Econ 286 A: Economic Development

A Survey on Bank Lending and Financial Crises

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Contents

1 Overview

In this paper we will cover the exciting field of bank lending. Being aware of the outstanding role banks play in the financial intermediation of our economies we draw a connection between bank lending and the occurrance of financial crises.

The paper consists of three parts, where the first part introduces to the topic of bank lending from an historical perspective in section 2. Section 3 will present us a theoretical approach to lending that analyses the relationship between lenders and borrowers and tries to explain some phenomena's that we see when looking on the history of bank lending. The last part then attempts to link the theoretical results again to some observations and studies in section 4.

2 Hallmarks in the history of bank lending and crises

2.1 Starting in Italy

There is a very long history of government borrowing. Most of the time the borrower's aim was to finance a war. It was in the twelfth century when the predecessors of today's private banks the *montis* that were syndicates of moneylenders began to give huge loans to their city-states in the Tuscany like Florence.[1] Interestingly enough, their lendings were contracted with claims on the tax revenues of their states. Later on at the end of the thirteenth century the first syndicate, the Frescobaldi, started to lend abroad to the King of England Edward I. When Edward I died in 1307 there was a tremendous amount of £60,000 outstanding claims. In return the Frescobaldi got privileges on silver mines, the right to raise customs at British harbors and the right on some Irish contributions. But in 1310 there were still £20,000 left. Note that this time, when lending abroad, the montis had no possibility to get a guarantee in the form of claims on future tax revenues and the right to collect a tax isn't worth a lot if they cannot collect it themselves. When the Frescobaldi ended their business relations after this default, the Florentine Compagna dei Bardi and the Peruzzi syndicate started to finance the English Kings. At that time the Bardis were maybe the richest financial syndicate ever and specialized on lending to Kings and Cardinals. This lending had its peak under the reign of King Edward III who needed help to finance his wars in France. The lenders must have speculated on a defeat of the French men and therefore extended the loans again and again with the aim to increase the probability of a success. However, the war was a disaster for England and the King had to declare default on his outstanding debt of £125,000 in 1339. As a security the lenders had only the right to collect a tax on English wool exports that they couldn't collect themselves. Again the collateral was not worth that much. Consequently, the Peruzzi went bankrupt in 1343 and the Bardi in 1346.[2]Different from today, all the losses were completely covered by the family clans of the Bardi and Peruzzi and their

[1]The description of the Italian banks is based on Cipolla, *Tre storie extra vaganti*, Il Mulino, Bologna, 1994 [2]. And Makin, *The Global Debt Crisis*, Basic Books Inc., New York, 1984: 36-38. [12]

[2]The origin of the word bankrupt is the Italian expression *banka rotta* which was maybe already coined at that time but probably more likely later.

partners who sponsored the capital. There were no bank deposits or money issued by the banks at that time. Therefore, the impacts of the default were not as widespread as they would have been today, although the effects for the Florentine region were severe. The region suffered a long crisis in trade and business.

2.2 The Great Depression

Now we turn to an event many centuries later, the crisis of 1929. The bank lending in the 1920s was mainly short-term loans in order to help the debtors to overcome liquidity problems, which was in the interest of the banks because they were also involved in issuing the bonds of the creditors.

Countries majorly financed themselves by issuing bonds, besides credit relationships between the countries especially grew during the World War I in 1914-1918 and afterwards. Being a net debtor before the war with a net credit position of -$3.3 billion in 1914, the United States turned to a net creditor with a net creditor position of $4.0 billion in 1919 increasing to $9.5 billion in 1930 (Eichengreen, "The U.S. Capital Market and Foreign Lending, 1920-1955". In Sachs 1989: 238. [6]).[3]

If we have a look at the foreign investment, we can see similar patterns. Direct and portfolio investment gained very high levels before the war when huge amounts of capital from Britain, Germany and France flowed to the United States. After the war even higher foreign investment streams went in the other direction when investors in the United States started to focus on foreign countries. Whereas the British foreign investment had largely the character of portfolio investment, the U.S. investors preferred foreign direct investment which flowed with 40 per cent especially to Canada, to Latin America and the West Indies with 30 per cent and to Europe with 20 per cent (Eichengreen, Portes (1985), "Debt and Default in the 1930s: Causes and Consequences", *NBER Working Paper 1772*: 5. [9]). In Europe it was mainly the post war Germany, suffering from the consequences of the lost war and the high reparation payments, which turned to a target for US investors. Altogether the total U.S. investment abroad rose from $3.5 billion in 1914, over $7.0 billion in 1919 to $17.2 billion in 1930 (Eichengreen 1989, 238).

