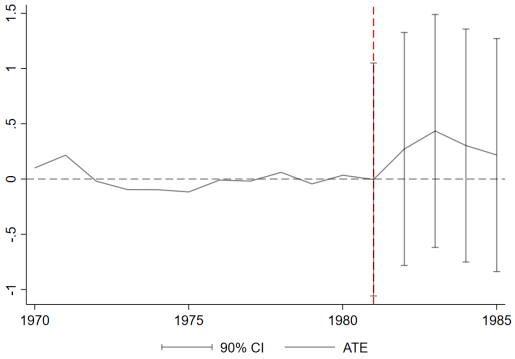
(b) Inflation



(c) Log of Export



(d) Log of Import



Note: This figure reports the difference between Colombia's actual series (the solid lines in Figure 3) and the synthetic control (the dashed lines in Figure 3) for the log of GDP a inflation, the log of export and import. The vertical spikes are 90% confidence bands.

4.2 Synthetic Difference-in-Difference

One issue with the standard synthetic control estimator described above is that it does not allow controlling for unobserved heterogeneity through the inclusion of country and time fixed effects. This is problematic for our analysis because there might be unobserved variables which are jointly correlated with the probability of default and the macroeconomic outcomes that we study. Arkhangelsky, Athey, Hirshberg, Imbens, and Wager (2020) propose a synthetic difference-in-difference (SDID) estimator that combines synthetic control and difference-in-differences (DID) to exploit the advantages of both methodologies. Similarly to SCM, SDID stregthens the plausibility of the parallel trend assumption by re-weighting and matching pre-treatment trends. Similarly to DID, it allows controlling for country and time fixed effects. Another desirable property of the SDID approach is that it provides a double-robustness property to the estimator because it employs fixed effects in modelling the outcome variables and also applies weights to the control units. As long as one of these two balancing approaches is effective, SDID produces unbiased estimates even in situations in which the other balancing approach is not correct.

As in the SCM, weights for the control units $\hat{\omega}_j$ are first estimated to match pre-treatment trends in the outcome of the treated unit. Time weights $\hat{\lambda}_t$ are also estimated to achieve balance in pre-treatment time periods ($\hat{\lambda}_t = 0$ in the SCM).[43] The SDID estimator can then be written as:

$$\left(\hat{\tau}^{sdid}, \hat{\mu}, \hat{\alpha}, \hat{\beta}\right) = \underset{\tau,\mu,\alpha,\beta}{\arg\min} \left\{ \sum_{j=1}^{N} \sum_{t=1}^{T} \left(Y_{j,t} - \mu - \alpha_j - \beta_t - N D_j \tau_{1,t}\right)^2 \hat{\omega}_j \hat{\lambda}_t \right\} \tag{6}$$

Unit weights are included to ensure that the average outcome for the treated unit is parallel to the average outcome for the control units. However, the difference between treated and controls varies over time in the pre-treatment period. To take this into consideration, time weights adjust for the pre-treatment difference that is predictive of the outcomes in the outcomes in the post-treated period.

As before, we focus on GDP, inflation, exports, and imports and show that the SDID estimations corroborate the SCM results described in the previous subsection.

Given that SDID includes fixed effects, the actual and counterfactual series are not supposed to overlap in the pre-treatment period and the graphs reported in Figure 5 are slightly more difficult to interpret than the simple SCM of Figure 3. Specifically, Figure 5 includes four lines: (i) the actual value of the variable of interest (the solid black line); (ii) the synthetic control (the solid blue line); (iii) the actual trend (the dashed black line); and (iv) the counterfactual trend (the dashed blue line).[44] The red brackets show the treatment effect

