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Sovereign rating after private and official restructuring

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ABSTRACT

This paper studies the relationship between sovereign debt (final) restructuring and sovereign ratings, by distinguishing between commercial and official debt and by considering the creditors’ loss (haircut). Institutional Investor’s index is taken as a measure of a country’s creditworthiness. We find that while a restructuring with private creditors seems to involve some reputational costs, “official defaulters” are not affected (or may even benefit) by the restructuring episodes. Using the Synthetic Control Method, we find further evidence for the heterogeneity of the economic impact of debt restructurings, confirming that official and private restructurings may have different costs and then induce selective defaults.

1. Introduction

In this paper, we document the relationship between sovereign debt restructuring and Institutional Investor’s rating by taking into account the present value reduction (or haircut) associated with the final restructuring. We focus on the effect on ratings in the aftermath of the debt crisis. Hence we take restructurings – and not default – as our main explanatory variable. Restructurings typically take place at the end of a renegotiation spell, which may take years after the default occurs. Fig. 1 describes the timeline we consider for our analysis.

We apply a methodology similar to Cruces and Trebesch (2013a), as well as the Synthetic Control Method (SCM) to provide some further evidence for the heterogeneous effect of restructuring on commercial and official debt.1 The two estimation methods that we use are, to some extent, complementary. The SCM allows us to find some causal evidence for the effects of restructuring on ratings, but comes at the cost of (i) reducing the number of countries in the sample, (ii) not allowing us to take into account the magnitude of the credit event.2 On the contrary, using the panel data analysis, we can take the severity of the default episode into account, and enlarge the sample by considering countries defaulting with both types of creditors. However, this allows us to find conditional correlations only.

We denote a restructuring deal with private creditors (foreign banks and bondholders) as “private restructuring”, while “official restructuring” stands for agreements reached with official creditors (in the Paris Club of official creditors, hereafter Paris Club). The spillovers of a debt restructuring on the domestic economy could be either some reputational costs or some positive debt relief, due to the reduction of the debt overhang, at least in the case of generous haircuts (Krugman, 1988). Showing the heterogeneous determinants of default, as well as the heterogeneous treatment of creditors in the event of default, is important, as it could help to shed light on what precisely are the (persistent) costs of default to a sovereign country.

Institutional Investor’s index can be interpreted as a forward-looking summary indicator of macroeconomic and (often) political conditions, as these affect repayment prospects and borrowing capacity. Most of these measures, however, explicitly pertain to a sovereign’s willingness and ability to service financial obligations to nonofficial (commercial) creditors. Understanding how Institutional Investor evaluates the repayment ability towards official

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1 In a companion paper (Marchesi and Masi, 2020b), we consider alternative indicators for country creditworthiness, such as agencies’ ratings and bond yield spreads, finding similar results. Due to data limitation, however, we can implement the SCM only using the Institutional Investor’s index, which is available since 1979 (instead of 1990).

2 In particular, it does not allow us to include in the sample countries defaulting with both types of creditors, which represents the majority of episodes.
creditors is not straightforward and depends on how “visible” official debt risk is and is incorporated into Investor’s rating models.

Analyzing 130 countries over the period 1979–2013, and using biannual data for Institutional Investor’s rating, we find that commercial and official agreements are associated with different outcomes. While private restructurings seem to involve some reputational costs up to seven years since the last agreement, “official defaulters” are not generally affected by the restructuring episodes. Using the SCM, we present further evidence for the heterogeneity of the economic effect of a debt restructuring on Investor’s rating, which is consistent with the results obtained from the regression analysis.

This paper complements the related empirical literature, which has estimated default costs. Even if our results may depend on how Institutional Investor incorporates official risk into their rating models, they are important as they show that the costs of default vary with the amounts of debt and the type of creditors involved. Defaulting on private debt is highly visible and hence more likely to result in a rating downgrade, while an official default is generally much less visible and hence less likely to determine some negative spillovers. In particular, official restructurings that are arranged within the “Paris club umbrella” are supposed to guarantee a relatively smoother approach to the restructuringsthatarearrangedwithinthe“Parisclubumbrella”whileonly7countrieshaveexperiencedprivate