After a very prosperous period, the *Golden Twenties*, with was fed by the financial deepening and the increasing trade due to very liberal trade regimes in the Americas and Europe, this development came to a sudden end. In October 23, 1929 the New York stock markets crashed. That was the starting point of a long-lasting world wide financial an economic crisis. Many investors in the American stock markets had borrowed money for speculation, that's why even more people started to sell stocks to raise money.

[3] As it turned out later, bank lending has compared to the bond finance arrangements some obvious advantages when dealing with negotiations between creditors and debtors in the case of debt service difficulties (Eichengreen, Portes 1985: 25-28). In contrast to the bank lending case the creditors are in much larger numbers in bond financing. Therefore, free riding problems occur when the debtors ask for additional funds in order to try to overcome payment problems and prevent a default. In Britain and America several permanent and temporary committees of foreign bondholders attempted to manage this issue and negotiated with debtors. Later on we will see in section 4.4.2 an investigation based on this differences in bank loans and bonds.

Eventually, U.S. Stocks lost almost 40 per cent of their value, the U.S. banks had to go on holiday and all the U.S. foreign short-term lending and investment collapsed.

This in turn made the receiving countries and their banks run out of capital and spread the crisis fast. The *Great Depression* started, an epoch of intense economical problems characterized by high unemployment in the industrialized countries and a return to protectionism. Soon the first countries went into default starting with Bolivia in 1931 followed by other Latin American countries up to Germany in 1933/34. Of course, there have been attempts to deal with the banking crisis. At this point the central banks come into play in their role as *Lenders-of-Last-Resort.* But the central banks being committed to the *gold-standard parity* had difficulties in bailing-out the banks by injecting liquidity into the financial markets. This only works well when the market participants rely in the central bank's credibility not to depreciate, otherwise the injected money will leak out. A possibility to weaken this problem would have been an international coordination of the form that all countries would have expanded their money stock, unfortunately different views on how to overcome the banking and currency crisis made this impossible (Eichengreen, *Globalizing Capital*, Princeton University Press, New Jersey, 1996: 75-77. [7]).

When looking at the reasons for the *Great Depression,* recent research assigns the *gold-standard* to play a crucial role in the spread of the crisis. After World War I the United States re-introduced the *gold-standard* in 1919 at the old legal gold parity which goes back to the times of the *bimetallic-standard* that established in 1837 a gold price of about $20.67 per fine ounce (Friedman (1990), "Bimetallism Revisited", *Journal of Economic Perspectives*, *Volume 4, Number 4*: 86 [11]). Britain then followed in 1925. The hope was to regain the relative financial stability from pre-war times. However, Britain also re-established the pre-war parity although the price level was considerably higher than before. Therefore, the British central bank was forced to reduce the money supply causing a strong increase in unemployment. This developments endangered the stability of the world financial system and accelerated the fall of London as the world's leading financial center. Later on also the United States followed a contractive monetary policy to calm there booming economy, causing strong capital inflows and absorbing world-wide gold reserves at a time where most major economies had returned to the *gold-standard.* Finally, world-wide contractive monetary policies lead to the *World Debt Crisis.* Among others Great Britain had to give up the *gold-standard* in 1931 and the United States in 1933.[4]

2.3 The World Debt Crisis in 1982

In the 1970s there was a change in the institutional arrangements. A switch from bond to bank finance occurred and a completely new development in bank lending arose, when the world's largest banks together with some governments and international agencies started an incredibly huge lending boom to less developed countries. We are talking over

[4]The United States successively raised the gold price to $35 an once in early 1934 re-establishing the *gold-standard*.

an amount of almost $700 billion altogether.[5] Note that when dealing with borrowing in foreign currencies, there is no risk sharing between lender and borrower. Thus, the developing countries had to bear all the risk.

Furthermore, these developing countries where often unstable and not as trustworthy as the industrialized countries to whom the banks were lending before. Another obvious change in the banks behavior was that they started to grant big packages of loans to single ministries and governments, instead of giving the more usual small loans for certain projects. The lending boom got even more strength after the oil shock in the early 1970s, which caused considerable distortions especially in the industrialized world and a high inflation of more than seven per cent in average and it's pike of more than eleven per cent in average in 1975. This had mainly two reasons. On the one hand the high inflation in the 'First World' helped the 'Third World' countries to earn more money because of rising prices of their imports. On the other hand the oil exporting OPEC countries experienced a great additional income. This additional income was of course very attractive for the international banking business and gave them even more resources to fund the developing countries with new lending.

Finally, caused by the high inflation banks started to adjust their lending to shorter time horizons and higher interest rates in order not to get caught again by an unexpected rise in inflation as in 1974-75 after the first oil price shock starting in 1973. From 1978 on the economic growth of the oil exporters fell under to 1.8 percent in average, followed by the non-oil exporting developing countries which suffered a in 1979 from a 5.5 per cent to a 2.8 per cents decline (Makin 1984, 30). In 1979 Paul Volcker became head of the Federal Reserve (Fed) and Paul Volcker was the man who stopped the US inflation and the exorbitant lending boom by changing the Fed's policy. The US discount rate was raised further, causing a rising London Interbanking Borrowing Rate (LIBOR) and thereby gradually stopping the lending boom. Nevertheless, the lending boom continued till 1982 although a Second Oil Crisis occurred in 1979/80. Then several developing countries got problems to service their debts especially among the non-oil exporting countries. But in the end it was Mexico, with a debt of total $81 billion where $67.5 billion held by commercial banks, who started the World Debt Crisis in August 1982 (Makin 1984, 15). Mexico complained that they are not able any more to service their debt. Being faced with the need of declaring default this loans, would have caused a serious danger of going bankrupt especially, for the major American banks with their badly diversified portfolios. The US government and the international monetary institutions had to react. To avert the worst case a $3 billion package from the United States, a $1.85 billion package from the Bank of International Settlements (BIS) and additional help by the International Monetary Fund (IMF) tied to a $4.6 billion funding by private banks was created (Makin 1984, 13-15).

Next one in the line was Brazil in December 1982. Brazil also claimed that they will go in default and they got a huge rescue package consisting of a $4.9 billion standby loan by the IMF, short term trade credits over $9 billion, interbank credits over $ 7.5 billion and temporary suspending for several existing credits (Makin 1984, 231-233). Since this

[5]For a detailed description see Makin (1984). [12]

efforts were not successful and Brazil did not reach the goals concerning a $6 billion trade surplus and a reduction of its inflation rate several new IMF packages had to follow and private banks had to give up interest payments for their loans. The IMF packages were largely sponsored by the US, western European countries and Saudi Arabia. In the meantime the problems of Brazil's Latin American neighbors Argentina and Venezuela became urgent.

Eventually, the world was confronted with a *World Debt Crisis* that was hard to overcome and had long-lasting effects on the economies of the affected countries. The developing countries that were concerned with a crisis had negotiations with the bank syndicates to extend the terms of payments. These renegotiations lasted for several years and huge amounts of debt have been rescheduled, for instance Mexico rescheduled $14.9 billion, Argentina $10 billion and Brazil $4.7 billion.[6]Nevertheless, the indebted countries transferred real resources of almost 5 per cent of their national income to the developed countries while their per capita income dropped by 10 per cent on average and investments by 5 per cent between 1981 and 1984 (Stanley Fischer, "Resolving the international Debt Crisis". In Sachs 1989: 313 [10]). In the aftermath of the World Debt Crisis the frequency of crisis, especially of currency crisis, overall remained on a high level largely due to the fact that more and more countries are financially liberalized. For instance major crises took place in Mexico (1995), Asia (1997), Russia (1998), Turkey and Argentina (both in 2001), to mention only the most important ones.[7]

3 Theory of lending and the risk of default

To get deeper insights in the processes of lending we will now turn to study some basic theoretical frameworks. Afterwards we will have a look at some interesting applications in section 4.