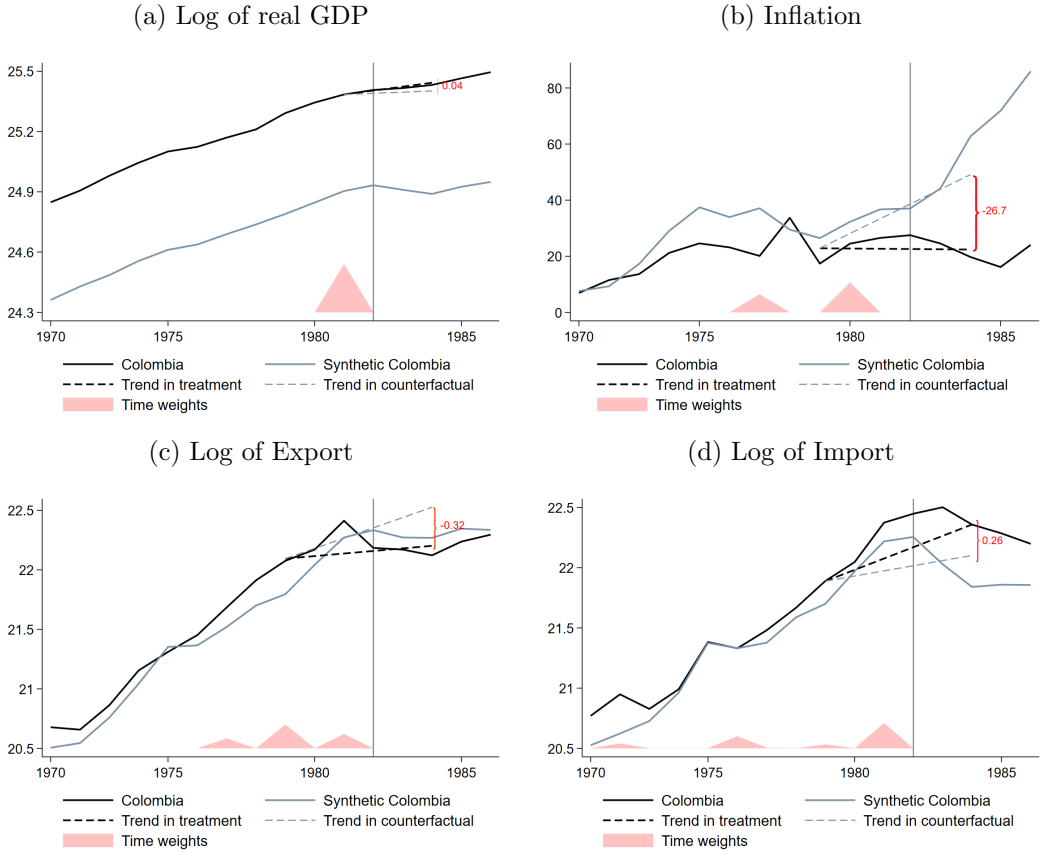
[43] See Arkhangelsky, Athey, Hirshberg, Imbens, and Wager (2020) for details on the estimation of the time weights.

[44] The point where both trends start (dashed lines) is determined by the weighted average (using the time

which is given by the distance between the actual trend and the trend that we would have observed if Colombia had defaulted. Finally, the triangles describe the time weights λ_t.

The top left panel of Figure 5 shows an accumulated GDP effect of about 4% over a four-year period, which is basically identical to what we found in the SCM estimations of Figure 3. With respect to inflation (top right panel) we find an accumulated effect of nearly 27% which is lower than the 41% effect found in the SCM estimations, but still very large. The bottom panels of the Figure corroborate our previous finding of a positive effect of exports (36% in the SCM estimations and 32% in the SDID estimations) and a negative effect on imports (26% in both the SCM and the SDID estimations).

Figure 5: Effect of non-defaulting on Colombia macroeconomic conditions – Synthetic Difference-in-Difference



Note: This figure reports Colombia's synthetic controls (grey solid line) and the actual series (black solid line) for the log of real GDP, inflation, the log of export and import. The black dashed line corresponds to the trend in the observed series, while the blue dashed line reports the trend we would have observed under a default. The pink areas represent the time weights λ_t. The treatment year is 1981. The synthetic control estimates are based on a SDID model that includes all the pre-treatment outcomes as covariates and country and year fixed effects.

weights) of the pre-treatment outcome variable and the pre-treatment years. The end of the dashed lines in the post-treatment period is obtained by averaging the post treatment outcomes and years.

5 Reputation

Sovereign debt models in the tradition of Eaton and Gersovitz (1981) assume that debtors' desire to preserve reputation in the international capital market is the main driver of willingness to repay (Panizza, Sturzenegger, and Zettelmeyer, 2009).

The results of the empirical literature that tests for these reputational effects are mixed, however. Several authors find that the reputational effects of sovereign defaults are either short lived or small (see, among others, Eichengreen and Portes, 1986, Borensztein and Panizza, 2009, Gelos, Sahay, and Sandleris, 2011). Cruces and Trebesch (2013) show that, although these results hold for the average defaulter, the reputational costs of default are increasing with the haircut imposed on creditors. Catão and Mano (2017), on the contrary, find a that all defaulters pay a large and long-lived default premium, irrespective of the size of the haircut. These contrasting results may be partly explained by the variety of episodes included in the different studies. Moreover, a common problem with these analyses is endogeneity: there may be unobserved variables (for example measures of political instability) which are positively correlated with both sovereign spreads and the likelihood of a default.[45]

We saw that the Colombian authorities in the 1980s shared the Eaton and Gersovitz view that defaulting would have had large negative reputational effects (Garay, 1989). As a consequence, in discussions with IMF staff and within the domestic policy debate, they maintained that avoiding an outright rescheduling with terms comparable to those offered to other countries in Latin America would allow for a quick return to normal access to capital markets (see Section 2).

Cline (1995) suggests that this strategy paid off: when Colombia received its first credit rating in 1993, it was rated as investment grade by Standard & Poor's and only one notch below investment grade by Moody's (Table 5). This argument, however, does not prove causality because we do not observe the rating that Colombia would have been assigned if Colombia had defaulted. For instance, Chile, which did default in the 1980s, received higher credit ratings by both Moody's and Standard & Poor's. Mexico, another defaulter, was rated just one notch below Colombia by both agencies. Primary market yield spreads for unenhanced international bonds issued in the first half of the 1990s paint a similar picture. The yields of Colombian bonds were lower than those of Argentina and Venezuela bonds, but close to those of Mexico and Uruguay and higher than Chilean yields (Table 6), all countries that defaulted in the 1980s.[46]

Again, these comparisons suffer from the endogeneity problem mentioned above because differences in ratings and yields may be associated with unobservable differences in fundamentals. In this section, we conduct an event study aimed at testing whether long-term

[45] This positive correlation imparts an upward bias to the estimated effect of a default on the interest spreads.

[46] Like Colombia, Chile did not participate in the Brady's exchange. However, Chile did reschedule its debts under the Baker plan and it is usually classified as a defaulter (see Tables A1 and A2).

Table 5: Foreign Currency Credit Ratings for Latin American Borrowers

	1993		1994		1995	
	Moody's	S&P	Moody's	S&P	Moody's	S&P
Argentina	B1	BB-	B1	BB-	B1	BB-
Brazil	B2	NR	B2	NR	B1	B
Chile	**Baa3**	**BBB**	**Baa2**	**BBB+**	**Baa1**	**BBB+**
Colombia	Ba1	**BBB-**	Ba1	**BBB-**	Ba1	**BBB-**
Mexico	Ba2	BB+	Ba2	BB+	Ba2	BB
Trinidad and Tobago	Ba2		Ba2		Ba2	
Uruguay			Ba1	BB+	Ba1	BB+
Venezuela	Ba1	BB	Ba2	BB-	Ba2	B+

Source: IMF (1993), Table 9 and IMF (1995b), Table 6. Investment grade issuers in bold

Table 6: Yield Spreads at Launch for Unenhanced USD International Bonds Issued by Latin American Sovereigns

	1991	1992	1993	1994
Argentina	375	324	301	250
Chile	150	150		
Colombia			215	153
Mexico	201	215	208	
Uruguay		275	228	158
Venezuela	235		386	

Source: IMF (1995a), Table A6 and IMF (1995b), Table A8

reputational effects are at play during a crisis period, when presumably they should matter the most. For this purpose, we look at the sudden stop which followed the Russian default of August 1998.

In the early 1990s, several Latin American countries started experiencing large capital inflows. After a short-lived reversal in the aftermath of the 1995 "Tequila" crisis, and an even shorter inflow reversal in the aftermath of the Asian financial crisis in the summer of 1997, capital inflows to the region kept growing at a rapid pace. By mid-1998 about one-quarter of total investment (or nearly 6% of GDP) of the region's seven largest economies was financed by foreign capital (Calvo and Talvi, 2005). The sudden stop episode that followed the Russian default put an abrupt end to these flows. The financial shock was enormous: flows to the largest seven Latin American economies fell from $100 billion over the period 1997Q3-1998Q2 to $37billion in 1998Q3-1999Q2, while average sovereign yield spreads in the region tripled (Calvo and Talvi, 2005).[47]

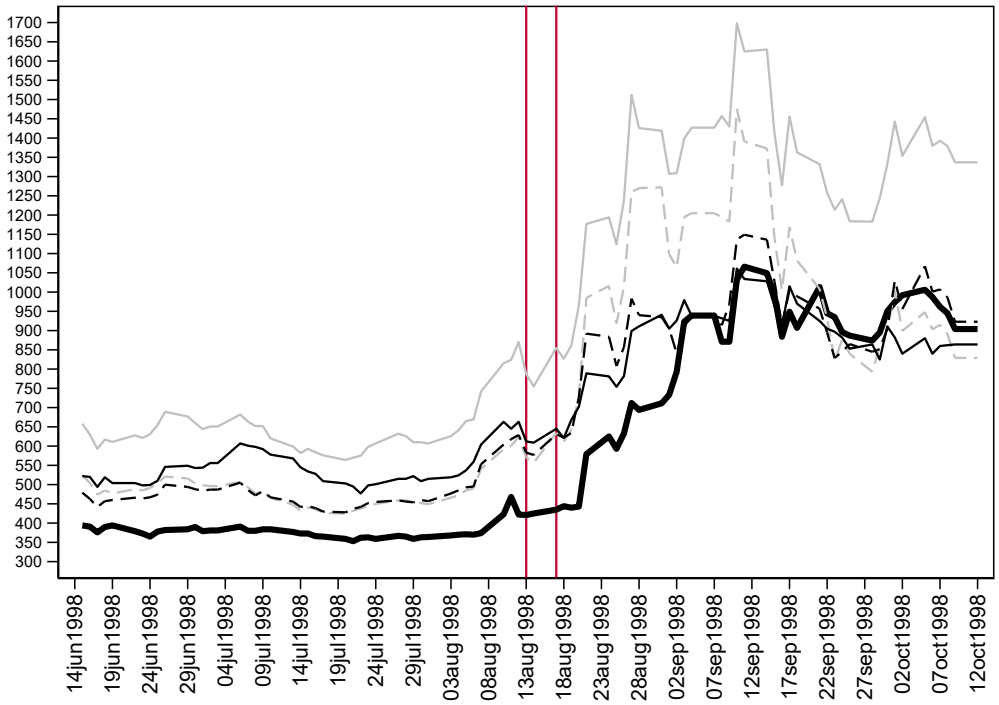
The fact that the crisis occurred in a country that represented less than 1% of global output and that had no significant economic ties with Latin America (Calvo, 2004) allows us to treat this event as an exogenous financial shock from the point of view of Latin American

