Internal debt crises and sovereign defaults

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ABSTRACT

Internal and sovereign debt crises occur together and happen more frequently in economies with weak bankruptcy institutions. This paper provides a novel explanation. Internal crises arise because of the inability to liquidate private debtors when many default. In an optimal contract, a successful entrepreneur repays yet an unsuccessful one defaults and liquidates his assets. The bounds on liquidation generate, however, a second equilibrium where domestic borrowers default because others are also defaulting. During these coordinated defaults tax collections fall which increases sovereign default risk. In the model joint debt crises are an optimal response to informational problems in private-sector lending.

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1. Introduction

Emerging countries experience recurrent financial crises in which private debtors do not pay their private debts and sovereign governments do not pay their international debts. The recent European debt crisis features similar patterns with joint private and sovereign debt crises. This paper provides a novel explanation of these events. The main idea is that crises arise because of the inability to punish private debtors when many of them default at the same time. The crisis is generated by a simple self-fulfilling belief: if all debtors know that all other debtors are going to default, then they all know that they face a small sanction for doing so. During the crisis, government's net tax collections fall which can lead to sovereign default.

The model is motivated by evidence that during financial crises, defaulters' assets are not seized by creditors due to weak bankruptcy institutions. For example, during the Mexican crisis of 1995, the country developed what many Mexicans called the "cultura de no pago" or a culture of non-payment in which few debtors paid their creditors. Creditors were unable to seize the assets of non-performing loans because the courts lacked the capabilities and guidance to manage the systemic bankruptcies effectively.[1,2] Countries in East Asia during the 1997 crisis also exhibited fundamental weaknesses in their bankruptcy mechanisms and their judicial system. For example, initially in Indonesia only courts handled liquidations of failing firms. But as courts quickly became overloaded, the Jakarta Initiative Task Force (JITF) was created as a way to allow

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   [1] "Many loans were written off because of issues directly related to the inefficient judicial procedures that involved the recovery of loans from bankrupted companies. The legal framework proved to favor debtors over creditors. Thus, it was not surprising to observe an excessive number of companies filing for bankruptcy, even when they were not in financial distress" (Sidaoui, 2006, Bank of International Settlements, p. 278).
   [2] Halac and Schmukler (2004) provide evidence of similar situations arising in the crises of Chile in 1981–83, Mexico in 1994–95, Ecuador in 1998–2000, Argentina in 2001–02, and Uruguay in 2002. During these crises large borrowers "quit paying their debts, expecting the government to bear the costs and anticipating no serious consequences for their actions" (Halac and Schmukler, 2004, p. 8). See also Krueger and Tornell (1999) for more details of the crisis in Mexico.

for less formal workouts. However, both the court system and the JITF had very limited success in expediting the process of non-performing loans. By October 1998, only 69 cases were settled of the 462 cases filed in courts and JITF. Thus, firms were allowed to run even when they were not paying their debts.[3]

Weak bankruptcy institutions have also played an important role more recently during the European debt crisis. In Ireland, for example, banks suffered large loses due to widespread mortgage defaults. The government then recapitalized the banks with fiscal outlays of about 40% of GDP. However, recent estimates suggest that a substantial portion of these defaults are strategic: homeowners who can pay choose not to pay because they do not think they will get punished and in fact think they might get a write-off from the lenders.[4] Hence, weak bankruptcy mechanisms magnified the internal debt crisis and these events strained the government's ability to service its sovereign debt.

This evidence suggests that an important feature of systemic crises is the inability (or unwillingness) to punish a large number of defaulters. This paper develops a model where the inability to punish a large number of bankrupt debtors is the source of the crisis itself.

Our model has the following elements. There is a benevolent government in a small open economy which borrows from foreign risk-neutral lenders to buy public goods. At the same time, a small number of domestic risk-averse entrepreneurs borrow from domestic risk-averse lenders to buy capital goods for use in a productive investment opportunity. The domestic entrepreneurs' investment returns are a binary random variable that may equal zero with positive probability; returns are, ex-post, known only to the entrepreneur. The government imposes lump-sum taxes on domestic lenders in order to finance its repayments to the foreign lenders.