3.1 Basics

Lending is characterized by the possibility that the borrower might not pay back the agreed amount plus interest rate either partly or fully. This risk is reflected in the interest rate, which is higher than the market interest rate due to a risk premium and in regulations of the loan contract, as we have already seen in the example of the *montis* who contracted their loans with claims on taxes. Actually there are several ways for lenders to reduce the risk of default or to ensure to get at least some of the money back. One possibility often used today is to give loans on the basis of short-term contracts even if the borrower's investments have a longer time horizon. This short term contracts give

[6]A detailed list can be found in Edwards (1983), "LDC's Foreign Borrowing and Default Risk: An Empirical Investigation 1976-1980", *NBER Working Paper 1172*: 26. [4]

[7]For a summary over the dates of all banking and currency crisis see Tornell and Westermann (2002), "Boom-Bust Cycles in Middle Income Countries: Facts and Explanation", *NBER Working Paper 9219*: 41. The frequency of crisis over the last century is illustrated in Eichengreen, *Financial Crises*, Oxford University Press, New York, 2002: 5 [8]. The debate on the recent crises can be looked up at `http://www.nber.org/crisis/`.

the lender the chance to add restrictions when recontracting and to monitor the creditor more closely.

All the problems we are dealing with can be outlined in the hallmarks *contract enforcement*, *moral hazard* and *adverse selection*. *Contract enforcement*: When dealing with lending it is possible, as already said, that the creditor might not pay back the loan. Faced with this problem the lender has usually several possibilities to ensure that he gets at least some of the money back. When lending within a country the contract enforceability is crucially dependent on the level of law enforcement. Another factor determining the enforceability of the contract is the collateral. *Moral Hazard*: This case, also known as *hidden action,* is in our context illustrated by the lenders inability to observe what the borrower is doing. The borrower can then do more risky investments or accumulate more debt than the lender assumes. This problem is also relevant when dealing with insurances. For example lenders can tend to have more risky portfolios if they are insured against big losses. *Adverse Selection*: Adverse Selection arises when privately held information adversely affects uninformed market participants (Mas-Colell, Whinston and Green, Microeconomic Theory, Oxford University Press, New York, 1995: 436. [13]). An example related to borrowing is when banks do not or cannot distinguish between different types of borrowers by offering contracts with different conditions. In this environment it might happen that they attract the least solvent borrowers when imposing too high interest rates. Here, a better strategy would be to impose low interest rates and credit rationing.

Denote that when dealing with borrowing on an international level the contract enforceability problem is the most important one. Now we will come to models where this plays a role.

3.2 A Model with penalties

The first Model in section 3.2.1 is based on Eaton, Gersovitz and Stiglitz (1984) and illuminates the consequences of contract enforceability problems. The underlying theoretical assumption is that we are dealing with a sovereign borrower in an international lending environment. The borrower, let's say a developing country, is basically able to repay its debt. This is generally the case because a country as its whole has huge assets and the government can at least theoretically impose a high enough tax to get the money to service the debt. Furthermore, the lender can't enforce his contract in court or collateralize the loan. Thus the repayment is basically on a voluntary basis. However, the developing country has some incentives not to default since it would suffer an indirect penalty.

In section 3.2.2 we will extended to an asymmetric information case following Edwards (1983) and Edwards(1985). Here the lenders don't know the costs of the developing country when facing a penalty. We can show how a risk premium evolves.

3.2.1 The borrowers are constrained by the height of their penalties

Eaton et al. used this model to hallmark the difference between default, illiquidity and insolvency. They argued that default is not necessary caused by insolvency because as explained, when dealing with countries we usually don't come to a point where a countries total wealth is smaller than its debt. In addition they pointed out that illiquidity cannot be the reason for default, because illiquidity is only of a temporary nature if a new credit is given. Therefore, default is a reason for illiquidity and not the other way around.

Let's come to the model. We deal with a simple model over two periods. In the first period a loan L is given and the borrower promises to pay back R(L). If the borrower refuses to pay back the amount R(L), she is faced with the penalty or cost C [8]expressed in the same units. Let U(L,X) be the borrowers' welfare, where X is the loans obligation. The utility increases in L and decreases in x.

$$X = \{ \begin{matrix} R(L) \\ C \end{matrix}$$

If the borrower services the debt she has a total utility of $U_S = U[L, R(L)]$

and if she refuses to pay she is faced with a utility of $U_C = U[L, C]$.