[47] Baig and Goldfajn (2001) study the effect of the Russian shock on Brazil and provide detailed chronology of the Russian crisis.

countries.[48] We exploit this fact and use an event study framework to test if the reputation accumulated by Colombia during the 1980s made Colombia more resilient to this shock (note that we cannot conduct similar experiments for the Tequila and Asian crises because data on Colombian spreads are only available from mid-1997).

There are two dates that mark the explosion of the Russian crisis: the crash of the Russian stock market on Thursday August 13, 1998 and, on Monday August 17, the decision of the Russian authorities to devalue the ruble, default on the domestic debt, and declare a moratorium on payments to foreign creditors.

Figure 6: Latin EMBI Spreads around the Russian Default



Note: Argentina: dashed grey line; Brazil: solid grey line; Colombia: thick black line; Mexico: dashed black line; Peru: thin solid black line. The two vertical lines are for August 13, 1998 (drop in Russian asset prices) and August 17, 1998 (Russian default). The figure does not include Chile because the country was not part of the EMBI index in 1998.

Figure 6 plots the evolution of EMBI spreads for Argentina, Colombia, Mexico, and Peru for a sixty-day window around these two events (marked by the vertical lines). Before the Russian default, the Colombian spread stood at about 450 basis points, 150-200 points lower than the spreads of Argentina, Mexico, and Peru (which ranged between 600 and 650) and about 400 points lower than the Brazilian spread (Chile was not part of the EMBI in mid-

[48]There are now strong financial ties between Russia and Venezuela, but they were built by president Chavez who was elected in December 1998.

1998). Latin American spreads did not react to the stock market crash in Russia of August 13, but started climbing rapidly after the Russian default of August 17.

Figure 6 shows that Colombia was not spared from financial contagion. In fact, the Colombian spread started increasing more rapidly than the Mexican and Peruvian spreads. By early September, Colombian, Mexican and Peruvian spreads were basically identical, hovering at around 900 basis points, and then peaking at over 1000 basis points on September 11, 1998. Things did not improve thereafter. Two months after the Russian shock, Colombia had also lost its advantage relative to Argentina. By mid-October 1998, the Argentinean, Colombian, Mexican, and Peruvian spreads were in the 850-900 basis points range, with Brazilian spreads remaining above 1300 basis points. One full year after the Russian default, in August 1999, the Colombian spread was still above 650 basis point, slightly higher than the Mexican and Peruvian spreads and about 100 basis point lower than the Argentinean spread (notably, it was nearly 400 basis points higher than the Chilean spread).[49]

To formally test whether Colombia was relatively more resilient to the Russian shock, we conduct an event study (MacKinlay, 1997). This consists of a two-step procedure. First, we estimate the relationship between the changes of Colombian and "market" spreads in the period leading to the Russian crisis. Second, we use the estimated parameters to predict Colombian spreads during the crisis event and compare them with observed ones. Significant difference between predicted and actual spreads would flag "abnormal" changes during the crisis.

We start by regressing daily changes in Colombian EMBI spreads (S_{C_t}) on daily changes in "market" spreads (S_{M_t}) over an estimation window that precedes the event:

$$\Delta S_{C_t} = \alpha + \beta \Delta S_{M_t} + \epsilon_t \tag{7}$$

To estimate Equation (7), we must decide the length of the estimation window, and provide a definition of "market" spread.[50] In our baseline estimates, we use a 90-day estimation window ending 4 days before the event. Our results are robust to using 60 and 120-day windows. Note that there are two possible dates for the event we are interested in: August 13, 1998 and August 17, 1998. To minimize potential effects from the collapse of asset prices occurring on the first date, in the baseline we close the estimation window 4 days before the first event. Our results are robust to ending our estimation window 4 days before the second event.

With respect to the choice of a "market" spread, in the baseline we use the first principal

[49] Chile was included in the EMBI index in May 1999 (JPMorgan, 1999).

[50] While we focus on changes in spread, the literature tends to focus on daily returns, with the standard equation taking the form of $R_{C_t} = \alpha + \beta R_{M_t} + \epsilon_t$. Where $R_t = ln(P_t/P_{t-1})$ and P is an asset price. Given the inverse relationship between bond yields and bond prices, in our case, the two formulations are equivalent but with opposite interpretation of the results.

factor of changes in Argentinean, Brazilian, Mexican, and Peruvian spreads. Our results are robust to using the first and second principal factors of all seven Latin American countries which were included in the EMBI index during 1998 (the four countries mentioned above plus Ecuador, Panama, and Venezuela).