Liquidation plays a key role in the model. The entrepreneur's capital goods can be liquidated to become consumption goods, but liquidation involves a social loss.[5] The equilibrium loan contracts specify repayment/liquidation as a function of the entrepreneurs' declarations of success or failure. In an equilibrium contract, a successful entrepreneur will make a payment to the lender without any liquidation. In contrast, an unsuccessful entrepreneur will liquidate some of his capital, and use that to make a payment to the lender. Thus, equilibrium contracts look like standard debt contracts, with default provisions.

The key assumption of the model is that there is an upper bound on the *total* amount of capital that can be liquidated. Hence, if many entrepreneurs default, the lender can only liquidate a small amount of capital from each of them. If the upper bound on aggregate liquidation is sufficiently tight, then a positive probability non-fundamental shock (a sunspot) can generate a *coordinated default crisis*. In this crisis, domestic entrepreneurs use the non-fundamental shock to coordinate on a default decision, even if they have been successful. During coordinated default crises, successful entrepreneurs default because they know that sanctions will be small given that all other entrepreneurs will also default.

The massive default means that the domestic lenders cannot pay their taxes. Without these tax payments, the sovereign cannot repay the foreign lender in full. Indeed, in these crises, it may well be optimal (for risk-sharing reasons) for the foreign lender to make transfers to the sovereign. The government will then give those transfers to the domestic lenders.

The existence of coordinated default crises in our model is an example of what is called an *implementation problem* in the optimal contracting literature. In our model, an equilibrium contract generates a reporting game between entrepreneurs by specifying repayments and liquidations as a function of the joint reports of the entrepreneurs about their outcomes. In one equilibrium of this game, both entrepreneurs tell the truth and induce a constrained Pareto optimal allocation of resources. The key property of our model is that, under some parameter settings, the equilibrium contract allows for a second equilibrium in the reporting game in which both lie. The resultant equilibrium outcome is not constrained Pareto optimal.

In our model sovereign and domestic defaults occur simultaneously when the aggregate bound on liquidation is tight. We document that these predictions are borne out in data. Across countries sovereign defaults are often associated with large numbers of domestic defaults, such as bank insolvencies and non-performing bank loans. Moreover, the incidence of these joint debt crises is systematically correlated with the efficacy of bankruptcy institutions across countries. The efficacy of bankruptcy is measured by the average recovery that creditors get during bankruptcy. Empirically, joint crises are more prevalent in countries with low recovery rates. Recoveries explain a considerable fraction of the variation of the incidence of joint debt crises across countries.

1.1. Related literature

There is a large literature on implementation problems in contractual design. Our paper is most related to the recent contributions of Bassetto and Phelan (2008) and Bond and Hagerty (2007). As in our paper, their implementation problems emerge because society's ability to provide a negative incentive to a given player depends on the number of players who are also supposed to receive such incentives. More concretely, Bassetto and Phelan hypothesize that the probability of any given

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[3] The general sentiment in countries in South East Asia during the 1997 crisis was that "the organizational capacity and human resources of the court appeared insufficient to meet the extraordinary demand for debt settlement posed by massive bankruptcies" (Insolvency Systems in Asia: An Efficiency Perspective; OECD Report, 2001, p. 57).

[4] Recent newspaper headlines in Ireland, such as" 'Strategic' mortgage defaults rise as borrowers hope for write-down" in *The Independent* and "Strategic arrears – bank-made myth or harsh economic reality?" in *The Irish Times*, report that major mortgage brokers in the country estimate that a quarter of mortgage defaults are strategic.

[5] This approach to designing an optimal loan repayment contract with default is similar to that taken by Diamond (1984) and Rampini (2005).