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Sovereign debt defaults and currency crises in Latin America

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Chapter 7

Conclusion

7.1 Main findings

This study deals with financial crises in Latin America. We investigate sovereign debt defaults and sovereign debt crises over an extended period (1870–2012) and currency crises over a shorter time frame (1990–2009).

In Chapter 2 we provide background information on the economic history of Latin America since 1870, and on the history of currency crises and sovereign debt defaults. We also present three generations of theoretical currency crisis models, and three alternative sovereign debt crisis theories. We use these theories to interpret our findings on currency crises and sovereign debt crises, and to select variables that potentially play a role in sovereign debt crises.

In Chapter 3 we discuss the most recent financial crisis that has hit the region, the Global Financial Crisis (2007–2009). Countries in the region do not suffer from widespread financial crises as in previous global shocks since obtaining independence almost 200 years ago. Sovereign defaults nor banking crises occur, but various countries suffer from currency crises. We construct an Early Warning System (EWS) for currency crises for Argentina, Brazil and Mexico in the period 1990 to 2007. We then use this EWS to predict the currency crisis in the aftermath of the fall of Lehman Brothers in September 2008. We contribute to the EWS literature in our methodology.

We use static factor models and an ordered logit model to account for the severity of the currency crises. Our methodology makes it feasible to include a wide range of variables in explaining currency crises, without having to pre-select explanatory variables. This allows us to investigate the role of institutional, political, global and commodity-related indicators, as suggested by Alvarez-Plata and Schrooten (2004), and others. We find that currency crises in Argentina, Brazil and Mexico are associated with debt, banking and commodities-related indicators. The relation with the debt and banking indicators can be explained by a taking closer look at the very deep currency crises (Mexico 1994-1995, Brazil 1998-1999 and Argentina 2001-2002) that have been accompanied by severe debt servicing problems, while Mexico and Argentina also experienced banking crises. Inclusion of institutional indicators improves the fit of the model for all countries. The relation is at first sight counter-intuitive, as improved institutional conditions are associated with deeper currency crises. However, the relation fits well within the third generation currency crises where positive expectations lead to overlending and overborrowing and increased asset prices. The boom in investments and capital inflows is partially founded on the moral hazard behavior of investors and banks. When expectations turn negative, capital flows out and pressure on the exchange rate increases. In this respect, sudden stops are endogenous to prior capital booms, as proposed by Agosin and Huaita (2011, 2012). The model's forecasts for Argentina and Brazil are comparable: the model predicts an increased probability of a crisis, but overestimates the severity of the currency crisis. For Mexico the out-of-sample performance is poor, as the model does not predict a currency crisis, which is in sharp contrast with reality. We attribute this to the low number of currency crises that Mexico has experienced in the 1990-2007 period, and the very different conditions in the run-up to the very deep crisis in 1994 when compared to the run-up to the very deep crisis in 2008.

In Chapter 4 we propose a new, continuous sovereign debt crisis index, which provides more information than the traditional binary default indicator. The constructed Debt Market Pressure Index (DMPI) shows peaks in

times of debt crises, while in tranquil years the index remains low. It represents the pressure on the sovereign debt position—not necessarily a default. We construct the index for Argentina, Brazil, Chile and Mexico in the period 1870–2012. The index that performs best compared to a sovereign debt crisis benchmark consists of a combination of total central government debt to GDP, interest rate spread and the ratio of exports to imports. This is in line with stylized facts, and with two strands of theoretical models, sovereign debt default models for emerging economies (Arellano, 2008) and sudden-stop models (Calvo, 1998; 2003). Our index opens up possibilities for more research on sovereign debt crises. As an example we use the DMPI to analyze Granger-causality between sovereign debt crises and business cycles.

