# Privatization versus regulation in developing economies: The case of West African banks.

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January 2000

[1] Many thanks to Djibril Camara, from the Banque Centrale d'Afrique de l'Ouest, for insightful advice and useful data, and to Jo Ann Paulson from the World Bank, and the "Equity market development in transition and emerging economies conference" participants, especially Anna Meyendorff and Simon Johnson. Dia gratefully aknowledges the financial support of the World Bank.

# Abstract

This paper builds on the case of West African banks to propose an analysis of the issues raised by government interference, privatization to foreign investors and regulation in developing countries. In the late 80s, there was a severe crisis in the West African banking system, partly due to government interference. The restructuring of the banking system entailed privatization and foreign share ownership. During the 90s, both foreign ownership and the proportion of bad loans went down. We offer an interpretation of these stylized facts within the framework of a simple model where non benevolent governments are prone to political interference, as long as it does not generate too large expected social costs, and learn to refrain from interference after severe crises. Privatization to foreign investors seeking high return and high risk does not always ensure efficiency of the banking system, while regulation by independent agencies can be more effective. Further confrontation of the theory to the data is provided by panel regressions on profits, bad loans and ownership, ran across the seven countries of the West African Economic and Monetary Union from 1990 to 1997.

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## 1. Introduction

While, under state ownership, governments can interfere in the management of firms, privatization can be used to prevent socially inefficient interference.[2] Privatization in developing countries, often involving the World Bank and the IMF, typically entails sales of shares to foreign investors.[3] From the perspective of these investors, purchasing African shares is attractive, to the extent that it enables them to increase the expected return of their portfolios, while not increasing their overall risk too much, as African risk is not very correlated with other risks (see e.g. Saunders and Senbet (1992)). Yet, in part in response to the Asian financial crisis in the late 90s, foreign investment in developing countries has sometimes been criticized, on the grounds that it can destabilize these countries.

These issues are particularly salient in the banking sector. On the one hand, government interference can be very damaging if it leads to politically motivated bad loans. On the other hand, the role of foreign investors in the banking sector during the recent Asian financial crisis, in a relatively poorly regulated context, has been criticized (see

[2] Shleifer and Vishny (1994) and Lopez de Silanes (1997) emphasize this political view. Schmidt (1996) analyzes theoretically how privatization enables the government to commit not to expropriate managers and thus to incentivize the latter. Laffont and Tirole (1991) show theoretically that state ownership leads to excessive investment in assets that can be appropriated by the public owners and that privatization can mitigate this problem. Laffont and Meleu (1999) analyze privatization in Sub–Sahara Africa. See also Shapiro and Willig (1990), Boycko, Shleifer and Vishny (1996), and Biais and Perotti (1999))

[3] Interesting evidence on privatization in developing countries is offered in Boubakri and Cosset, 1998, and La Porta and Lopez de Silanes, 1999.

e.g. Stiglitz (1999)). It is therefore important to assess the respective roles of government interference, privatization, foreign investors and regulation in the banking sector in developing countries.

The present paper builds on the case of West African banks to shed some empirical and theoretical light on these issues. West Africa offers a particularly interesting context to analyze these problems. In the late 80s the banking sector in Western Africa underwent a major crisis, partly due to political interference. In the early 90s the West African financial sector was restructured. The less profitable banks were closed, and the ownership structure of the other banks was radically altered. Government ownership was significantly reduced and foreign investors stepped in the capital of numerous banks. In addition a new regulatory authority was set up. Following the restructuring, between 1990 and 1997, foreign investors sold their shares, while profits as well as bad loans decreased. Section 2 of the paper presents the major stylized facts relative to the restructuring and subsequent evolution of the banking sector in West Africa. This presentation is based on an extensive and new data–set we collected, including information on bank loans, profits, and ownership for the seven countries of the West African Economic and Monetary Union(WAEMU), (Sénégal, Côte d'Ivoire, Mali, Bénin, Burkina Faso, Niger and Togo) for the 8 years between 1990 and 1997.

Section III proposes a simple theoretical model to analyze these facts. In line with the classical analysis of Bates (1981, 1983), we consider non–benevolents governments.[4] We assume that non–benevolent governments can interfere in the management of state owned banks, to allocate rents to their political constituency. Such interference deteriorates the efficiency of the banking sector and raises the risk that a financial crisis could occur. While the occurence of the crisis is random, its exact magnitude if it does happen is not known ex–ante. For simplicity suppose that the crisis can be either limited of very severe. If it happens, the government and the people of the developing country learn whether it is limited or severe, but outsiders, such as foreign investors, are less well informed about the real extent of the crisis. If the crisis occurs, the financial system needs to be restructured. This restructuring is captured in two ways in the model: Banks are (at least partly) privatized to foreign investors bringing the funds needed to restart the financial system, and a regulatory agency (banking commission) is set up. The government can set–up a strong commission, independent of political pressures, or a weak one. Initially, outsiders, such as the foreign investors, do not know how independent the commission is. As they own a large fraction of the shares, the foreign investors can influence the management of the banks. Since their portfolios are well diversified, they are not very averse to the idiosyncratic risk corresponding to the African economy. Consequently they

[4]See e.g Bates (1983), page 53: "'Leaders act on behalf of private factions, be they social classes, military cliques or ethnic groups. They engage in economic redistribution, often from the poor to the rich and at the expense of economic growth. These are the central themes in policy formation in Africa and their prominence serves to discredit any approach based on a conviction that governments are agents of the public interest."

favor investment projects with high expected returns, even if these entail large risks. Note that, in contrast to the well diversified international investors, the undiversified African people suffer from this risk taking. Yet, this risk taking behaviour is limited when the regulatory commission is strong, and can, for example, enforce strict prudential rules. We show that, under certain conditions on the parameter values, there exists an equilibrium which has the following features:

- The government chooses to set–up a strong and independent commission only after a severe crisis, in which it has learned how costly interference is, and how valuable it is to prevent it. When such a strong regulatory banking commission is set–up it prevents both political interference and high risk taking by foreign investors.