Therefore, she will decide to repay as long as $U_S \geq U_C$.

This gives us the borrower's willingness to pay. She will repay as long as

$R(L) = (1 + i) \cdot L \leq C$, which is equivalent to $L \leq \frac{C}{(1+i)}$.

If we now assume that the lender knows C, he won't give a loan exceeding L given by the last equation. In this way a default and penalties will never occure under this circumstances.

3.2.2 The lenders' perspective

Now we can try to extend this model and turn to the case when the lender doesn't exactly know the cost level associated with the penalty. Let's assume the lender only knows that the cost C is a continuous, non-negative random variable and that the country has a total debt of L.[9]Then we can calculate the probability of default

$$p = prob\{C < L\}$$

using Markov's inequality we come to

$$1 - p = prob\{C > L\} \leq \frac{E(C)}{L}$$

[8]Here I use the terms penalty and cost equivalently. When a sovereign borrower refuses to repay his debt, the penalty can be the exclusion from future borrowing in international capital markets. This in turn causes costs, for instance the sovereign might have to pay higher interest rates when borrowing from domestic banks or issuing bonds. More on that later.

[9]Denote that in this setup it is possible that defaults occure.

and

$$p = 1 - \frac{E(C)}{L}.$$

As we now know the probability of default [10] we can calculate the mark-up to an risk-free world interest rate. Under this circumstances the lender will borrow one more unit as long as

$$(1-p) \cdot [1 + (i_W + rp)] \geq (1 + i_W).$$

Where $(1-p)$ is the probability of not defaulting and$(1 + i_W)$ are the opportunity costs with the risk-free world interest rate i_W .

rp is the risk premium.

Solving for the risk premium gives us $[1 + (i_W + rp)] \geq \frac{(1+i_W)}{(1-p)}$

further $rp \geq \frac{(1+i_W)-(1-p)(1+i_W)}{(1-p)}$ and $rp \geq \frac{p}{(1-p)} \cdot (1 + i_W)$.

It can be easily seen that the risk premium is increasing in the probability of default.

We could also think of a more complex structure with different types of borrowers having different costs of repudiating. Where the lenders know only that these different types of borrowers exist and their distribution, but they cannot observe the type of a borrower. In this case the lenders can try to design a mechanism that separates the types by offering contracts that differ in the interest rate that has to be paid and in the amount that is granted. An example of this self-separation mechanism can be observed when countries decide whether they want to adopt an IMF program, connected with a voluntary credit rationing, or not (Eaton, Gersovitz and Stiglitz (1986), "The Pure Theory of Country Risk", *NBER Working Paper 1894*: 23. [3]).

3.2.3 On the nature of penalties

In the international borrowing context repudiating borrowers can be punished in ways that are usually indirect. Borrowers can be excluded from the international credit markets or loose their reputation. In this context reputation relies mainly on the credit ratings of Standard & Poor's or Moody's. Another way of punishment can take place when the banks reject to execute transaction related to the country's exports and imports. A credit embargo is the more effective, the more the country needs to smooth its consumption by using credits, the more expensive alternative ways of intertemporal substitution are (for example storage) and the more the marginal return of investment exceeds the world interest rate (or the world interest rate plus risk premium, respectively). On the other hand the financing of trade gets more costly for the borrower the less reserves the country has when faced with a transaction embargo. In addition a country has also more problems when it invested in export industries that rely on imports. Whereas investment in import substituting industries causes less problems (Eaton et al. 1986: 14-18).

[10] Under the assumption that all potential lenders have the same information about E(C) and act competitively.

Clearly the effectiveness of punishments is essentially dependent on the degree of co-operation among international banks. Since only a small number of bank syndicates lend to countries and as usually many of them are affected by defaults, cooperation is rather likely.

In Conclusion we can also say that borrowers will try to affect their susceptibility of penalties if they can. One way is to hide the total amount borrowed (moral hazard problem). Anoher way is to work together with the IMF, which gives the lenders a positive signal as it shows the willingness to cooperate and not to reject debt services.

3.3 When banks tend to lend more than they should

3.3.1 Extending loans

Recall our asymmetric information case in section 3.2.2, here we looked at the condition under which a bank lends more units when banks act competitively and only E(C) is known. Here we will apply a similar formula in a slightly different context:

$$U\{(1-p)\cdot[1+(i_{Market}+rp)\} \geq U\{1+i_{Market}\}.$$

Where rp is the risk premium, p is the probability that the creditor defaults and U is the utility function of the lender. Let' s assume for now that the bank is slightly risk averse. Clearly, if the probability of default is higher the bank will first ask for a higher risk premium. When p gets too high the bank will better refuse a loan.

Now we will take into consideration that the bank already lent some amount to the creditor and how this can affects the debtors calculations. Obviously, it is not useful anymore to look at the above condition for lending one unit more, rather the bank could be in a more difficult situation. Let's assume the creditor asks the bank for more money, because the returns on her investment are not yet as high as expected. The bank has now basically to options, extend the loan or cut the loan off. When cutting the loan off the creditor will default. Probably no other banks will give her more money since for their decision they would not have to take into account prior loans. Therefore, it is likely that the bank lends her more money although p is high and the condition above is violated. This calculus is crucialy driven by the hope that the the creditor will be able to increase her returns on investment and repay the debt.

It can be shown that it is possible that it can be profitable for a lender to give additional funds, even if the expected payoff of all loans together is already negative (Eaton et al. 1986: 24).

This argumentation can be used to explain the new short-term loans granted by the banks in 1980 and 1981 before the World Debt Crisis and the reschedulings afterwards.

3.3.2 Guarantees

Another reason for banks to lend more can be guarantees. Generally, banks proportion their loans looking at the borrower's equity, cash flow, any collaterals, the riskiness of the investment, etc.. When the borrower gets guarantees by some other solvent party,

this increases the maximal ceiling of a loan. Since the bank can seize funds of the third party.

How explicit and implicit guarantees can evolve on an international level and what the consequences are, is shown in section 4.1 and 4.2.

4 Linking the Theory

4.1 The role of the *Lender-of-Last-Resort* and systematic bail-out guarantees

As we have seen in the history of the World Debt Crisis of 1982 the IMF has an outstanding position when dealing with banking crises. The IMF and also to a smaller extend other institutions such as the BIS and the World Bank gain more and more the key role as an Lender-of-Last-Resort on an international level in addition to the central banks as the Lenders-of-Last-Resort on an national level. This development is also stated in the *Mission of the New IMF*: "[The IMF] act[s] as a quasi-lender of last resort to solvent emerging economies by providing short-term liquidity assistance to countries in need...."[11]This role of the IMF and other institutions can affect the behavior of the lenders. As the banks can expect that in the case of a financial crises in a country the IMF will intervene and thereby reduce their losses. Therefore if we remember the lenders' perspective in section 3.2.2 we notice that the banks don't have a complete loss of their loan in the state of default because a default due to a financial crises will reduce the loss through implicit systemic guarantees.

$$(1-p)\cdot[1+i]+p_{fc}\cdot x \geq [1+i_{market}].$$

Where i is the interest rate the borrower has to pay, i_{market} is the interest market rate, $x<1$ is some fraction of the unit lent and $p_{fc}<p$ is the probability that a financial crises takes place and thereby the lender doesn't loose all the money because of intervention. In conclusion the banks will tend to lend more as they would do otherwise.

4.2 Interaction between contract enforceability and systematic bail-out guarantees

Tornell, Westermann (2002) [15] and Schneider, Tornell (2003) [14] explained why mid-income countries (MIC) who liberalized their financial markets have a greater incidence of financial crises. The main point in their argumentation is that systematic bail-out guarantees in MIC can weaken contract enforceability problems leading to a lending boom, which ends in a financial crises.

Where the contract enforceability problems are due to deficits in the judicial system of the MICs and the explicit or implicit systematic guarantees are granted by the gov-

[11] In Chapter 2 of the Meltzer Report of the International Financial Institution Advisory Committee, March 2003[1].

ernment.[12] Systematic means that the guarantees are not paid to the banks when a company goes bankrupt, but only when many defaults lead to a financial crisis. Furthermore, they divide the economy into a sector producing tradable goods (T) and a sector producing non-tradables (N) which are used as inputs for both sectors. They argue that the contract enforceability problems cause a too low bank-lending to the N-sector which consists mostly of small firms, in contrast the T-sector has access to the international financial markets and can finance there. This is reflected by the large share of T-sector companies in the stock and bond markets of MICs. Now the government can enlarge the bank lendings to the N-sector by giving bail-out guarantees. A process starts where the N-sector grows, thereby enabling a higher overall growth path for the economy, because also the T-sector gains from this guarantees through reduced prices for the N-inputs. So far the theory fits to the data of liberalized MICs where we observe a co-movement of asymmetric growth in the N-sector with a growth in the Credit-over-GDP ratio and the real exchange rate. The appreciating exchange rate accelerates the development by devaluing the debt and easing further lending, this is called the *currency mismatch*. This boom gets vulnerable after some time and self-fulfilling crisis ignites with a depreciation causing the first N-sector firms going bankrupt because their revenues can't service their debts anymore. The investment falls, causing further depreciation and so on. Finally, we end in a financial crisis and close the boom-bust cycle.

Interestingly enough, the authors also found out that financial liberalized countries grow faster in average although they suffer crises much more frequently. Consequently, one of the policy implications is that for a MIC with constrained contract enforceability financial liberalization leads us to the second best optimum while the first best would be a judicial reforms to improve the level of contract enforceability and thereby reduce the borrowing constraints for the small N-sector firms.

4.3 How to prevent and deal with financial crisis

In section 4.2 we have seen a possible explanation for twin crisis, which means for currency and banking crisis. Next we will shift to crisis prevention and management.

We implicitly learned already two ways helping us to preventing a crises. The judicial reforms which improve the contract enforceability and an abolition of bail-out guarantees. Besides, there are many other ways, which are presented now. Denote that crisis prevention can possibly have negative consequences on long-term growth if we believe in the result of the investigation by Tornell and Westermann.

Eichengreen (2002) argued that better bank regulations should reduce the banks' leverage backed up by changes in the Basel Capital Accord to limit risky lending. The banks should not be allowed to hold portfolios that are too concentrated. One of his main points is an improvement in transparency to reduce the asymmetric information and give stronger informational rights and reporting for creditors. Furthermore Eichengreen emphasized the importance of an IMF policy change. The IMF should not base its crisis management largely on huge bail-out loans. IMF financial packages should create "less

[12] Note that in the case of a financial crisis the money that the government needs to bail-out the domestic banks often comes again from the IMF.

moral hazard" and allow "more marked based debt restructuring" by "new crisis resolution mechanisms" (Eichengreen 2002: 9-10). For instance the IMF could decide on a standstill on the developing country's credit market and then an international tribunal should try to find arrangements between debtors and creditors. The management of crises should mainly rely on an international lender-of-last-resort, an international bankruptcy court and an international financial regulator (Eichengreen 2002: 99).

Having dealt a lot with circumstances where banks lend too much, we now turn to the risk-premium we discussed in section 3.2.2 and look at some investigations.

4.4 Interest rate spreads

4.4.1 On loans to developing countries

Theory tells us that different probabilities of countries to default should be reflected in the risk-premium they have to pay. This risk-premium can be seen when comparing the interest rate a country has to pay with the LIBOR. Looking at this spreads in the years 1976-1980, the run-up to the World Debt Crisis, Edwards (1983) examined empirically whether the international banks were able to distinguish between countries with different risks of default and if they possibly were able to at least partly anticipate the crisis at some point in time.

He found out that the banks obviously consider some characteristics when setting the spreads. Especially, the foreign debt ratio (foreign credit/GNP) influenced the spread positive in all regressions. Edwards came to the interesting result that the international banks gave also a high weight to the reserves-over-GNP ratio, which influenced the spread strongly negative. Also the investment rate influences the spread negatively but not significant in all regressions. In conclusion Edwards claimed that the banks systematically overlooked some factors giving reserves a definitely too high weight. Therefore the World Debts Crisis was partially a result of these practices.

Besides, Edwards found no hint for a prediction of the default, in 1980 the interest rate spreads didn't show any symptoms for the crisis. For some countries like Mexico they even declined between 1979 and 1980 (Edwards 1983: 22-25).

4.4.2 On bonds issued by developing countries

As already mentioned in section 2.3 bond financing wasn't that important anymore for the developing countries during the 1970s and 1980s. It only accounted for less than 10 per cent of the total lending of developing countries, whereas it was much more common before (Edwards 1985,"The Pricing of Bonds and Bank Loans in International Markets: An Empirical Analysis of Developing Countries' Foreign Borrowing", *NBER Working Paper 1689*: 3 [5]). Still, we can gain deeper insights if we compare the spreads corresponding to the LIBOR in the loan and bond markets. Theory tells us that there are several reasons for bonds to be more risky than bank lending; this should be reflected in a higher risk premium. One important point is that banks are a relatively cohesive group compared to the group of bondholders, this makes it easier for them to monitor

and gives them advantages in the case of renegotiations as already mentioned.[13]

Another advantage is that banks can try to improve the contract enforceability by giving short-term loans. Moreover, as we have seen there are also explicit or implicit systematic bail-lout guarantees for bank loans with the central banks and/or the IMF acting as a Lender-of-Last-Resort. Now let's look at the additional information about pricing provided by data.

Edwards (1985) found out that again the debt ratio is positively related to the interest rate spread - this time slightly higher. Whereas the negatively influence of the investment ratio is smaller and reserves/GNP ratio was not significant. Surprisingly, the debt service/exports ratio has a negative influence on the spread. Altogether we can summarize that the country risks are differently priced in the two markets.

Last but not least Edwards again found out that the spreads didn't anticipate the crisis.

5 Concluding Remarks

This paper has given a survey on bank lending including some basic theoretical background. The emphasis was on the important relationship between bank lending and financial crises. We have seen the development of bank lending and financial crises in an historical context and also learned about the crucial role of bank lending in recent crisis in developing countries. Thereby we realized the problems when dealing with lending on an international level and examined the factors that determine the likelihood of risky lending booms.

[13] Recall the footnote in section 2.2.

References

[1] Meltzer Report. *International Financial Institution Advisory Committee*, March 2003.

[2] Carlo M. Cipolla. *Tre storie extra vaganti*. Il Mulino, Bologna, 1994.

[3] Jonathan Eaton, Mark Gersovitz, and Joseph Stiglitz. The Pure Theory of Country Risk. *NBER Working Paper 1894*, 1986.

[4] Sebastian Edwards. LDC's Foreign Borrowing and Default Risk: An Empirical Invastigation 1976-1980. *NBER Working Paper 1172*, 1983.

[5] Sebastian Edwards. The Pricing of Bonds and Bank Loans in International Markets: An Empirical Analysis of Developing Countries' Foreign Borrowing. *NBER Working Paper 1689*, 1985.

[6] Barry Eichengreen. The U.S. Capital Market and Foreign Lending, 1920-1955. In Jeffrey D. Sachs, editor, *Developing Country Debt and the World Economy*, pages 237–248. Chicago University Press, 1989.

[7] Barry Eichengreen. *Globalizing Capital*. Princeton University Press, 1996.

[8] Barry Eichengreen. *Financial Crises*. Oxford University Press, New York, 2002.

[9] Barry Eichengreen and Richard Portes. Debt and Default in the 1930s: Causes and Consequences. *NBER Working Paper 1772*, 1985.

[10] Stanley Fischer. Resolving the International Debt Crisis. In Jeffrey D. Sachs, editor, *Developing Country Debt and the World Economy*, pages 313–323. Chicago University Press, 1989.

[11] Milton Friedman. Bimetallism Revisited. *Journal of Economic Perspectives*, 4(4):85–104, 1990.

[12] John H. Makin. *The Global Debt Crisis*. Basic Books Inc., New York, 1984.

[13] Andreu Mas-Colell, Michael D. Whinston, and Jerry R. Green. *Microeconomic Theory*. Oxford University Press, New York, 1995.

[14] Martin Schneider and Aaron Tornell. Balance Sheet Effects, Bailout Guarantees and Financial Crises. *Review of Economic Studies*, pages 883–913, 2004.

[15] Aaron Tornell and Frank Westermann. Boom-Bust Cycles in Middle Income Countries: Facts and Explanation. *NBER Working Paper 9214*, 2002.