Table A5 in the Appendix shows the results for different estimation windows and definitions of the "market" spread. Daily changes in the Colombian spread are closely correlated with changes in the "market" spread under all reported specifications. However, only the first principal factor enters significantly in the regression.

In the second step, we use the coefficients estimated in step one to predict the changes in spreads during the event window and obtain excess ("abnormal") changes in spreads as out-of-sample forecast error (i.e., we subtract the predicted values from the actual changes during the event window). Finally, we compute accumulated abnormal spreads by adding the excess spreads over time during the event window.

Defining the excess change in spread as $A\Delta S = \Delta S_{C_t} - \hat{\alpha} - \hat{\beta}\Delta S_{M_t}$, and denoting the length of the event window as W, the accumulated change in excess spreads is:

$$CA\Delta S = \sum_{i=1}^{W} A\Delta S_i \tag{8}$$

Note that a positive value of $CA\Delta S$ indicates that the actual interest rate premium of a sovereign bond during the crisis episode exceeds the premium predicted by Equation (7). Thus, a positive value means that during the crisis period the country is doing worse than what can be predicted by the behavior of the "market."

Recall from Figure 6 that Latin American spreads started to rise rapidly only after August 17. For this reason, we build our baseline crisis window around this date. With respect to the length of the event window, in the baseline we use a 6-day window (starting the day before the event and ending 4 days after the event). We obtain similar results when we use a 12-day window, starting the day before the event and ending 10 days after.

To test if our measure of excess spreads is significantly different from zero, note that the average daily excess spread is defined as $\frac{CA\Delta S}{W}$ with variance $\frac{\sigma^2_{A\Delta S}}{W}$ (where $\sigma^2_{A\Delta S}$ is the variance of abnormal spreads during the estimation window), so that the t statistic for the average accumulated excess spreads is given by $\frac{CA\Delta S}{\sigma_{A\Delta S}\sqrt{W}}$.

The result of these tests, for the different time windows, comparison groups, and number of factors used, are described in Table 7. We always find that average accumulated abnormal spreads are positive, implying that Colombia was actually doing worse than the other countries that had defaulted in the 1980's. They are also statistically significant in 11 out of the 12 specifications reported in Table 7.[51]

[51] The only case in which they are not statistically significant is when we use 2 factors and a 6-day window.

Table 7: Colombian Abnormal Spreads After the Russian Default.

	(1)	(2)	(3)	(4)	(5)	(6)
			6-day event window			
Av. Abn. Spreads	6.43**	9.13***	8.69***	9.98***	5.56**	1.83
	(2.38)	(3.89)	(3.61)	(4.52)	(2.39)	(0.79)
			12-day event window			
Av. Abn. Spreads	8.40***	10.57***	10.23***	11.21***	9.23***	7.45***
	(6.20)	(9.01)	(8.51)	(10.16)	(7.94)	(6.44)
			Estimation Window			
N. Days	90	90	120	60	90	90
Ending on	Aug. 9	Aug. 13	Aug. 9	Aug. 9	Aug. 9	Aug. 9
N. of princ. factors	1	1	1	1	1	2
Countries used for Market spreads	ARG, BRA, MEX, PER				ARG, BRA, MEX, PER PAN, PER, VEN	

Abnormal returns t-test in parenthesis, ** statistically significant at 5% confidence level, *** statistically significant at 1% confidence level

The formal tests of Table 7 confirm the visual impression obtained from Figure 6: at the time of the Russian default the reputational advantage that Colombia had possibly gained by not defaulting a decade earlier had evaporated.

In his description of the management of Colombia's external debt in the 1980s, Garay (1991) writes that only in the medium and long run people will be able to evaluate if the reputational gains were worth the short-run sacrifices associated with this strategy. Our results suggest that reputational gains were not long-lived.[52]

6 Conclusions

This paper uses a novel approach to address a classic question in international finance: why do countries repay their debts in the absence of strong enforcement of creditors' rights? The economic literature has suggested that, given that countries cannot be forced to pay, they will only do so if the costs of not paying are higher than the short-run gains. Hence, asking why countries repay is equivalent to asking what are the costs of sovereign default.

The existing literature studied the costs of default by analyzing the effects of different default indicators on some outcome variable (mostly sovereign spreads, access to the international capital market, and GDP growth). We take the opposite approach: rather than asking what are the costs of default, we study the benefits of repaying at time of widespread sovereign default. We focus on the case of Colombia, the only large Latin American country

[52] One key issue is whether reputation adheres to a country, to a country's political institutions, or to a particular government. All of these are subject to change, albeit at very different paces. If reputation is entrusted to a specific government, it is not surprising that the gains of the 1980s were no longer at play in 1998. However, standard models take the view that the country, and its political institutions, rather than a specific government, are the object of trust. For example it is common to refer to countries who experienced many default episodes over the decades as"serial defaulters" (Reinhart, Rogoff, and Savastano, 2003).

that did not default in the 1980s, and complement archival research with formal econometric analysis.