- At the time of the privatization, the foreign investors do not know yet how severe the crisis has been, and if the government has set–up a strong and independent commission. Consequently they purchase the shares of the privatized banks, hoping to be able to conduct a high risk–high return strategy.

- When the crisis has been limited, the regulatory commission is weak. Hence the government indulges in interference again and the foreign investors are free to impose a high risk–high return investment style. In this case, the risk that there will be a second financial crisis is even larger than initially.

- On the other hand, after a severe crisis, a strong and independent regulatory commission is set–up, which prevents both political interference, and high risk–high return strategies.

This simple theoretical model offers an economic interpretation of the restructuring of the banking sector in West Africa and of its aftermath: As the crisis was unexpectedly severe, the governments of the West African countries set–up a strong and independent regulatory commission. It successfully deterred political interference and high risk–high return projects. Correspondingly, both profits and bad loans were low, and foreign investors, finding out that the regulatory environment was not appropriate for their strategy, sold out their shares.

Section IV complements section III by presenting an empirical analysis of performance and foreign ownership in the West African banking sector in the 1990s. Some implications of our analysis (also discussed in Section V) are the following:

Inefficient political interference can result from misperception by governments of the consequences of their actions. (This is in line with the analysis in Ndulu and O'Connel (1999) of excessive state interventonism in Africa resulting from mistaken ideologies.) On the other hand, as analyzed in our theoretical model, even non–benevolent governments can learn to abstain from inefficient interference as they find out that its consequences are more negative than expected.

Privatization to foreign investors is not necessarily the panacea. Well diversified international investors are likely to be less averse to African risk than relatively undiversied African citizens. Consequently they can have incentives to pursue riskier strategies than would be optimal for the Africans.

Setting up politically independent agencies of restraint can help curb excessive state interventionis. Political independence, as well as sensitivity to African preferences, can perhaps be obtained by setting up the agency as a regional African body, independent from any single government.[5] In this respect, the West Africa banking commission could play a role similar to that played by the South African Customs Union, which enabled such countries as Botswana to liberalize their trade policy, by placing this policy oustide the control of a single government (see Ndulu and O'Connell (1999)). Our analysis is in the line of the conclusion, by Collier and Gunning (1999), that: "the creation of independent centers of authority in central banks ... should generally help to reinforce a climate of openness and democracy which is likely to be supportive of economic reform." Also, our discussion of the potential advantages of politically independent agencies of restraints managed by African people is in line with the analysis presented in the recent paper of Stiglitz (1999) arguing that, for the sake of democratic accountability and economic sustainability, developing countries must "own" their development strategies.

## 2. The stylized facts

### 2.1. The crisis and the ensuing restructuring

In 1987 and 1988 there was a severe crisis in the banking system in West Africa. For the 7 countries of the WAEMU, bad loans amounted to 6 times the sum of bank capital and reserves. In Senegal, 8 out of 11 banks were distressed, and non performing loans made up half the value of the country's loans. This crisis took place at the end of a decade of severe recession in the Sub–Saharan economy. One of the causes of the crisis was the international environment. Firms exporting agricultural products were severely affected by the decrease in world prices (see e.g. Collier and Van Gunning, 1999). In West Africa, this was aggravated by the overvaluation of the CFA Franc. Another major cause of the crisis was internal, and can be broadly described as political interference. While politically induced distorsions are likely to have affected the African economy as a whole (see Bates, 1981, 1983), in the banking sector they took the following form. Due to government pressure, loans were provided to political constituencies with negative net present value projects, and denied to borrowers with little bargaining power, even if they had good projects. Such pressures were especially easy to exert in the case of state–owned banks, in particular in the context of so–called development banks, created by governments at the beginning of he 70s (see Swamy, 1994). Another disfunctioning of the

[5] Such independence should be obtained vis a vis both developed countries government and developed economies governments.

credit market due to political interference had to do with reimbursment. Indeed, it was difficult to collect reimbursement from politically powerful debtors. These disfunctionings of the financial sector led to an exit from the reliance on the services of African banks: small borrowers had to tap the informal credit market, while large investors prefered to rely on safer investment opportunities abroad. In the present paper, we focus on the inefficiencies induced by political interference in the banking sector in West Africa, and analyze how they interacted with the financial crisis and the ensuing restructuring.

As the financial crisis hit the West African economies and societies, political unrest developed in the region, at the end of the 1980 s and the beginning of the 1990s. In particular, in Sénégal, demonstrations and political turmoil were quite significant, and, although the president eventually staid in power, the government felt a serious risk of being overthrown.