In Chapters 5 and 6 we turn to a relatively understudied field in the literature, the impact of sovereign debt defaults on economic output. We investigate the sovereign debt defaults in Argentina, Brazil, Chile and Mexico in the period 1870–2012. Some studies exist on the impact of sovereign debt defaults on economic growth, but none of them exclusively focus on Latin America. It is a unique region because the countries have been considered emerging economies since independence almost 200 years ago, with a rich history of sovereign debt defaults. In Chapter 5 we find that the impact of sovereign defaults on real GDP growth is on average short-lived, while the cumulative output losses are large. When we zoom in on important historical periods (we distinguish three, 1870–1930, 1931–1971 and 1972–2012) we observe that the impact of sovereign defaults in the period 1972–2012 is more severe than in the other historical periods. The contraction period that follows the default is longer and the cumulative output losses are larger. We attribute this to the special features of the Latin American debt crisis of the early 1980s. Most countries experience high economic growth prior to the debt default, followed by a decade of slow economic growth, the ‘lost decade’. There are also differences between countries. Defaults in Argentina and Chile have a deep, yet short-lived impact, and fit within the findings of Levy Yeyati and Panizza (2011). The negative impact of sovereign defaults in Mexico continued for a longer time. We attribute this to domestic politi-

cal turmoil in the default episodes of 1914–1922 (in the midst of the Mexican revolution) and 1928–1942 (Cristeros War, followed by a global recession), and to the boom-bust pattern in the 1982–1990 debt crisis. The latter implied a structural break in economic growth. Brazil has different experiences, and on average a mild impact from sovereign defaults on real GDP. The country continued to service part of the debt obligations and maintained access to international capital markets during the debt defaults in the period 1870–1930, and it implemented loose fiscal and monetary policy during debt defaults in the 1930s. In the 1980s debt default the country experienced an improvement in the terms of trade, which smoothened the impact.

In Chapter 6 we analyze the diversity in the impact of sovereign debt defaults in two ways. First, we extend our analysis to the timing of sovereign defaults. We find that 80% of the sovereign defaults start in the recession phase of the business cycle. Other variables that coincide with sovereign debt defaults are an autocratic political system, high government expenditures, high and fast increasing debt level and adverse international conditions (low economic growth, high interest rates and decreasing commodity prices). Second, we analyze differences in the impact of a sovereign debt default: the higher the domestic and world economic growth, government expenses and commodity prices in the three years prior to the default, the higher the cumulative output loss and the longer the contraction period.

Our work on sovereign debt crises and defaults in Chapters 4, 5 and 6 fits within three theoretical models. First, our findings fit within boom-bust models since defaults occur when a period of high economic growth in the world and increasing commodity prices is followed by adverse international conditions including decreasing commodity prices. Particularly the sovereign debt crises in the 1980s contain elements of boom-bust models. Second, our findings fit within sudden-stop models, where capital inflows reverse. A sudden stop causes depreciation of the real exchange rate, which makes debt servicing of foreign currency denominated debt harder. A sudden stop is typically followed by an economic slowdown and an increase in interest rates, which lead to debt servicing difficulties, and may eventually

lead to a default. This phenomenon has occurred in global sudden stop episodes, such as the Barings crash in 1890, the Great Depression in 1929 (Accominotti and Eichengreen, 2013) and the financial crises in emerging economies in the late 1990s (Calvo, 1998 and 2003). Related to the sudden stop is a reversal in capital and current accounts, which fits also the debt market pressure index that we construct in Chapter 4. Third, our debt market pressure index is in line with sovereign debt default models of Aguiar and Gopinath (2006) and Arellano (2008), in which a combination of high debt levels and a prolonged recession can trigger a spiral of negative expectations and increasing interest rates, leading to a debt crisis. The sovereign debt default of Argentina in 2001–2005 is a good example of this type of crisis. Additionally, our results also fit within the political economy theories of Frankel et al. (2013) and Arezki and Bruckner (2010). In autocracies fiscal policy is procyclical, and windfalls from international commodity price shocks increase the risk of default on external debt because autocratic governments prefer to increase government expenditures. In this light it is interesting that Latin America has weathered the GFC well, despite significant drops in commodity prices and other adverse international circumstances. In the commodity boom (2002–2007) that preceded the GFC most Latin American countries used the extra revenues to reduce debt positions and to increase foreign reserves.