We show that in terms of economic fundamentals, Colombia in the early 1980s was similar its neighboring defaulting countries and that Colombia's estimated probability of default was not significantly different from that of the Latin American countries that defaulted in the 1980s. Archival research points to the fact that main differences were political in nature. On the one hand, the Colombian authorities had a clear desire to maintain a good relationship with its creditors in order to enjoy the reputation of a "good debtor (Garay, 1989). On the other hand, they were able to avoid a formal restructuring agreement within an IMF program thanks to strong political support from the US administration and the US Federal Reserve.

The case of Colombia turns out to be much more complicated than what it is usually thought. The literature classifies Colombia as a non-defaulter. Yet, the country had four rounds of debt rescheduling, with conditions which were only slightly more favorable to creditors than the conditions applied by other Latin American countries that are normally classified as defaulters. We document that, as a result, Colombia's syndicated bank loans were trading in the secondary market at a large discount. The main difference with other defaulting Latin American countries was that, as mentioned, Colombia managed to reprofile its debts while avoiding an official debt rescheduling within an IMF program.

When we apply econometric techniques to estimate the causal effect of this decision, we find clear evidence of significant short-term benefits in terms of higher GDP growth, lower inflation and a smoother current account adjustment. However, our analysis finds that Colombia did not enjoy long-term benefits in terms of better access to international capital markets at time of crisis.

Taken together, our results support the view that default episodes should not be treated as binary events (Meyer, Reinhart, and Trebesch, 2019) and that more research is needed in order to understand the short and long-term economic effects of different debt rescheduling strategies.

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7 Appendix

Table A1: List of Sovereign Defaults in the 1980s

East Asia		**Middle East North** Africa	
Philippines	1983	Iraq	1987
Vietnam	1985	Jordan	1989
Europe		Morocco	1983
Poland	1981	Yemen	1985
Romania	1981	**Sub-Saharan Africa**	
Turkey	1982	Angola	1985
Yugoslavia	1983	Burkina Faso	1983
Latin America & Caribbean		Cabo Verde	1981
Argentina	1982	Cameroon	1985
Bolivia	1980	Centra African Rep.	1981
Brazil	1983	Cote d'Ivoire	1983
Chile	1983	Gabon	1986
Costa Rica	1983	Gambia	1986
Cuba	1983	Ghana	1987
Dominican Republic	1982	Guinea	1986
Ecuador	1982	Guinea-Bissau	1983
El Salvador	1983	Liberia	1987
Guatemala	1985	Madagascar	1981
Haiti	1982	Malawi	1982
Honduras	1981	Mozambique	1980
Jamaica	1981	Niger	1983
Mexico	1982	Nigeria	1982
Nicaragua	1980	Sao Tome & Principe	1987
Panama	1983	Senegal	1981
Paraguay	1986	Sierra Leone	1983
Peru	1983	South Africa	1985
Trinidad and Tobago	1988	Tanzania	1984
Uruguay	1983	Togo	1982
Venezuela	1983	Uganda	1980
		Zambia	1983

Source: Borensztein and Panizza (2009) and Das, Papaioannou, and Trebesch (2012). In the case of multiple restructurings, only the first default is listed.

Table A2: Selected Bank Debt Restructuring in Latin America and the Caribbean

Country	year	Type	Grace Period (years)	Maturity (years)	Spread over LIBOR (bps)
Argentina	1983	New financing	3	4.5	213-225
	1984	Restructuring	3	10-12	137
	1984	New financing	3	10	125-163
Brazil	1983	Restructuring	2.5	8	200-225
	1983	New financing	2.5	8	188-212
	1984	Restructuring	5	9	175-200
	1984	New financing	5	9	175-200
	1986	Restructuring	5	7	113
Chile	1983	New financing	4	7	212-225
	1983	Restructuring	4	8	200-212
	1984	New financing	5	9	150-175
	1985	Restructuring	6	10	138
	1985	New financing	5	10	125-162
Costa Rica	1983	Restructuring	3.25	6.5-7.5	213-225
	1985	Restructuring	3	10	163
Dominican Republic	1983	Restructuring	1	5	213-225
	1985	Restructuring	3	13	138
Ecuador	1983	Restructuring	1	7	213-225
	1983	New financing	1.5	6	225-237
	1984	Restructuring	3	12	138
	1984	New financing	2	10	125-162
Jamaica	1984	Restructuring	2	5	250
	1985	Restructuring	3	10	188
Mexico	1983	Restructuring	4	8	175-188
	1983	New financing	3	6	213-225
	1984	New financing	5.5	10	113-125
	1984	Restructuring	0-1	14	88-125
	1986	Restructuring	7	20	81
	1986	New money	5	12	81
	1986	New money	7	12	81
	1986	New money	4	8	81
Uruguay	1983	Restructuring	2	6	213-225
	1983	New financing	2	6	213-225
	1986	Restructuring	3	12	138
	1986	Restructuring	3	12	163
Venezuela	1984	Restructuring	–	12.5	113

Source: IMF (1987a)

Table A3: Debt Levels and Macroeconomic Indicators in the Run-up to the Latin American Debt Crisis

External debt to GDP 1981		Primary Bal. to GDP 1978-81		Current Acc. Bal. to GDP 1978-81		Real GDP growth 1978-81		Inflation 1978-81		Spread (bps) 1981	
Guatemala	15.2	Brazil	5.31	T & T	3.1	Paraguay	10.33	El Salvador	4.14	Venezuela	57
T & T	15.8	Chile	4.19	Venezuela	0.61	Mexico	8.77	Haiti	4.67	Mexico	62
Paraguay	19.6	Mexico	2.16	El Salv.	0.55	Chile	7.38	Guatemala	8.18	Colombia	66
Uruguay	19.86	Peru	0.39	Argentina	-0.2	Panama	6.74	Dom. Rep.	8.32	Chile	70
Colombia	24.24	Argentina	-0.12	Colombia	-0.8	Haiti	5.05	Honduras	8.6	Ecuador	70
Mexico	30.89	Colombia	-0.88	Guatemala	-4.12	Ecuador	5.02	Panama	10.13	Argentina	80
Brazil	32.42	Honduras	-1.3	Haiti	-4.55	Colombia	4.96	Jamaica	12.81	Uruguay	93
Dom. Rep.	34.01	Dom. Rep.c	-1.35	Mexico	-4.58	Uruguay	4.7	T & T	15.3	Costa Rica	93
Haiti	34.15	Costa Rica	-3.11	Peru	-5.32	Dom. Rep.	4.6	Ecuador	15.63	Peru	105
El Salvador	36.55	Bolivia	-9.27	Ecuador	-5.65	T & T	4.39	Paraguay	15.85	Panama	125
Ecuador	36.93			Jamaica	-6.29	Honduras	4.31	Venezuela	17.5	Brazil	205
Peru	42.17			Paraguay	-6.32	Brazil	3.93	Costa Rica	19.25	Bolivia	222
Honduras	46.51			Bolivia	-6.46	Guatemala	3.44	Colombia	22.82		
Argentina	46.6			Dom. Rep.	-6.85	Peru	2.7	Mexico	22.93		
Chile	50.44			Honduras	-7.24	Costa Rica	2.34	Nicaragua	23.02		
Bolivia	65.3			Brazil	-7.32	Bolivia	1.1	Bolivia	23.93		
Jamaica	83.42			Chile	-8.17	Jamaica	0.63	Chile	36.03		
Panama	88.8			Nicaragua	-9.57	Argentina	-0.45	Uruguay	51.09		
Nicaragua	107.6			Costa Rica	-13.45	Venezuela	-0.75	Peru	67.98		
Costa Rica	146.5			Panama	-23.24	El Salv.	-2.66	Brazil	72.25		
						Nicaragua	-7.3	Argentina	130.75		
Mean	48.85		-0.4		-5.76		3.3		28.15		104
Median	36.74		-0.5		-5.97		4.31		17.5		86
Min	15.2		-9.27		-23.24		-7.3		4.14		57
Max	146.5		5.31		3.1		10.33		130.75		222
St. Dev.	33.99		4.07		5.71		3.97		30.23		55
					Colombia minus regional average						
Difference	-25.9		-0.53		5.25		1.74		-5.59		-41.45
	(35.3)		(4.54)		(5.85)		(4.15)		(31.75)		(58.65)

Source: IMF (1987a)

Table A4: Evolution of Selected Economic Variables in Colombia

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Debt Service (% of exp.)	15.1	15.3	28	29.9	38	40.3	46	38.5	43.1	46.9	47.3	43.8
Govt bal. (% of GDP)	-1.2	-2.5	-6.4	-7.6	-7.6	-6.3	-3.5	-0.3	-0.5	-1.5	-1.6	-0.9
Intl. res. (Bill. USD)	4.1	5.4	5.6	4.9	3.3	1.7	1.3	3.6	3.6	3.8	3.7	4.5
Curr. acc. bal. (% of GDP)	2	0.4	-6.1	-10.1	-9.8	-7.6		1.6	-0.2	-0.7	-0.4	1.4

Sources: Colombia Recent Economic Developments reports 1983, 1985, 1987, 1989, 1990, 1993, Colombia Article IV reports, 1983, 1985, 1987, 1989. Using always the most recent information published in the reports.

Table A5: Colombian EMBI Spreads and "Market" Spreads

	(1)	(2)	(3)	(4)	(5)	(6)
F1	11.38***	13.06***	11.84***	12.47***	11.73***	10.71***
	(1.93)	(1.87)	(1.95)	(2.12)	(1.89)	(1.96)
F2				3.468		
				(4.50)		
Constant	0.827	1.108	0.791	0.768	0.769	0.936
	(0.61)	(0.71)	(0.60)	(0.61)	(0.54)	(0.70)
N. Obs	90	90	90	90	120	60
R2	0.28	0.36	0.30	0.30	0.25	0.34
Window length	90 days	90 days	90 days	90 days	120 days	60 days
Window ends on	Aug. 9	Aug. 13	Aug. 9	Aug. 9	Aug. 9	Aug. 9
Countries used for market returns	ARG, BRA MEX, PER		ARG, BRA, ECU, MEX PAN, PER, VEN		ARG, BRA MEX, PER	

Standard errors in parenthesis. *** statistically significant at the 1% confidence level. F1 and F2 represents the first and second principal factors of the changes in EMBI spreads of the countries listed in the table.