As a result of the crisis, the banking system had to be restructured. The World Bank, along with other foreign institutions and banks took part in this restructuring process, which took place in 1989 and 1990. Many banks were liquidated. Others were restructured.[6] After the restructuring there was between 4 and ten banks in each of 6 of the 7 countries of the region (Benin, Burkina, Mali, Niger, Sénégal and Togo), and 16 in Côte d'Ivoire. Figure 6.1 offers a graphic representation of the number of banks in the seven countries of the WAEMU in 1990. In addition, Figure 6.2 offers a graphic representation of the value of the total assets of the banks in each of these seven countries in 1990. The figures illustrate that Côte d'Ivoire is the major player in the region, and that Sénégalese and Ivorian banks are larger than the other banks.

The restructuring of the West African financial sector led to a marked change in its ownership structure. Banks were privatized, at least partially. Their equity capital was opened to foreign and domestic investors. The shareholdings of the state decreased. In 1990, the state share–holdings in the banking sector were close to or below 30 % in Bénin, Cote d'Ivoire, Mali, Niger, Sénégal and Togo. Burkina Faso, where state shareholdings were above 40 % was an exception. This may be linked to the political context of Burkina Faso which at the time was led by President Sankara. Figure 6.3 offers a graphic representation of government shareholdings in 1990, while Figure 6.4 depicts foreign shareholdings.

Another major change brought about by the restructuring was the creation, in 1990, of the Banking Commission. Before the reform, each country in the region had its own regulatory body. Regulators were nominated by the local governments, and were amenable to political pressure. The new commission operates at the regional level and regulates banks in the whole WAEMU. Its members come from the seven countries and from France. It does not depend on any single government. It also enjoys significant investigation

[6]Debt transfers and debt conversion were used to restructure banks balance sheets. In the case of a debt transfer all of the banks' bad debt is transferred to a "bad debt bank" created for this purpose. For example it was the case in Senegal with the Société Nationale de Recouvrement (SNR). Debt conversion consists in converting bad loans to state owned and state related firms into Treasury bonds. In Côte d'Ivoire such conversion amounted to CFA francs180 billions.

powers and can impose penalties on banks. One of its missions is to enforce the following prudential rules: equity capital must be at least as large as 4% of the risk–weighted assets of the bank, stable financial resources (i.e., equity capital and long term borrowings) must equal at least 75 % of long term loans, and liquid assets must equal at least 60 % of short term liabilities. One of its major weaknesses just after its creation was its lack of reputation, which implied that investors could doubt that it really intended to strongly enforce the regulation. With hindsight, it now appears to be relatively independent (although, of course, it is too early to be fully assured of this.)

### 2.2. The aftermath of the restructuring

The bulk of the restructuring took place between 1988 and 1990.[7] As evidenced in Figure 6.1 there was a slight decrease in the number of banks in the region in the 1990s. This can be interpreted as further consolidation, in the line of the initial restructuring. As evidenced in Figure 6.2, depicting the value of total assets of the banks in each of these seven countries in 1997, the relative weights of the different countries were similar in 1997 and 1990.

Remarkably, the ownership structure of the banks in the region was significantly altered between 1990 and 1997. As evidenced in Figures 6.3 and 6.4, in all countries, except Burkina Faso, government shareholdings increased, while foreign shareholdings decreased over the period.[8] Foreign investors frequently sold back their equity stakes. For example, the Brasilian bank Banco Réal sold back its stakes in banque Réal Côte d'Ivoire in 1994 to a state owned bank BIAO Côte d'Ivoire. Another example is Crédit Lyonnais, which, in 1994, sold back its equity holdings in the Banque Malienne de Crédit et Dépôt, the Société Ivoirienne de Banque, and the Crédit Lyonnais Bénin. Credit lyonnais itself was in distress in France at this time. While its withdrawal from Africa is likely to reflect its home situation, it did not withdraw from Senegal for instance. Below we provide systematic empirical evidence on cross country variations in these withdrawal patterns. The example of Credit Commercial de France also illustrates the trend in foreign exits. This bank in the early 90s brought its technical assistance to BIAO-côte d'ivoire with an option to buy more shares. Five years later it chose not to exercise this option. To the extent that private African investors rarely had the cash to buy these shares, they were often bought back by the government. This was the case, for example, for the above mentioned sales by the Crédit Lyonnais.

In our analysis below, we endeavour to interpret this pattern of renationalization. Note that, while at odds with the evolution observed in developed economies, this pattern is quite in line with the general picture in developing economies and in particular Africa.

[7] There were a few debt conversions in 1994 with no strong and significant effect on the profitability of the banking system.

[8] The different pattern observed in Burkina Faso, reflects the high level of government shareholdings in 1990 and convergence during the 1990's to the average of the other countries of the region.

For example Megginson and Netter (1999) discuss empirical evidence pointing cleary at the lack of decrease of the share of state–owned enterprises in Gross Domestic Product in developing countries, over the period 1978–1991.

To the extent that we identified political interference as one of the major causes of the financal crisis in the 1980s, the increase in government shareholdings in the 1990s could seem ominous. Did it bring about further misallocation of credit, thus endangering the financial, and consequently economic, social and political, stability of the region ? In fact, as evidenced in Figure 6.5, doubtful debts as a proportion of total assets have quite markedly gone down during the 1990s. This contradicts the expectation that large government shareholdings were bound to generate inefficient interference. In fact, as we will argue below, limited risk taking by the banks perhaps reflects the efficient regulation policy enforced by the Commission Bancaire. On the other hand, as illustrated in Figure 6.6, there was overall some decrease in bank profits between 1990 and 1997.

## 3. Theory

### 3.1. Outline of the argument

In this section we present a simple theoretical model, to provide a framework to analyze and interpret the above mentioned stylized facts. In a nutshell the argument developed in the model is the following.

*Governments* can interfere in the management of banks. If they choose to do so they can use the banking system to allocate rents to their political constituencies, yet this is at the cost of reduced performance and enhanced financial instability. When trading off political rents versus financial instability, the governments are influenced by two considerations. On the one hand, their choice reflects the extent to which they internalize the social costs generated by financial instability. In our analysis we assume that the government is in general not benevolent and it internalizes only a fraction (denoted $\alpha$) of this social cost (as argued by Bates (1981, 1983)). On the other hand, the choice of the government reflects its assessment of the social, economic and political consequences of financial instability. In our model, we assume that the social cost is a random variable. This random variable can be interpreted as a deep parameter of the economy, on which the government, as well as the other players of the game, have some information, and perform learning. After a crisis has taken place, the government can observe the sufferings it generates for the African people, and their political consequences. Based on this observation, it updates its estimate of the social cost of financial instability and crises. We also assume that foreigners observe less precise information than the African government about the social cost of the financial crisis. This creates an information asymmetry between the government and foreign investors after the crisis. In the model analyzed below we show that, under some conditions on parameter values, there exists an equilibrium whereby, after a severe crisis, inflicting large costs to the Africans, the government decides to stop

interfering. Consequently it sets up a strong and independent regulation authority, to ensure the safe workings of the African financial sector.

*Foreign investors* are needed to provide the necessary funds to restart the financial system after a crisis. In addition to providing funds, they can transfer technology and skills, and monitor the performance of the African banks, resulting in enhanced profitability. Yet, foreign investors and the African people have different perspectives as to what investment policies the bank should follow. From the perspective of foreign investors, African risk is diversifiable, hence they would rather go for quite risky, but potentially profitable ventures. On the other hand, the African citizens are quite exposed to their domestic risk, and would rather go for lower expected returns investment projects, provided these yielded lower risk of another financial crisis. This divergence of interests fits the stylized facts of other developing countries, in particular in South East Asia, where foreign investments may have led to very risky ventures and financial crises. Anecdotal evidence on this point is provided by the example of the BIAO, discussed in Massou (1999). A large fraction of that bank, operating in several countries in Sub–Saharan Africa, was bought in 1991at a rather low price by Meridien International Bank Limited, a heavily indebted company incorporated in the Bahamas. As discussed by Massou (1999), the new entity, Meridien BIAO, did not have a genuine banking project for Africa. The operation was more of a gamble, made attractive by the low price at which the bank was acquired. In fact, it went bankrupt in 1995.

## 4. Model

There are two periods. In the first period the government can decide whether to interfere with the management of the banks. If the government does not interfere, then the profits of the banking sector at the first period: $G_1$ are equal to the coonstant $\bar{G}$. If the government interferes, it can divert $R$ from bank profits and allocate these rents to its political constituency.[9] In addition to reducing bank profits on average, this generates risk, which we model as a white noise term $\tilde{z}$, randomly distributed over $[-Z, Z]$, and with $E(\tilde{z}) = 0$. Hence, with political interference:

$$G_1 = \bar{G} - R + \tilde{z}.$$

To capture in a simple way the notion that the welfare of the people is increasing with the profitability of the economy, and can be severely hurt if there is a financial crisis, with very low profits, we assume that social welfare in the first period is equal to:

$$R + G_1 - 1(G_1 < \underline{G})\tilde{c},$$

[9]This is similar to the analysis of state–ownership with non benevolent governments by Biais and Perotti (1999).

where $1(G_1 < \underline{G})$ is the indicator variable taking the value 1 if $G_1 < \underline{G}$ ,where $\underline{G}$ is the minimum amount of profits below which there is a crisis and social costs are incurred, and $\tilde{c}$ is the corresponding social cost. If the government chooses to interfere with the management of the bank to favor its political constituency, it adds the noise term $\tilde{z}$, which creates the risk that a financial crisis will take place, i.e., that: $G_1 < \underline{G}$ and that the corresponding social cost $\tilde{c}$ will be incurred. Indeed, we assume that: $\bar{G} - R - Z < \underline{G}$. Accordingly, social welfare is equal to: $\bar{G}$ if the government chooses no political interference, and $\bar{G} - 1(G_1 < \underline{G})\tilde{c}$, if the government chooses political interference. Obviously, political interference reduces welfare. Yet, the government may prefer interference, since its political constituency receives all the rents and bears only part of the social cost.

The utility function of the government at the first period is equal to the sum of the political rents it allocates to its constituency and the expected social (net of the rents) welfare multiplied by a constant: $\alpha \in [0, 1]$. This constant is the fraction of social welfare internalized by the government. $\alpha = 1$ corresponds to the limit case of a benevolent government. The utility function of the government at the first period is: $\alpha\bar{G}$ if it chooses no political interference and:

$$R + \alpha E(\bar{G} - R + \tilde{z} - 1(\bar{G} - R + \tilde{z} < \underline{G})\tilde{c}),$$

if it chooses interference. The latter can be rewritten as:

$$(1 - \alpha)R + \alpha(\bar{G} - (1 - \pi)E(\tilde{c})),$$

where $\pi = \Pr(\bar{G} - R + \tilde{z} > \underline{G})$. To focus on the case where the government leans a priori towards interference, we assume that:

$$\alpha < \frac{R}{R + (1 - \pi)E(\tilde{c})}.$$

That is, we assume that the fraction of social welfare that the government internalizes is relatively small.

