How global are global financial markets? The impact of country risk

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1. Introduction

Financial transactions are costly. On the one hand, processing a transaction requires resources, on the other hand the regulatory framework is costly as well. In both areas there have been dramatic changes recently. Computerisation and advances in telecommunications lead to considerably lower technical costs. Furthermore, deregulation has eliminated many barriers to trade. Financial markets have become and still are in the process of becoming more open, and one often hears of the "globalisation of financial markets". As already mentioned in the title, I will investigate the question of what this means in geographical terms. International transactions which lead to a net debtor position of countries result in an additional type of transaction cost: country risk. Unlike domestic borrowers, sovereign countries cannot be forced to perform their contracts by legal action against them. Instead, creditors have to rely on indirect mechanisms. In the following, I describe the consequences of country risk in detail and discuss the main mechanism for dealing with it. It will become clear that country risk is the main transaction cost for countries which should actually be large debtors given the potential of their economies. Country risk, therefore, considerably hampers the globalisation of financial markets.

2. Country risk

A creditor-debtor relationship typically consists of three types of actions. At the beginning of the relationship, the creditor lends money to the debtor. At the end, the debtor pays back the money lent. In between, the debtor pays interest on the loan. How much money has to flow on which date is usually written into a contract. The strategic situation is as simple as it is explosive: whereas the creditor would like to get back as much as possible, the debtor prefers to pay back as little as possible.

Basically, payments are voluntary. Depending on the legal system, a damaged party has several means by which to impose sanctions on the defaulting party. When payments become due, a debtor weighs the costs of honouring the contract against the costs of defaulting on the loan. A simple model might clarify the situation. On one side there is a debtor, on the other side there are many potential lenders. Let us assume that each lender is very wealthy.[2] In this type of scenario, we can analyse the situation of a lender and a debtor in which the debtor has all the bargaining power. By combining interest payments and repayment of principle, we have a two-stage strategic game. First, a contract (D, r) is signed, where D is the amount the lender hands over to the debtor and r is the interest rate. D then goes to the debtor. Subsequently, repayment $S = (1 + r)\ D$ becomes due. If the debtor does not pay back S, sanctions can be imposed on him, which cost him P, an exogenous amount. The debtor's decision is now simple: if $S < P$ he honours the debt, if $S > P$ he defaults, and if $S = P$ he is indifferent (we assume that he honours the debt in this case). When negotiating the contract at the first stage, the parties anticipate the debtor's decision rule. Since there is no other risk than default risk, the debtor only signs a contract with $r^* = i$, where i is the world market interest rate. According to the debtor's decision in the second stage, the maximum repayment the debtor is willing to make is P. The

[1] I would like to thank Bernhard Emunds for valuable suggestions. The views expressed in this article are those of the author and should not be interpreted as reflecting those of the Swiss National Bank or other members of its staff.

[2] Alternatively, we could assume that the lenders can form lending syndicates without incurring any expenses.

maximum money flow $\overline{D}$ the lender is willing to lend is computed from the condition $P = (1 + i)\, D$, leading to $\overline{D} = P/(1 + i)$ (Eaton et al. (1986)).

It is worth mentioning that this result applies to both domestic and international debt contracts. In the domestic area, the sanctioning costs P consist of costs the debtor incurs from bankruptcy. In bankruptcy proceedings, the receiver seizes the tangible assets of the debtor. If the debtor has to bear a positive share of the costs of the bankruptcy proceedings, he only defaults if he is unable to pay.[3] Nonetheless, the willingness to pay is the driving force. Faced with the threat of bankruptcy, the debtor is willing to pay whenever he is able to do so. At the international level, the willingness to pay is also the driving force. Since it is much more difficult to enforce performance of a contract through bankruptcy proceedings, however, this fact is more apparent than at the domestic level.

In the absence of bankruptcy proceedings, the maximum debt amount is not determined by the profitability of the project the debtor wants to carry out with the funds lent, but by the sanctioning costs P. The lender is willing to lend any amount up to $\overline{D}$. This can lead to credit rationing (Allen (1983)). In this case, the debtor would benefit from higher sanctioning costs. For each additional dollar of sanctioning costs, he gets $1/(1 + i)$ additional dollars of debt D. The lender does not care how the debtor uses the money he gets, as long as the use does not influence the sanctioning costs P.

In sum, it can be said that the costs sanctions impose on the debtor determine the maximum amount of debt. The severity of the bankruptcy threat as the main penalty in the domestic realm causes the willingness and the ability to repay to coincide. There are, however, no international bankruptcy proceedings. This constitutes the main difference between domestic and international debt contracts. In order to analyse the determinants of international debt, we have to take a closer look at the sanctions lenders can impose on defaulting international debtors.

3. The costs of sanctions

In what follows, I will present and discuss sanctions and their costs. There are two main types of sanctions. In the vernacular, there are two approaches to induce a certain behaviour, referred to as “carrot and stick”. This approach can easily be applied to sanctions. Under the “carrot” approach, a lender threatens to exclude the debtor from future access to international financial markets, and under the “stick” approach, a lender threatens to impose direct sanctions. Exclusion from international markets leads to costs in the future, while direct sanctions lead to immediate costs.

3.1 Access to international financial markets

In the two-stage game of the previous section, market access cannot act as a disciplining device since the game ends after the repayment decision of the debtor. If the two-stage game is repeated “many” times, two incentives to preserve market access arise. First, credits can be used to smooth consumption in case of income fluctuations. In bad times, the country imports more than it exports, thereby getting into debt, and in good times it repays by running a trade surplus. Second, credits can be used to finance profitable projects. I will start with the latter.

3.1.1 Investment

In the public discussion, investment are probably the most prominent reason for international debt. A transfer of savings from rich countries to poor countries will enable the latter to finance projects and thereby grow. The proceeds of the project will allow the debtor country to repay its debt and still keep something for itself. Under the threat of being denied access to international financial markets, the

[3] In cases where the receiver is not able to seize all assets or the debtor is able to “take the money and run”, default can occur even though the debtor would be able to honour the contract.

country repays in order to receive international funds to finance additional projects in the future. International lending for financing investments takes place when the return on investment is higher abroad than at home. As long as this is the case, the debtor country has no reason to prove its honesty since the creditors will grant additional loans out of profit considerations. This reasoning no longer makes sense when the investment prospects are the same in both countries. If this point is reached, however, firms in the debtor country no longer need access to international markets since they can finance their projects on the home market at equal cost. Therefore, the threat of an exclusion from international financial markets has no bite. Sooner or later, the debtor country will no longer need access to international markets to finance valuable projects. Anticipating this, rational creditors are not willing to lend at all. From the debtor countries' point of view, the worst possible situation becomes a reality.

The models of Kletzer (1984) and Cole and English (1991) show two possible ways to handle this problem. Basically, in both papers the existence of a last period, which triggers the backward inducement argument used above, is assumed away. Kletzer (1984) assumes that projects financed by foreign lending enhance productivity, but only for one period. These productivity gains are lost in the event of exclusion from the international financial markets. Cole and English (1991) model an economy with a growing amount of infinitely living individuals. They assume that international transfers are necessary to guarantee optimal per capita consumption. A default triggers exclusion from the international financial markets and leads to a decline of per capita consumption. This threat makes international lending possible.

3.1.2 Consumption smoothing

Instead of financing projects, international credits can be used for consumption smoothing. The international capital markets work as an insurance against income fluctuations. Income fluctuations can be triggered by crop fluctuations or by changes in the terms of trade. If income is uncertain for each period and the country prefers stable consumption to unstable consumption, it must always allow for the possibility of using international credits in the future. As Eaton and Gersovitz (1981) show, the threat of being cut off from receiving additional funds is enough to explain international debt. In good times, the debtor country honours its obligations voluntarily in order to receive financing in bad times. Bulow and Rogoff (1989b) question the conclusion of Eaton and Gersovitz. They point out that a country has other possibilities to perform consumption smoothing. The debtor country may just as easily pay in advance for state-contingent future payments by international investors. The country thereby signs an insurance contract. The premium is paid in advance, and the contract designates payments in the case of unfavourable events in the future. According to Bulow and Rogoff (1989b), in equilibrium loans should not be granted, since the country would strictly profit from a switch from a credit contract to an insurance contract. Potential insurers have no incentives not to accept a contract since they get paid in advance. In this case, the threat of exclusion from the international financial markets is not enough to discipline a sovereign debtor.

3.2 Direct sanctions

3.2.1 Bankruptcy

Of course, a lender always has the possibility to sue a defaulting foreign debtor. The debtor then risks losing his assets. However, governments have several options to prevent the threat of seizing their assets taking effect. For instance, a government can restrict the access of foreigners to bankruptcy proceedings. It can also directly change the bankruptcy procedure such that it becomes too costly. Quite a different possibility is to restrict capital mobility. Winning a lawsuit is of limited value if the lender is not allowed to export the proceeds. Yet another possibility is to add an official provision to guarantee the debt contract and to forbid payments. A government which is unwilling to repay a loan always has means to undermine the credibility of the bankruptcy proceedings (Niehans (1986)).

3.2.2 Confiscation of foreign assets

The lenders can threaten to seize the foreign assets of a defaulting debtor country. In order for this threat to have an impact, there have to be clearly assignable assets. In addition, these assets need to be in the country in case a default occurs. This means that confiscation is only a threat to the country if it is not able to repatriate the assets in time. Moreover, lenders need the cooperation of their government or jurisdiction. According to Bulow and Rogoff (1989a), the law of most lender countries permits the seizure of foreign assets in order to satisfy domestic lenders.

3.2.3 Trade credits

Banks usually act as intermediaries for international transactions. In this way, delivery and payment need not coincide perfectly. Denying trade credits increases the cost of international trade since the debtor country now has to build up reserves in order to pay instantly for imported goods.

3.2.4 Trade sanctions

Lenders can impose a trade embargo. Such an embargo only works if all trading partners cooperate. Since the debtor country is still interested in international trade, an embargo leads to losses by the foreign exporters. Since exporters usually are not lenders, the losers and the winners are not the same. Therefore, the losers have to be paid. If they are not, they participate in the political process to have the embargo lifted. An individual country has an incentive to break an embargo since it can gain as long as all other countries stick to the embargo. A debtor country can also mitigate the consequences of an embargo by substitution. Therefore, the goods for which an embargo applies have to be adjusted on a regular basis.

Enforcing an embargo requires considerable determination. It must be monitored and adjusted continuously. Any slackening of efforts quickly leads to a deterioration of the embargo (Frey (1985)). The basic problems with an embargo are that where there is trade there is profit to be made and that it is very difficult to intervene in this process.

3.2.5 Costly sanctions

In summarising the analysis, the lenders' attitude can be characterised as follows: as long as the debtor country honours its obligations, nothing happens. If it does not, the lenders impose sanctions. The debtor country pays as long as the costs incurred by the sanctions are lower than the obligations. Bulow and Rogoff (1989a) show that this analysis is unsatisfactory if the sanctions also result in costs for the lenders. If this happens, it is not only necessary to resort to the possibility of imposing sanctions; lenders must also be willing to impose them.

Let us consider a debt contract with debt amount D and repayment obligation $S = (1 + r)\ D$. We assume that the lenders can seize assets worth Y. Obviously, the debtor country faces punishment costs $P = Y$. The debtor country now has two possibilities. It either pays S or it offers a new contract with repayment $0 \leq S' < S$. Since S' can be zero, default is already factored in. If the debtor country repays S, the contractual relationship ends. If the debtor country offers S' instead, and the lenders accept, the country pays S' and the contractual relationship ends. If instead the lenders reject the offer, they can impose sanctions. We assume that this leads to costs C for the lenders. On the one hand, C represents the costs of the renegotiation procedure, on the other hand it represents the possibly different valuation of the sanction. If the debtor country defaults and the lenders impose the sanction, the net gain for the lenders is $Y - C$. The debtor country, however, is left with nothing. If the debtor country offers $S' = Y - C$, the lenders are as well off and therefore agree. The country now is left with C. The debtor country therefore offers a renegotiated contract whenever $Y - C < S$. Anticipating this behaviour, the lenders are only willing to lend up to $D^* = (Y - C)/(1 + i) = (P - C)/(1 + i)$. The assumed strategic advantage of the debtor country affects it negatively ex ante since the lenders anticipate its strength. The lower the bargaining power of the debtor country, the weaker is the effect. In the extreme case of full bargaining power of the lenders, renegotiation has no influence on the initial contract. The