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3. Panel analysis

We estimate the determinants of Institutional Investor’s rating using a fixed-effects OLS estimator (with standard errors clustered at the country level), over the period 1979–2013. The regression equation is:

\[
I_{it} = \alpha + \beta Z_{t-1} + \gamma C_{t-1} + \delta R_{t-j} + \eta_i + \tau_t + \epsilon_{it},
\]

where \(I_{it}\) represents the Investor’s rating provided in country \(i\), at period \(t\); \(C_{t-1}\) is a dummy equal to one when a country has finalized its final private/official haircut, \(R_{t-j}\) denotes the amount of private/official haircut associated to it, and \(Z\) is a vector containing the control variables (lagged one period). Finally, \(\eta_i\) and \(\tau_t\) denote country and time dummies, respectively.

As pointed out by Reinhart and Rogoff (2009), the Institutional Investor’s index can be then seen as a survey-based measure of the perceived creditworthiness of a large number of countries, with two main differences with respect to the credit ratings provided by agencies. First, this index can be regarded as a continuous variable, while the credit ratings assigned by the rating agencies have the features of a discrete variable. Second, this index changes annually over time, while the ratings may remain constant for a long period of time.

In this paper, we take the present value reduction, or haircut, associated with each (final) restructuring as a measure for the severity of a default episode. For the data on private restructurings, we relied on the original dataset by Cruces and Trebesch (2013b), which provides a measure of debt relief (Preferred Haircut HSZ) computed by the authors considering the present value of both old and new debt instruments.

For official debt restructurings, we relied on the original dataset built by Cheng et al. (2017), which contains data on debt restructurings with the Paris Club, between 1955 and 2015. Following Cheng et al. (2017), by looking at the terms of treatment, we were able to compute the present value reduction for official deals and to compare this value with the corresponding haircut measure in the case of private agreements.

Our sample includes a maximum of 130 countries. Since the data on private debt restructurings are available only up to 2013, our year sample ends in that year too. It includes 68 defaulting countries, which experienced at least one debt crisis during the sample period as well as 62 non-defaulters. Among defaulters, 47 countries had both private haircuts and official debt restructurings, 14 countries had only official restructurings (through the Paris Club) while only 7 countries have experienced private defaults only.

Fig. 1. Crisis timeline.
Fig. 2. Expected effect on investor rating for different levels of private haircut. Notes: Each graph shows the marginal effect of private haircut on Institutional Investor rating, for different haircut sizes and at different lag lengths. The dashed lines show 90 percent confidence bands. The effects are calculated using the coefficients from Table 1, column 6.

To identify post-crisis episodes, we focus on “final” restructurings only, which we define as those that were not followed by another restructuring vis-à-vis private or official creditors within the subsequent four years. Moreover, due to our focus on post-restructuring effects, we exclude observations during crisis years. Following Cruces and Trebesch (2013a), we take up to seven years after the last restructuring, to capture the existence of persistent effects.

As the control variables are concerned, we rely on the specification by Cruces and Trebesch (2013a). The results of the model of Eq. (1) are presented in Table 1 below. Table A1, in the Online Appendix, provides a detailed description of all our variables, while Table A2 presents some summary statistics.

In columns 1–2 of Table 1, we include the haircut size, expressed in percentage points, up to seven years after the final agreement (with and without control variables, respectively). Column 2 shows that a one percentage point increase in the private haircut size is associated with a decrease of about 0.2 points in the Investor’s rating, in year one after the restructuring. This means that a restructuring involving about 50 percent, which is roughly the mean for our sample, can be associated with 11 points lower in year one. In the case of official agreements, instead, no coefficient is found to be significant. Thus, while these results are economically relevant in the case of private haircuts when considering an official restructuring, no coefficient is found to be significant.

In turn, in columns 3–4, we include only the dummy indicating the occurrence of the private/official restructuring, while the last two columns contain the full specification. As can be seen, in column 6, there is a strong negative (positive) relationship between private (official) haircut size and subsequent ratings for years one to seven after the restructuring. To be able to comment these results, however, it should be kept in mind that the coefficients shown in the fully specified model (column 6 of Table 1) have to be interpreted conditionally, as in any interaction model. Thus, the best way to interpret the findings of Table 1, is to look at Figs. 2 and 3, which show the expected variation in Investor’s rating, conditional on the haircut size.

The bottom line of Fig. 2 is that private haircuts are negative and statistically significant for years one to seven after the final agreement. We can see that, from one to four and five years since the restructuring, any positive haircut can be associated with significantly lower ratings. While from six to seven years after the restructuring, the rating decrease can be significant only for haircuts higher than 40 percent (the mean of this sample being around 50 percent).

On the other hand, in Fig. 3, the rating decrease after an official haircut could be statistically significant for levels of a haircut at which the lower confidence band is below the zero horizontal line. Since this is never the case, at least when the haircut is higher than the sample mean (which is about 60 percent), we can conclude that an official haircut is not associated with any variation of the Investor’s rating.

Therefore, consistently with Schlegl and Trebesch (2019), we find that defaulting on private debt is highly visible and then more likely to result in a rating downgrade. On the other hand, our results contrast with those of Reinhart and Trebesch (2016),
who take a Diff-in-Diff approach to examine the behavior of ratings around restructuring (as well as a set of other macro indicators including growth).\footnote{3} In particular, while they document a strong increase in average ratings for emerging markets, after debt relief and crisis exit year, ratings in advanced economies do not recover after the war debt defaults of 1934, despite the substantial debt relief obtained.

The results in this section, however, should be taken cautiously, as identification is difficult and we cannot detect any

\begin{table}
\centering
\caption{Private and official haircut and Investor rating, 1979–2013, OLS.}
\begin{tabular}{lcccc}
\hline
 & (1) & (2) & (3) & (4) & (5) & (6) \\
\hline
Final Private Haircut (−1) & −0.222*** & −0.191*** & −0.054 & 0.063 \\
 & (−4.381) & (−3.467) & (−0.701) & (−0.982) \\
Final Private Haircut (−2) & −0.185*** & −0.171** & −0.086 & 0.071 \\
 & (−4.034) & (−3.509) & (−1.235) & (−1.279) \\
Final Private Haircut (−3) & −0.126*** & −0.110** & −0.058 & 0.055 \\
 & (−3.794) & (−5.248) & (−1.130) & (−1.542) \\
Final Private Haircut (−4 & 5) & −0.107*** & −0.090** & −0.074 & 0.082 \\
 & (−3.764) & (−5.047) & (−1.657) & (−2.823) \\
Final Private Haircut (−6 & 7) & −0.082*** & −0.061*** & −0.046 & 0.073** \\
 & (−3.432) & (−3.808) & (−1.026) & (−2.383) \\
Final Official Haircut (−1) & −0.052* & −0.012 & 0.050 & 0.023 \\
 & (−1.894) & (−0.708) & (−0.600) & (0.611) \\
Final Official Haircut (−2) & −0.053*** & 0.007 & 0.000 & 0.004** \\
 & (−2.313) & (0.325) & (−0.004) & (2.267) \\
Final Official Haircut (−3) & −0.051*** & 0.013 & 0.016 & 0.107*** \\
 & (−2.707) & (0.544) & (0.231) & (3.080) \\
Final Official Haircut (−4 & 5) & −0.049** & 0.016 & 0.028 & 0.117** \\
 & (−2.388) & (0.674) & (0.433) & (3.443) \\
Final Official Haircut (−6 & 7) & −0.043** & 0.013 & 0.034 & 0.112*** \\
 & (−2.134) & (0.716) & (0.774) & (3.024) \\
Final Priv. Haircut Dummy (−1) & −11.203*** & −10.945*** & −9.257*** & −8.548*** \\
 & (−5.732) & (−3.773) & (−2.529) & (−2.607) \\
Final Priv. Haircut Dummy (−2) & −8.404*** & −9.119*** & −5.162** & −6.212*** \\
 & (−4.722) & (−4.239) & (−2.066) & (−2.717) \\
Final Priv. Haircut Dummy (−3) & −5.663*** & −5.344*** & −3.466* & −3.092 \\
 & (−4.308) & (−4.672) & (−1.716) & (−1.417) \\
Final Priv. Haircut Dummy (−4 & 5) & −4.590*** & −3.914*** & −1.698 & −0.416 \\
 & (−3.803) & (−3.399) & (−0.908) & (−0.219) \\
Final Priv. Haircut Dummy (−6 & 7) & −3.465*** & −2.102* & −1.676 & 1.027 \\
 & (−3.375) & (−2.411) & (−0.861) & (0.625) \\
Final Off. Haircut Dummy (−1) & −3.912** & −2.228 & −0.278 & −2.927 \\
 & (−1.921) & (−1.108) & (−0.044) & (2.023) \\
Final Off. Haircut Dummy (−2) & −5.145*** & −2.652 & −4.709 & −6.230*** \\
 & (−2.489) & (−0.994) & (−0.779) & (−2.452) \\
Final Off. Haircut Dummy (−3) & −5.411*** & −2.025 & −5.977 & −7.927*** \\
 & (−2.722) & (−0.970) & (−1.119) & (−3.556) \\
Final Off. Haircut Dummy (−4 & 5) & −5.236*** & −1.974 & −6.581 & −8.574*** \\
 & (−3.110) & (−0.925) & (−1.519) & (−3.854) \\
Final Off. Haircut Dummy (−6 & 7) & −4.702*** & −1.871 & −6.492** & −8.285*** \\
 & (−3.580) & (−1.014) & (−2.235) & (−3.099) \\
GDP real growth (−1) & 0.060 & 0.067 & 0.071 \\
 & (1.036) & (1.110) & (1.188) & (1.134) \\
Primary balance to GDP (−1) & 0.133** & 0.137*** & 0.134*** \\
 & (2.118) & (2.210) & (2.204) \\
Current Account to GDP (−1) & −0.161*** & −0.159*** & −0.155*** \\
 & (−2.994) & (−2.946) & (−2.940) & (−2.940) \\
Reserves to imports (−1) & 0.006 & 0.008 & 0.002 \\
 & (0.821) & (0.881) & (0.565) \\
Public debt to GDP (−1) & −0.068*** & −0.056*** & −0.057*** \\
 & (−3.100) & (−2.952) & (−3.092) \\
Inflation (−1) & −1.174 & 0.219 & 0.100 \\
 & (0.016) & (0.779) & (0.703) \\
(Absence of) Political risk (−1) & 0.656*** & 0.649*** & 0.654*** \\
 & (8.582) & (7.729) & (8.193) \\
Constant & 48.840*** & 48.786*** & 48.804*** & 0.457 \\
 & (36.791) & (36.132) & (36.374) & (0.092) \\
Observations & 31,284 & 15,132 & 31,284 & 31,284 \\
 & 31,284 & 15,132 & 31,284 & 15,132 \\
R-squared & 0.487 & 0.689 & 0.493 & 0.496 \\
Number of country_id & 117 & 85 & 117 & 85 \\
Country FE & YES & YES & YES & YES & YES & YES \\
Year FE & YES & YES & YES & YES & YES & YES \\
\hline
\end{tabular}
\end{table}