A priori, the social cost associated with crisis $\tilde{c}$ is a random variable (independent of the white noise term $z$), and is unknown to all parties. In particular, the government does not know exactly ex–ante how socially costly a financial crisis would be. If there is a crisis at the end of the first period, however, the Africans suffer the cost, and consequently observe it. This enables them to learn about how severe another crisis in the future would be. To capture this learning effect in the simplest possible way, we assume that there is perfect correlation between the magnitude of the social costs at the two periods when there are two consecutive crisis, and that $\tilde{c}$ can take only two values: $\underline{c}$ with probability $\mu$ and $\bar{c}$ with the complementary probability. In contrast with the Africans, foreigners, including foreign investors, do not observe the realization of the cost. Consequently, they do not learn about the magnitude of social costs and its consequences in the same way as the Africans do.

In the second period, if there was no crisis during the first period, the technology remains the same, and the government again has the choice between interfering or not, as outlined above. On the other hand, if a financial crisis took place the financial system must be restructured, and restarted. New investments are needed to restart the financial sector (and the economy). Denote $F$ the amount of investment needed. We assume that after a crisis, the country is so poor that it cannot self finance this investment. Consequently, it needs to be financed by foreign investors. These outside funds are raised through partial privatization of the African banks. In exchange for the funds they provide, the foreign investors receive a fraction $\delta$ of the equity capital of the banks, giving them property rights on a fraction $\delta$ of the profits at the end of the second period. From the point of view of foreign investors, this creates a new investment opportunity, to which they had no access before the liberalization. This investment opportunity can be quite attractive, in terms of portfolio management, since the risk associated with banks in West Africa has relatively low correlation with the world market portfolio.[10] We assume foreign investors value investments in Africa based on their expected rate of return, compared to the rate of return of their other investment opportunities: $r_0$. In addition to providing funds, foreign investors entering in the equity capital of privatized African banks can influence their management and performance. This reflects transfer of technology and knowldege, as well as monitoring. Foreign investors, because of their ability to diversify their portfolio, are not very averse to the risk associated with the African economy. In that respect they differ markedly from the majority of the African people, who are quite exposed to the risk pertaining to their economy, and who have little ability to diversify this risk.[11] Consequently, when selecting investment projects, foreign investors favor much more aggressive expected returns/risk combinations than Africans.

In the second period, if a crisis took place and the banking sector has been restructured and partially privatized, the government sets up a new regulatory body. It can choose to set–up a strong and independent regulator, or a weak regulator, prone to be influenced by the political power. Initially, the foreign investors cannot observe which type of regulatory authority (strong or weak) has been set up. There is asymmetric information on the type of the regulatory agency between the African government and the foreign investors. Consistent with the discussion of the banking commission in the previous section, a strong regulatory authority can prevent risk taking by enforcing strict prudential rules.

If the regulatory agency is weak, then the government can again choose to interfere with the management of the bank. It will take its decision, as in the first period, to maximize the sum of political rents and a fraction $\alpha$ of social welfare. The latter is equal to the share of bank profits owned by Africans, minus the social costs incurred if there is a crisis. On the other hand if the regulatory authority is strong, then political interference is

[10] See for example Ncube and Senbet (1997).

[11] While the richest Africans do invest a significant portion of their wealth abroad, the vast majority of the African people have no access to international financial diversification, because sophisticated financial products are not supplied to the general public at low transactions costs.

no longer feasible. Furthermore, if the regulatory authority is weak, then foreign investors can influence the management of banks to induce them to invest in the high–risk/high–expected returns projects optimally complementing a large portfolio where African risk is diversified away. On the other hand, if the regulatory authority is strong, then foreign investors do not have the opportunity to engage in such high–risk/high–return projects, rather they must invest in safer projects. This gives rise to the following bank profit profiles:

$$\bar{G} + \underline{q},$$

if the regulatory authority is strong ($\underline{q}$ corresponds to the additional profitability induced by the expertise of the foreign bank) and:

$$\bar{G} - R + \tilde{z} + \bar{q} + s,$$

if the regulatory authority is weak and the government chooses political interference ($\bar{q}$ corresponds to the additional expected profits induced by the foreign bank, and $s$ is a white noise term reflecting the associated risk taking).

The expected return on bank activities, when foreign investors have an equity stake in the bank is:

$$r_S = \frac{\bar{G} + \underline{q} - F}{F},$$

when the regulatory authority is strong, and:

$$r_W = \frac{\bar{G} - R + \bar{q} - F}{F},$$

when the regulatory authority is weak, the government chooses political interference and the foreign investors induce a high–risk/high–expected returns investment policy. To reflect the assumption that investment in Africa represents an attractive opportunity for foreign investors if it can be used to enhance expected returns while adding diversifiable risk, we assume that:

$$r_W > r_0.$$

On the other hand, we assume that a safer investment policy, with lower expected returns $r_S$, and lower risk, is not attractive to foreign investors, i.e.:

$$r_S < r_0.$$

This emphasizes the difference in perspective between the foreign investors and the African people. For the latter, the safer policy, generating expected return: $r_S$ and no risk of crisis and social cost is preferable to the high–risk/high–return strategy favored by the former.