7.2 Lessons for Latin America

Latin America has a long history of recurrent debt defaults. Our findings show that procyclical fiscal policy and reliance on commodities have made the countries vulnerable to unfavorable international developments (low economic growth, high interest rates and decreasing commodity prices). In the most recent commodity boom (2002–2007) most Latin American countries have used the extra revenues to reduce debt positions, to increase foreign reserves and to maintain the fiscal balance. This has allowed Brazil and Chile to follow countercyclical fiscal policy during the Global Financial

Crisis (GFC) that hits emerging countries in the fall of 2008. Although the region is hit hard by the GFC, it has not lead to financial crises other than a currency crisis in the region, in sharp contrast to past global crises.

Recommendations include the continuation of countercyclical fiscal policies, maintaining debt levels low and increasing the relative proportion of domestic currency denominated debt in the total debt. In the area of monetary policy a floating exchange rate regime is recommended, as well as to maintain strict supervision on the financial sector. Lastly, the government should reduce the reliance on commodities. The government can pursue economic policies to stimulate other sectors, in particular the manufacturing and services industries. The government should also broaden its tax base, for instance by incorporating the informal sector in the formal sector and by reducing tax evasion through tax reforms.

7.3 Directions for future research

A natural step for the Early Warning System in Chapter 3 would be to use a dynamic factor model, where variables may enter with a lead or a lag. This should in principle improve the performance of the model. To test any EWS it is advisable to use 'historical expectations' at the time of forecasting. We can estimate our EWS model with these real-time data.

Many applications are possible for the Debt Market Pressure Index (DMPI) developed in Chapter 4. Using our constructed index we can explore (causal) relations between sovereign debt crises, currency crises and banking crises. Spatial econometrics models can be used to measure spillover and contagion effects amongst countries and financial crisis types. Since the construction of our index is limited by the availability of indicators, it will be an interesting exercise to use a data set with more countries and for a shorter period.

The analysis in Chapters 5 and 6 is based on only fourteen sovereign debt defaults, which is an acceptable, yet low number of observations for econometric analysis. Also, with a relative low number of sovereign debt defaults it is difficult to disentangle debt, currency and banking crises. To

make our results more robust it would be interesting to expand the number of countries and default periods. To be able to make a complete economic growth model we need more (social development) data that are not available for our country selection.

There are more general directions for future research. First, there exists no integrated theoretical model that fits our empirical work. We have seen that the sovereign debt crisis model of Arellano (2008) and the sudden-stop model provide a theoretical framework for our constructed sovereign debt index. The boom-bust framework and the sudden-stop model can be used to explain our findings related to the run-up to and the default itself. It would be a challenge to expand the sovereign debt crisis model with the boom-bust and the sudden-stop models. Recently, Mendoza and Yue (2012) make a first step in this direction, by proposing a model that integrates sudden-stop models and sovereign debt default models.

Second, the duration of a sovereign debt crisis is a relatively unexplored field. Why are some crises resolved fast and others not? And related, is the definition of a debt default valid if some countries (for instance Honduras, Russia) experience debt default episodes that last longer than half a century? As shown in Section 1.2.3 there is a wide variety of definitions for sovereign debt defaults and crises, but these seem to focus more on the start of sovereign debt crises and less on the end of the crisis. Related to this focus is the legal side of a default. In 2014, a New York-based judge rules that Argentina has to repay USD 1.5 billion of previously restructured debt, with a possibility that the entire debt issue of USD 15 billion has to be repaid. Argentina has not accepted the verdict in favor of 'vulture fund' Elliott Associates L.P., which has demanded earlier the Panama government in 1996, and Ecuador in 1998. The rating agencies have downgraded Argentina's sovereign debt to (selective or partial) default status (Phelan, 2014).

Third, although the regions have several characteristics in common, literature on comparison of financial crises between Sub Saharan Africa and Latin America is scarce. This calls for further research.

