

# Are twin currency and debt crises special?

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Received 13 September 2005; received in revised form 17 November 2006; accepted 13 March 2007

Available online 20 March 2007

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## Abstract

In the literature on currency and banking crises it has become the standard procedure to distinguish pure currency crises, pure banking crises and combined (“twin”) currency and banking crises. We show theoretically and empirically that a similar differentiation should be chosen with regard to currency and debt crises. Twin currency and debt crises differ from both pure currency and pure debt crises in their determinants, course of events, and economic consequences. We find that each type of crises has a unique set of macroeconomic causes. We also identify internal contagion and selection bias effects, which may lead to biased empirical estimates if twin crises are not treated as a specific type of crises. Such a separation allows in significantly improving the efficiency of early warning systems especially for debt and twin crises.

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*JEL classification:* F31; F33; F34; F41

*Keywords:* Currency crises; Debt crises; Twin crises; Emerging markets

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## 1. Introduction

In the literature on currency and banking crises it has become the standard procedure to treat pure currency crises, pure banking crises and combined (“twin”) currency and banking crises as separate classes of crises. For example, in empirical studies the output effects and frequencies are usually analyzed separately for each of these crises.<sup>1</sup> In contrast, in the literature on debt and currency crises such a distinction is less common- even though empirically twin debt and currency

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<sup>1</sup> See e.g., IMF (1998), Glick and Hutchison (1999), Kaminsky and Reinhart (1999), De Lary and Goodhart (1999), Bordo et al. (2001), Eichengreen (2002), and Bordo and Eichengreen (2003).

Table 1  
Default and devaluation

	No devaluation	Devaluation
No default	Non-crisis	Pure currency crisis
Default	Pure sovereign debt crisis	Twin debt and currency crisis

crises are at least as frequent as the more prominent twin currency and banking crises.<sup>2</sup> Therefore, we address the following question: Should twin debt and currency crises also be regarded as a specific type of crisis, which should be analyzed separately from pure currency and pure debt crises (see Table 1)? Can such a classification improve the analysis of fiscal and exchange rate crises? Most importantly, does it on the empirical side improve the quality of early warning indicators and the prediction of financial crises? If debt and currency crises are interrelated due to common causes and/or direct contagion effects from one crisis to the other, an explicit consideration of these interrelations may indeed enhance the results of empirical analyses and the forecasts of early warning systems.

Early warning systems for financial crises have been extensively analyzed in the literature.<sup>3</sup> However, their forecasting performance has been mixed and often been poor in the sense that indicators failed to predict crises that in fact did occur (type I errors) or that they predicted crises in cases when in fact no crisis occurred (type II errors, “false alarms”; see IMF, 2002). For example, Frankel and Rose (1996) as one of the first authors to study macroeconomic predictors of currency crises provide only a low explanatory and predictive potential: While their numbers of false alarms remains below 1%, they only predict five out of 69 currency crises.

In the following we show that analyzing currency crises, debt crises, and twin crises as separate events can improve the efficiency and the predictive power of early warning systems. Our approach distinguishes between the direct and indirect effects of macroeconomic variables on these different types of crises. If for example standard analyses of debt crises identify inflation as an important crisis predictor, this may well be the case because inflation directly makes currency crises more likely, which in turn can trigger simultaneous debt crises via contagion effects.<sup>4</sup> Thus, while inflation may in fact only be an indicator for twin debt and currency crises, traditional analyses would show that it is an indicator for pure debt as well as twin currency and debt crises, as the strong impact of inflation on twin crises is carried forward to the entire sample of debt crises.

In our sample the predictive value of macroeconomic variables is lowest for currency crises and best for twin crises. If twin crises are treated as a separate type of crisis, 36% of all currency crises, 75% of all debt crises, and 50% of all twin crises are predicted correctly, while we get

<sup>2</sup> Herz and Tong (2003) analyze a developing countries sample and find that 32% of all debt crises in their sample are linked to currency crises, while 20% of the currency crises are associated with debt crises. Reinhart (2002) finds that 84% of the defaults in her emerging markets sample are connected with currency crises and almost half of the currency crises in the sample are related to defaults. Recent, prominent examples of simultaneous debt and currency crises include Russia (1998) and Argentina (2001). Reinhart (2002) supposes that other countries, that recently experienced balance of payments and exchange rate problems such as Mexico, South Korea, Thailand, and Turkey, would most likely have suffered from debt service difficulties as well if they had not obtained vast international rescue packages.

<sup>3</sup> For a review see Edison (2003).

<sup>4</sup> Usually the term contagion refers to crises spreading from one geographic region to another. In our context we use the term to indicate that a crisis in one policy field may also trigger a crisis in other policy fields. Like in the traditional interregional case also contagion from one policy field to the other may be caused by fundamental transmission channels and/or by changes in private expectations, which affect the policymakers' decision in other policy fields.

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