To summarize the above presentation of our model, the sequence of events is the following:

- During the first period:

  1. The government chooses whether to interfere or not.
  2. Rents are allocated if interference occured, the profits of the banks are realized and the crisis takes place or not.
  3. If a crisis takes place, the Africans observe its magnitude.

- During the second period:

  1. If a crisis occured, the financial system is restructured. There is partial privatization in which foreign investors decide to purchase a fraction $\delta$ of the equity capital of the banks. A new regulatory authority is set–up. The government decides whether this regulatory agency is going to be strong or weak.
  2. If the regulatory authority is weak , or if there was no crisis at the first period, the government can again choose to interfere.
  3. Rents are allocated if there has been interference, the profits of the banks are realized and shared, and the crisis takes place or not.

This sequence of events is represented graphically in Figure 6.7. We analyze perfect Bayesian equilibrium strategies, in which the two players (government and foreign investors) maximize their objective functions, while rationally anticipating the actions of the other.

### 4.1. Equilibrium

We focus on the equilibrium where the government chooses to interfere at the first period, which arises under our assumption that

$$\alpha < \frac{R}{R + (1-\pi)E(\tilde{c})}.$$

We first analyze the equilibrium where the government will choose interference again at the second period only if no crisis occured or if the crisis was not very severe and entailed only small social costs. In this equilibrium, the only situation where the government does not interfere is at the second period after a severe crisis, generating large social costs at the first period. The sequence of actions corresponding to the equilibrium is represented in Figure 6.8. Next we study more briefly the equilibrium whereby the government interferes at the two periods in all cases.

### 4.1.1. Equilibrium conditions at the second period

Suppose that, at period 1, the government chose to interfere and there was a crisis. Suppose also that foreign investors provide funds $F$ in exchange for a fraction $\delta$ of the equity capital of the banks.

The participation constraint of the foreign investors is:

$$\delta[(1-\mu)(\bar{G}+\underline{q})+\mu(\bar{G}-R+\bar{q})] \geq F(1+r_0).$$

After simple manipulations this can be rewitten as:

$$\delta > \frac{1+r_0}{\mu(1+r_W)+(1-\mu)(1+r_S)} = \delta_{PC},$$

i.e., the participation constraint of the foreign investors entails that their share of the equity (and profits) of the banks be larger than or equal to the ratio of their outside opportunity rate of return to the average rate of return of investments in the African banks.

After observing a severe crisis, the government chooses to establish a strong regulatory authority rather than a weak one (leading to risk taking and political interference) if:

$$\alpha(1-\delta)(\bar{G}+\underline{q}) > R+\alpha[(1-\delta)(\bar{G}-R+\bar{q})-(1-\pi^*)\bar{c}],$$

where:

$$\pi^* = \Pr(\bar{G}-R+\bar{q}+\tilde{z}+s > \underline{G}).$$

After simple manipulations, this amounts to:

$$\delta > 1-\frac{(1-\pi^*)\frac{\bar{c}}{F}-\frac{R}{\alpha F}}{r_W-r_S}.$$

Consistent with intuition, this condition, under which there is no political interference at the second period after a severe crisis, holds if the degree of benevolence of the state ($\alpha$) and the cost of the crisis ($\bar{c}$) are large enough. To highlight its dependence on $\alpha$, this theshold value of $\delta$ is denoted $\delta_{NI2}(\alpha)$, which is decreasing in $\alpha$.

On the other hand, after a small crisis, the government chooses to set–up a weak regulatory authority, leading to political interference and risk taking if:

$$\delta < 1-\frac{(1-\pi^*)\frac{\underline{c}}{F}-\frac{R}{\alpha F}}{r_W-r_S} = \delta_{I2}(\alpha).$$

Consistent with intuition, this condition is met if the degree of benevolence of the state and the cost of a limited crisis are not very large ($\delta_{I2}(\alpha)$ is decreasing in $\alpha$).

### 4.1.2. Equilibrium condition at the first period

Rationally anticipating these behaviors at the second period, the government chooses political interference at the first period if:

$$\begin{aligned} & \alpha\bar{G} + R(1-\alpha) + \alpha(\bar{G} - (1-\pi)E(\tilde{c})) \\ < \; & R(1-\alpha) + \alpha(\bar{G} - (1-\pi)E(\tilde{c})) \\ & +\pi[R(1-\alpha) + \alpha(\bar{G} - (1-\pi)E(\tilde{c}))] \\ & +(1-\pi)[\mu\{R + \alpha((1-\delta)(\bar{G} - R + \bar{q}) - (1-\pi^*)\underline{c})\} \\ & +(1-\mu)(1-\delta)\alpha(\bar{G} + \underline{q})]. \end{aligned}$$