Table A6: Variables used in the LASSO-Logit, Summary Statistics

	Mean	Median	St. Dev	Min	Max	p10	p90
Broad money growth (%)	46.46	16.41	363.20	-88.79	12,513	3.73	46.76
Inflation, GDP defl. (%)	50.91	7.86	605.36	-29.69	26,766	0.80	35.50
GDP growth (%)	3.73	4.16	5.55	-51.03	106.28	-1.88	8.77
GDP per capita growth (%)	1.74	2.10	5.38	-50.23	91.65	-3.89	6.96
Short-term debt (% of ext. debt)	12.06	9.52	11.10	0.00	83.15	0.65	26.02
Domestic Absorption (% of GDP)	107.72	105.30	15.68	55.86	161.43	94.26	122.66
Int. on ext. debt (% of Exp.)	6.92	4.92	6.77	0.08	69.81	1.04	15.19
Int. on ext. debt (% of GDP)	2.01	1.37	2.77	0.01	78.97	0.29	4.25
Int. on long-term debt (% of GDP)	1.49	1.08	1.70	0.00	51.49	0.18	3.23
Int. on PNG ext. debt (% of GDP)	0.23	0.02	0.46	0.00	5.61	0.00	0.66
Int. on PPG ext. debt (% of GDP)	1.27	0.84	1.59	0.00	51.49	0.14	2.82
Int. on short-term debt (% of GDP)	0.27	0.12	0.55	0.00	12.69	0.00	0.65
Total debt service (% of exports)	17.93	14.46	14.49	0.12	156.86	3.08	36.49
Total debt service (% of GDP)	5.24	3.96	6.00	0.00	135.38	0.79	10.56
Current acc. bal. (% of GDP)	-4.34	-3.57	8.93	-80.05	62.30	-13.53	3.73
Trade (% of GDP)	71.33	63.05	37.71	0.17	311.36	31.65	122.86
Exports (% of GDP)	31.60	27.64	18.20	0.10	127.56	11.53	55.50
Imports (% of GDP)	39.73	34.40	22.50	0.07	236.39	17.31	68.88
FDI, net inflows (% of GDP)	3.13	1.67	7.11	-82.89	159.72	0.03	7.30
Ext. debt stock, PPG (% of GDP)	47.89	32.57	59.85	0.00	862.11	9.97	95.75
Ext. debt stock, PNG (% of GDP)	5.03	0.62	11.34	0.00	160.64	0.00	13.82
Debt forgiveness (% of GDP)	0.64	0.00	3.77	-0.98	93.51	0.00	0.77

Table A7: The Drivers of the Probability of Default, Logit model

Variables (all lagged)	Coefficients and Standard Errors
Broad money growth (%)	-0.008
	(0.008)
GDP growth (%)	0.101
	(0.197)
GDP per capita growth (%)	-0.193
	(0.203)
Short-term debt (% of external debt)	-0.022
	(0.023)
Domestic Absorption (% of GDP)	-0.049***
	(0.021)
Interest on external debt (% of exports)	0.133***
	(0.039)
Interest on external debt (% of GDP)	0.732
	(0.456)
Interest on PNG external debt (% of GDP)	-0.084
	(1.009)
Interest on PPG external debt (% of GDP)	-0.968
	(0.585)
Interest on short-term debt (% of GDP)	0.203
	(0.605)
Total debt service (% of GDP)	0.042
	(0.044)
Current account balance (% of GDP)	-0.091***
	(0.028)
Exports (% of GDP)	0.031*
	(0.017)
Foreign direct investment, net inflows (% of GDP)	-0.027
	(0.038)
External debt stocks, PPG (% of GDP)	0.007*
	(0.004)
External debt stocks, PNG (% of GDP)	-0.096
	(0.067)
Debt forgiveness grants (% of GDP)	-0.644*
	(0.343)
Constant	-0.759
	(2.547)
N. Obs.	2,098
Pseudo R2	0.269

Standard errors in parenthesis. *** statistically significant at the 1% confidence level, ** statistically significant at the 5% confidence level, * statistically significant at the 10% confidence level.

Table A8: Sources of Variables for the Counterfactual Exercise

Real GDP	GDP at constant 2010 USD	World Development Indicators
Inflation	CPI annual percent change	World Development Indicators
Exports	Exports of goods and services (current USD)	World Development Indicators
Imports	Imports of goods and services (current USD)	World Development Indicators

Notes: We fill missing CPI observations for Argentina, Brazil, Chile, and Venezuela with annual inflation calculated using the GDP deflator obtained from the World Development Indicators.