



# The determinants of sovereign default: A sensitivity analysis



Avik Chakrabarti<sup>a</sup>, Hussein Zeaiter<sup>b,\*</sup>

<sup>a</sup> Department of Economics, University of Wisconsin, Milwaukee (UWM), P.O. Box 413, Bolton Hall, 3210 N. Maryland Ave., Milwaukee, WI 53211, USA

<sup>b</sup> Lebanese American University (LAU), Lebanon

## ARTICLE INFO

### Article history:

Received 11 February 2014

Received in revised form 10 June 2014

Accepted 12 June 2014

Available online 22 June 2014

### JEL classification:

F34

H63

### Keywords:

Sovereign debt

Default

Extreme bound analysis

Panel

## ABSTRACT

A vast and growing empirical literature aims at identifying key determinants of sovereign default. The literature is extensive and controversial. Can policy-makers use this body of research to learn anything that can help reduce the likelihood of sovereign default? We use a variant of Extreme Bound Analysis (EBA) to examine if any of the conclusions from the existing studies on the determinants of sovereign default is robust to small changes in the conditioning information set. Our EBA, spanning 190 countries over 1970–2010, upholds the robustness of the observed association between sovereign default and credit worthiness, growth, leverage on export earnings, debt service ratio, reserves, inflation, exchange rate, trade deficit, corruption, and democratic accountability. At the same time, our EBA reveals that the correlations between sovereign default and several of the controversial variables (namely, openness, central bank liabilities, interest payments, cost of borrowing, imports, exports, per capita GNP, and government stability) are highly sensitive to small alterations in the conditioning information set.

© 2014 Elsevier Inc. All rights reserved.

## 1. Introduction

Concerns regarding sovereign defaults have been mounting through this millennium. While the current financial crisis often hits a raw nerve on probable causes and remedies of debt default, the first such recorded case dates back to the fourth century BC when more than three-quarters of the Greek Municipalities could not meet their debt obligations to the Delos temple (Winkler (1933)). Since then, over millennia, many countries have faced difficulties in servicing their debt. However, the most recent past decade has witnessed a phenomenal accumulation of global external debt, skyrocketing from \$2 trillion in 2000 to \$60 trillion in 2011. Consequently, the ratio of external debt to GDP jumped from 4.57% in 2000 to 72.5% in 2011 and per capita external debt increased from \$329 in 2000 to \$8700 in year 2011. During this period, the largest annual increase of external debt was in 2005, multiplying more than 5 times from 2004. As shown in Figs. 1 and 2, despite improvements in the per capita output, default risk has concurrently been rising with external debt outpacing growth: the higher a country's external debt, the higher is its likelihood of not being able to make the payments which inflates accumulated arrears and raises the risk to default.

With the sharp rise in sovereign default risk of many countries in the world, it is not surprising that a large and growing body of research continues to look into the potential determinants of default risk of external debt. The lack of a general consensus over the conclusions reached by the wide range of empirical studies as to the relative importance and the direction of impact of the potential determinants of sovereign default can be explained, to some extent, in terms of the wide differences in perspectives, methodologies, sample selection and analytical tools. On top of the heterogeneity in approaches, these empirical studies, like many others in different fields of economics, rather unfortunately, form examples of “measurement without theory”: variables are searched for that show a

\* Corresponding author at: Economics department, Lebanese American University, LAU, P.O. Box 13-5053 Chouran 1102 2801 Beirut, Lebanon. Tel.: +961 1786456x1845. E-mail address: [husein.zeaiter@lau.edu.lb](mailto:husein.zeaiter@lau.edu.lb) (H. Zeaiter).