The left–hand–side corresponds to the expected utility of the government when refraining from interference at the first period, and takes into account the fact that, because of our assumption on $\alpha$ the government will in that case interfere at the second period. The right–hand–side is the expected utility of the government with interference at the first period. The first term $(R(1-\alpha) + \alpha(\bar{G} - (1-\pi)E(\tilde{c})))$ corresponds to the first period utility. The second term corresponds to the second period, which takes place after no crisis (with probability $\pi$), or after a limited crisis (with probability $(1-\pi)\mu$), or after a severe crisis (with probability $(1-\pi)(1-\mu)$). After simple manipulations, the condition can be rewritten as:

$$\delta \; < \; 1 - \frac{\frac{\bar{G}}{F} - \frac{\pi}{1-\pi}[\frac{R}{F}\frac{1-\alpha}{\alpha} - (1-\pi)\frac{E(\tilde{c})}{F}] - \mu[\frac{R}{\alpha F} - (1-\pi^*)\frac{\underline{c}}{F}]}{\mu(1+r_W) + (1-\mu)(1+r_S)} = \delta_{I1}(\alpha)$$

Consistent with intuition, the inequality holds if the costs of financial distress are not too large and the rents that can be transferred by the government to its political clientele are large enough and if the degree of benevolence of the state is limited (as $\delta_{I1}(\alpha)$ is decreasing in $\alpha$).

### 4.1.3. Equilibrium

Combining the inequalities presented in the two above subsections, we obtain the following proposition:

**Proposition 4.1.** *There is an equilibrium whereby the government chooses political interference in all situations except after a severe crisis inflicting large social costs if:*

$$\begin{aligned} & Max[\delta_{NI2}(\alpha), \delta_{PC}] \\ < \; & Min[\delta_{I2}(\alpha), \delta_{I1}(\alpha)]. \end{aligned}$$

The right–hand side of the condition reflects the conditions under which the government prefers political interference (initially and at time 2 after a crisis). The left–hand side reflects (in addition to the break even condition of the foreign investors) the condition under which the government chooses not to interefere after a severe crisis. Consequently, the condition in the proposition holds if the degree of government benevolence is not too large (so that there is not too much interference), but not too low either, otherwise the government would always choose to interfere, even after a severe crisis).

Following the same logic as for the proof of the above proposition, one can identify paarmeter values for which there exists an equilibrium whereby the government always chooses political interference, even after a severe crisis. These parameter values are characterized in the following proposition:

**Proposition 4.2.** *There is an equilibrium whereby the government always chooses political interference if:*

$$\frac{1+r_0}{1+r_W} < 1 - Max[\frac{(1-\pi^*)\frac{\bar{c}}{\alpha F} - \frac{R}{\alpha F}}{r_W - r_S}, \frac{\frac{\bar{G}-R}{F} + (\pi + (1-\pi^*))\frac{E(c)}{F}\frac{1-\alpha}{\alpha}\frac{1}{1-\pi}}{1+r_W}].$$

Consistent with intuition, this is less likely to hold if the government is rather benevolent ($\alpha$ is large), or the cost of crisis is large ($\bar{c}$ and $E(c)$ are large) and is more likely to hold if interference enables the government to distribute large rents ($R$ is large). The equilibrium whereby, even after the crisis, the banking regulatory commission is not sufficiently strong and independent of the political power can be illustrated by the case of Kenya, as discussed by Swamy (1994). During the 80s, weak banking regulation and moral hazard issues resulted in excessive risk taking by several Kenyan banks, and led to bankruptcies and restructuring. In 1989, the government amended the banking law and sought to strengthen the central bank. But political forces continued to weaken the central bank so that excessive risk taking was not curbed, and cases of distressed banks continued to arise. The weakness of the Kenyan one–country central bank contrasts with the relatively greater power of the supra–national West African banking commission.

### 4.2. Discussion

The equilibrium characterized in Proposition 3.1 fits the stylized facts of the evolution of the financial sector in Africa in the 1980s and 1990s.

*Governments* did initially interfere. The corresponding mismanagement of the banking sector led to the financial crisis observed in the late 1980's. On observing that the social costs of this crisis are very large, which was arguably the case in West Africa, the governments decided to stop interfering in the management of the banks. To enforce this decision, they set up an independent regulation body, relatively immune to political

pressures, and equipped to ensure that no excessive risks are taken. Consequently, the ratio of bad loans to total loans decreases, as illustrated in Figure 6.5.

*Foreign investors*, on the other hand, had not observed how costly the crisis was. Consequently, they were not convinced that the government would indeed choose not to interfere and to set up a strong and independent regulatory body. Based on their belief that they could possibly earn large expected profits, without being prevented from risk taking by a strong regulatory authority, they invested in West African banks. This enabled to fund the restructuring of the West African banking sector and also led to some increase in profits. Ex–post, on observing that the regulatory authority was strong, and that they could not engage in high–risk/high–return projects, they decided to sell back their shareholdings. Since the African domestic investors had very little cash to purchase these shares, the government had to step in and purchase the shares downloaded by the foreign investors. As the foreign investors exited the equity capital of the West African banks, the profit enhancement they brought about disappeared. Correspondingly bank profits went down, as evidenced in Figure 6.6. Yet, political interference and the associated bad loans were still ruled out by the strong regulatory authority. Correspondingly, bad loans went down, as evidenced in Figure 6.5..

In contrast with the equilibrium characterized in Proposition 3.2, there was not a sequence of consecutive crises. This may reflect that the cost of crisis is large enough to deter repeated government interference after crises, or that the probability of miild crisis is limited so that the equilibrium path characterized in Proposition 3.2 is not likely to occur.