possibility to renegotiate contracts strengthens the debtor country's position ex post and has negative consequences ex ante since the lenders protect themselves against the strength of the debtor.

As already mentioned, this result is driven by the sanctioning costs *C*. Note that these costs are pure dead weight losses. The bargaining procedure ensures that the sanctions do not take place, thereby leading to gain *C*. In fact, the parties bargain over how to split this gain. Assuming the information is symmetrical, this gain is always achieved (Coase Theorem). Since the bargaining solution is anticipated, it is implicitly incorporated in the original contract. Bargaining and sanctioning never take place. Bargaining power turns out to be a boomerang for the debtor country.

3.3 Reputation

Reputation as a disciplining mechanism constitutes a mixture of the carrot and stick approaches. Aerni and Egli (1999) analyse reputation as a basis for international lending. As in the standard reputation models (for an overview, see Fudenberg and Tirole (1991), Chapter 9), reputation effects are introduced by adding uncertainty. Aerni and Egli assume that some debtor countries pay their debt obligations in any case, whereas other countries weigh the pros and cons of contract fulfilment against repudiation. Trade restrictions, such as embargoes or the denying of trade credits, can serve as a threat to discipline the behaviour of the debtor. The assumption implies that for some countries trade is so important that they are vulnerable, and hence always willing to pay. Another possible explanation for the willingness to pay could be the different attitudes towards the future on the part of the government. Some regimes may be myopic and therefore maximise utility over short-term periods, whereas others may be more future-oriented, and are willing to bear costs today in order to profit tomorrow. While a debtor country knows whether or not it can successfully default on its debt, the creditor country is uncertain as to the type of debtor country it is dealing with. It only knows the strictly positive prior probability that the debtor will always pay. A so-called "bad" debtor country may have an incentive to build up a reputation of being a reliable debtor by mimicking the behaviour of a "good" country. Under some parameter constellations, reputation leads to contracts in a two-period game which would be irrational if only one period were considered.

The result also sheds light on the question of how and why international debt relationships are connected with default. In a reputational equilibrium, default has to be a possibility. If a bad debtor does not repay with a probability of less than one, there will be no lending. Default occurs as part of optimal play and is therefore simply a necessary by-product of international lending relationships. Whereas in the literature default occurs either due to unfavourable exogenous factors which the parties cannot write into a contract (see, for instance, Eaton et al. (1986) or Grossman and Van Huyck (1988)) or due to falsely high debt (Bulow and Rogoff (1989b), among others), in the model of Aerni and Egli default arises endogenously and is, as just mentioned, both necessary and unavoidable.

4. How global are global financial markets?

Sovereign countries can default on their debt. As the discussion so far has shown, the sovereignty of countries leads to a misallocation of capital, especially to countries which, based on their economic potential, should be debtors. For these countries, country risk is the major transaction cost. "Globalisation of financial markets" is based on the reduction of other transaction costs. For the countries for which country risk is the major cost, the reduction of other costs plays only a secondary role. Globalisation will stop at their borders. The analysis, however, also shows ways to integrate countries despite country risk. As we have seen, punishments are the driving force behind international lending. Industrial countries have access to international financial markets not only because most of them are small borrowers at best, but also because they are extremely vulnerable owing to their close trade relations. Integrating emerging market countries into world trade makes them vulnerable too, thereby enabling them to participate in international financial markets.

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