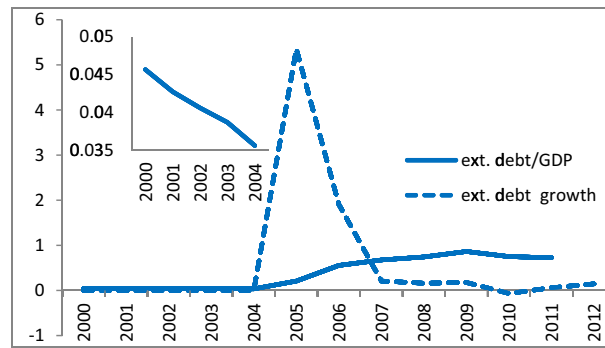


Fig. 1. External debt per GDP and external debt growth.

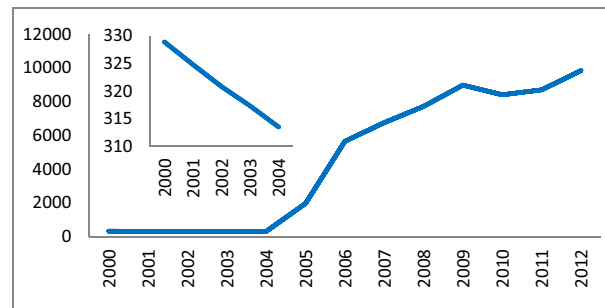


Fig. 2. External debt per capita.

significant influence on sovereign default, and the results are explained *ex post*. This has resulted in a diverse and somewhat unwieldy literature where most investigators have considered only a small number of explanatory variables at a time in an attempt to establish a statistically significant relationship between sovereign default and a particular variable or a set of variables of interest. Moreover, none of these studies meaningfully control, consciously or otherwise, for all the variables analyzed by early researchers as potential candidates explaining sovereign default. A wide range of variables has been studied and observed to be significantly correlated with sovereign default in different directions in different studies. All this not only points to obvious statistical and conceptual weaknesses prevalent in the empirical literature on the determinants of sovereign default, but also leaves the motivated reader rather perplexed, at the end, as to the confidence that should be placed in the findings of any particular study.

It, therefore, becomes imperative to examine whether one can have any confidence in the conclusions reached by the existing studies on the determinants of sovereign default. To that end, we use a variant of Leamer's (1983) Extreme Bound Analysis (EBA) in determining which coefficients of the explanatory variables studied in the existing studies on the determinants of sovereign default are "robust" and which are "fragile" to small changes in the conditioning information set.<sup>1</sup> The rest of this paper is organized as follows. In the next section, we describe the data and estimation technique and explain the methodology used in the sensitivity analysis. In Section 3, we discuss the role of the explanatory variables used in the EBA. This section may also be seen as a structured review of the relevant literature, cataloged in Table 1. In Section 4, we present key findings. In Section 5, we draw our conclusions.

## 2. Data and methodology

Table 2 below lists all variables used in our EBA. Based on the literature, all the studies considered having (1) reschedule agreement with the creditor or (2) IMF Upper Tranche<sup>2</sup> default on external debt. Prior to any reschedule agreement or IMF upper tranche countries fail to meet their payments on time causes arrears to accumulate and increase the burden on the debtor country. This situation forces the debtor country to seek to reschedule its debt or have an IMF agreement. Thus, falling into arrears happens before other debt rescheduling or asking IMF for upper-tranche as shown in Fig. 3. Our dependent variable is the total principal and interest arrears to external debt (*Arrears*).

<sup>1</sup> Use of this meta-analytic tool can be found in the literature on growth (Levine and Renelt (1992)), savings (Dicks-Mireaux and King (1984)), industry concentration (Cooley (1982)), money demand (Cooley and Le Roy (1981)), foreign direct investment (Chakrabarti (2001)), business cycle (Baxter and Kouparitsas (2005)), terrorism (Gassebner and Luechinger (2011)), pollution (Gassebner, Lamla, and Sturm (2011)) and democracy (Gassebner, Lamla, and Vreeland (2013)).

<sup>2</sup> The IMF Upper Credit Tranches if the debtor country adopts policies that resolve the balance of payments difficulties within a reasonable period.

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات