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### Uncertainty and international debt maturity

Neven T. Valev\*

Department of Economics, Andrew Young School of Policy Studies, Georgia State University, P.O. Box 3992, Atlanta, GA 30302-3992, USA

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#### Abstract

This paper shows that high macroeconomic volatility, lax rule of law, and inefficient bureaucracy in foreign countries contributes to a tilt toward short-term maturity of international debt. The results are important as short-term debt has been linked to several financial crises in recent years. The paper explores factors that contribute to short-term lending. The results are obtained using data on international lending by three groups of U.S. banks: large, medium-sized, and small. The effect of uncertainty on debt maturity is particularly strong in emerging economies and for smaller banks.

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#### 1. Introduction

International debt maturity has become an important topic in international finance in recent years. Radelet and Sachs (1998), Chang and Velasco (2001), and others have argued that large exposure to short-term international capital contributed to financial crises in several emerging markets in the 1990s. There is, however, limited evidence on the factors that explain the maturity of international debt. For example, why does 63% of credit by U.S. banks to borrowers in Uruguay have maturity longer than 1 year whereas only 20% of credit to borrowers in Peru has that same maturity? What factors explain why some countries find it difficult to obtain long-term financing? The main question in this paper is whether economic and non-economic uncertainty in foreign countries contributes to a tilt toward short-term maturity in international debt. The paper uses data

<sup>\*</sup> Corressponding author. Tel.: +1 404 651 0418; fax: +1 404 651 4985. E-mail address: nvalev@gsu.edu.

on international lending by U.S. banks to extend Rodrik and Velasco (1999), Buch (2003), Buch and Lusinyan (2003), and Valev (2006) by introducing an array of uncertainty variables to the list of variables used in those analyses.<sup>1</sup>

In terms of economic uncertainty, Catao and Sutton (2002) show that countries with greater macroeconomic volatility are more likely to default on international loans. In these countries, lenders prefer short-term exposure so that they can pull out if a crisis seems imminent, i.e. high volatility can be associated with short-term debt. Conversely, high volatility might lead to longer maturity. Countries with greater income volatility prefer long-term debt in order to lock in the terms of financing and to spread debt service payments more equally over time. Thus, whether macroeconomic volatility contributes to shorter or longer maturity of international debt is an empirical question. Our estimations reveal an interesting non-linear relationship. While greater output volatility is associated with longer debt maturity at low and medium levels, output volatility contributes to shorter-term debt at very high levels.<sup>2</sup>

In terms of non-economic uncertainty, Citron and Nickelsburg (1987) and Ozler and Tabellini (1991) show that in countries with high political uncertainty, current governments discount the future gains from access to capital markets and are more likely to default. Hence, political uncertainty is associated with lower loan volumes and with greater cost of borrowed funds (De Haan et al., 1997). In Rodrik and Velasco (1999), upcoming elections result in either a "populist" or an "orthodox" government. As orthodox governments are more likely to service international debt compared to populist governments, lenders prefer to lend short-term leading up to the elections. Valev (2006) and Mina and Valev (2002) test empirically this hypothesis and find that international lending by U.S. banks has shorter maturity in countries with greater political and institution uncertainty.

This paper extends the earlier literature by investigating the effect of macroeconomic volatility on international debt maturity. Importantly, economic and non-economic uncertainty are studied in conjunction with each other. Recent literature, e.g. Acemoglu et al. (2003) and Cooley et al. (2003) show that institutional weakness and macroeconomic volatility are closely linked. Yet, empirical models that study the effect of uncertainty on investment usually include either economic volatility (as in Catao and Sutton, 2002) or institution quality (as in Valev, 2006) but not both. Thus, a negative effect of economic volatility on investment may in fact be capturing the effect of weak institutions and vice versa. Our analysis shows that the two types of uncertainty, while highly correlated, have strong independent effects on debt maturity.

<sup>&</sup>lt;sup>1</sup> Earlier literature has explored also the determinants of the volume of international loans of U.S. banks (Dahl and Shrieves, 1999), international branch expansion (Goldberg and Johnson, 1990), and the prices of loans (Ozler, 1993). As in Valev (forthcoming) this paper adds analysis on the maturity structure of international lending.

<sup>&</sup>lt;sup>2</sup> This U-shaped relationship is similar to Diamond's (1991) result on the maturity of corporate debt. In that paper, the lowest risk firms prefer to borrow short-term and access capital markets more frequently as short-term debt is cheaper. High-risk firms also borrow short-term as lenders are unwilling to lend long-term. Firms in the mid-range borrow longer-term compared to firms at both ends of the risk spectrum.

<sup>&</sup>lt;sup>3</sup> The recent concerns over election results in Brazil provide an excellent example for that framework. The *New York Times* (2 October 2002, p. 10) reports that "Much of the market nervousness can be attributed to growing worries about the presidential election to be held in October, a race now led by Luiz Inacio da Silva of the left-wing Workers' Party ... Analysts here and on Wall Street fear that if Mr. da Silva is elected, he will renegotiate or even default on Brazil's foreign debt, a stance that his party has endorsed for most of its 20-year history." As a result, while Brazil was still able to refinance its international bonds, the maturity of "a chunk of them" is now "running for only 1 month." (*The Economist*, 19 October 2002, p. 68).

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