Notes: This table shows coefficients of an unbalanced panel data OLS regression with fixed effects at the country-year-level and country-year clustered standard errors. $t$ statistics are in parentheses.

*Significance level at 0.10.
**Significance level at 0.05.
***Significance level at 0.01.
Fig. 3. Expected effect on investor rating for different levels of official haircut
Notes: Each graph shows the marginal effect of official haircut on Institutional Investor rating, for different haircut sizes and at different lag lengths. The dashed lines show 90 percent confidence bands. The effects are calculated using the coefficients from Table 1, column 6.

causal effect but only strong conditional correlations. In the next Section, we present some further evidence of the relationship between restructuring and Investor’s rating adopting an alternative specification method, the SCM.

4. Synthetic control method

In this Section, we investigate the heterogeneity of the impact of debt restructurings by constructing a counterfactual of the path of the credit rating for each country that had only either private or official debt restructurings. The missing counterfactual outcome is estimated with the SCM developed by Abadie and Gardeazabal (2003) and later improved by Abadie et al. (2010).

In our analysis, we evaluate the Institutional Investor’ index of defaulting countries with respect to the rating of a sample of non-defaulters (synthetic control). To disentangle the effect of private and official defaults, we consider countries that had only official debt restructurings (through the Paris Club) and countries that had only private restructurings, as described in Section 2. For the reasons described in the Online Appendix B, we were eventually able to evaluate the effect on six private defaulters and seven official defaulters. For each defaulter, the pool of potential control units encompasses no-defaulters for which data are available. We consider the first year of the debt crisis as the starting point of the treatment period. This timing assumption enables us to observe what would have happened in the absence of the default, both during the debt crisis and in its aftermath.

Although the time of the event may be endogenous since countries often renegotiate their debt only after they start to recover, the SCM alleviates endogeneity problems by accounting for the presence of unobservable time-varying confounders. When there is a large number of pre-event periods, only those units that are similar in both observed and unobserved characteristics would produce similar paths for the outcome under analysis. Thus, if the path of the outcome variable of the treated and the synthetic unit are alike over a sufficiently long pre-treatment period, the difference (gap) between the Investor’s rating of a defaulting country and the synthetic in the aftermath is an unbiased estimation of the effect of the default.

Online Appendix B describes the sample and presents the results for each treated country. To improve the comparability of the results obtained through the panel analysis, we present the average impacts of debt crises on the credit rating of private and official defaulters, obtained by aggregating the country-specific effects of private and official defaults. Following Cavallo et al. (2013), first, we normalize the estimates by setting equal to 1 the credit rating of each treated country in the starting year of the debt crisis. Then, we pool the country-specific effects of private and official defaulters, separately.

As can be seen in Fig. 4, the difference between the two types of the defaulter is substantial. Considering eight years after the event (which corresponds to the average private crisis duration in this sample), the gap in rating between private defaulters and their synthetic counterpart is, on average, about 40 percent, which is clearly an economically relevant magnitude. Note that
Fig. 4. Average effects on private and official defaulters. Notes: In each graph, the continuous line represents the average investor rating for the defaulting countries, while the dashed line shows the average outcome for the synthetic countries. Investor rating is normalized to 1 in period 0.

the dotted line in Fig. 4 denotes the beginning of the debt crisis (i.e., the time of default), which explains why the average rating decline is so massive before to the final restructuring, which is our main event of interest in the paper and can take years after the default occurs.\footnote{As a robustness check, we have calculated the average drop in ratings for private defaulters both at the start and at the end of the default episodes. We document that the average rating decline is much larger at the beginning than at the end. Results would be available on request.}

Conversely, in the case of an official default, while we observe, on average, a contraction in Investor’s rating during the years of the crisis (the average duration is eleven years in this case), official defaulters do catch up with their synthetic counterpart in its aftermath.\footnote{Note that while for private defaulters we are able to use the exact date of the default (as in Asunuma and Trebesch, 2016), in the case of official default, the dotted line refers to the date of the first restructuring, which is the only information we can obtain for official debt crises.}

In summary, consistently with the results obtained from the regression analysis, we find that while private defaulters generate rating contraction which is persisting over time, official defaulters do not show a permanent drop in Investor’s rating.\footnote{These results are consistent with Marchesi and Masi (2020a), who used the SCM, to investigate the heterogeneous response of GDP per capita to private and official default. They find that while private defaulters are not able to recover their output losses in the medium-long run, official defaults do not have an impact on defaulters’ GDP per capita.}

5. Conclusions

This paper studies the relationship between sovereign debt (final) restructuring and Institutional Investor’s index, by taking into account the depth of a debt restructuring and by distinguishing between commercial and official agreements. We find that while private defaulters are associated with a persistent negative stigma in the aftermath of the restructuring, official defaulters are overall not affected (or they may even benefit) by the credit event.

We find further evidence for the heterogeneity of the economic impact of debt restructurings using the Synthetic Control Method. Consistently with the results obtained from the regression analysis, we find that countries involved in only private restructurings are not able to recover the contraction in their credit rating up to the medium-long run. On the other hand, official creditors can catch up with their synthetic counterpart, but they may even improve their rating in the aftermath of the default.

Our results, therefore, points to the importance of how debt restructurings are orchestrated, consistently with previous results. The Covid–19 crisis is going to increase even more the need of public finance and hence to make debt sustainability a much more serious concern, especially for emerging countries, which are facing a financial crisis as well as a public health emergency. We then expect a wave of debt restructuring in the following years as a consequence of the Covid emergency, which will hit certain countries particularly hard. Our results may then provide some insight also for the debate on the consequences of debt
heterogeneity, which introduces the possibility for governments to operate selective defaults discriminating across investors.

Appendix A. Supplementary data

Supplementary material related to this article can be found online at https://doi.org/10.1016/j.econlet.2020.109178.

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