### 4.3. Numerical example

The equilibrium whereby the government intervenes initially and after a limited crisis, but not after a large crisis can be illustrated by the following numerical example. As the variables entering the conditions are probabilities, rates of return and ratios, the choice of the numerical values does not raise difficult issues related to orders of magnitude.

Given that the crisis occured, its probability of occurence $(1 - \pi)$ is not likely to be low. In the present example set it to .3. In line with the discussion above, given that there was no sequence of crises unlike in Proposition 3.2, and given that in fact the crisis was quite severe, the probability that the crisis is mild is likely to be low, and in the example we set it to

In the example, set the probability that there is no crisis when there is political interference $(\pi)$ to .5, and the probability that the crisis is not too severe when it occurs $(\mu)$ to .6. Furthermore, set the ratio of political rents $(R)$ to normal profits $(\bar{G})$ as well as the ratio of these profits to the funds needed to restart the system $(F)$ to one. The expected rate of return after the privatization if the risky strategy is chosen $(r_w)$ is 43 %, while the rate of return under the safer strategy $(r_s)$ is 14 %. The probability of financial crisis with political interference and risky strategy $(\pi^*)$ is .4. The social cost incurred in

case of a small crisis ($\underline{c}$) is 11 % of the rents, while the social cost incurred in case of a severe crisis ($\bar{c}$) is 5.7 times the rents. In this case, our assumption that $\alpha$ is large enough, so that there is interference in a one period context is:

$$\alpha < \frac{1}{1 + (1-\pi)\frac{E(\tilde{c})}{R}} = 0.459.$$

For these parameter values, and for $\alpha \in [0.1, 0.459]$, Figure 6.9 plots the lower bound in Proposition 3.1 ($Max[\delta_{NI2}(\alpha), \delta_{PC}]$) as well as the upper bound ($Min[\delta_{I2}(\alpha), \delta_{I1}(\alpha)]$). As shown in the figure, for these parameter values the equilibrium where the governnment interferes except after a severe crisis arises when the degree of benevolence of the government ($\alpha$) is above .24.

# 5. Empirical analysis

## 5.1. The consequences of equity ownership on the performance of the banking sector

The above discussion suggests that foreign ownership leads to enhanced profits. To test this point we regress across countries and years, the performance of banks on the lagged percentage of foreign ownership. We also account for fixed or random country effects. The specification is:

$$PERF_{i,t} = \alpha_i + \beta FOREIGN_{i,t-1} + \epsilon_{i,t}$$

where $i$ is the index of one of the seven countries, $t$ is the index of one of the 8 years, $\alpha_i$ is the country effect, $FOREIGN_{i,t-1}$ is the share of foreign investors in the equity capital of the banks of country $i$ for year $t-1$, and $PERF_{i,t}$ is the ratio of net bank profits to total loans.[12] Table 1 presents the results. Consistent with our theoretical model, the presence of foreign shareholders in the equity capital has a significantly positive effect. The sign and significance of the coefficients are the same in the OLS fixed effect specification and the GLS error component specification. Both the null that there are no fixed effects is rejected and the null that there are no random effects are rejected. The null that the error component model is the correct specification is not rejected by the Hausman test. We also ran the regression including the lagged value of the performance in the right–hand side, instrumenting it, using the Anderson and Hsiao second step estimator. This did not alter the sign, order of magnitude or significance of the estimate.

Our theoretical model also relies on the assumption that, because of international diversification, foreign investors are less averse to African risk than the African people. To document this point we regress across countries and years, the ratio of bad loans to total loans on its lag and the percentage of foreign ownership. As in the above regression, we consider three different specifications, with i) fixed effects, ii) random effects, and iii)

[12] Note that we regress performance at time $t$ onto ownership at time $t-1$ to avoid simultaneity biases.

instrumented lagged dependent variable. Table 2 presents the results. Consistent with our theoretical framework, foreign ownership has a positive impact on risk–taking, reflected in the percentage of bad loans. Yet, the coefficient estimate is not very significantly different from 0.

### 5.2. The dynamics of foreign ownership

As discussed above, it is likely that the foreign investors sold back their shares of West African banks as they found out that the profits did not match their outside opportunities. The empirical implication is that foreign ownerships should be lower after realized profits have been low. To test for this we regress foreign ownership on the previous performance of the bank. As in the above regression, we consider three different specifications, with i) fixed effects, ii) random effects, and iii) instrumented lagged dependent variable. Table 3 presents the results. Consistent with our hypothesis, we find that changes in foreign ownership at time $t$ are positively related to performance at $t-1$, although the coefficient is significantly different from 0 only in the first two specification and not in the third one.

### 5.3. Was there something special in 1994?

In 1994 a number of events took place in West Africa. First and foremost the Franc CFA was devalued. Second and less importantly, debt conversion occured in some countries. To assess if these special events affected the performance of the banking sector, we ran the performance regression again adding as a regressor a dummy variable taking the value 1 for t=1994. The coefficient estimates for the dummy variable was not significantly different from zero.

## 6. Conclusion

Our analysis yields the following implications.

- Political interference is indeed a serious issue. Yet governments who have observed the devastating consequences of financial crises brought about by interference can be expected to then follow wiser strategies.
- Privatization and sale of shares to foreign investors may not be the panacea to reform the financial systems of developing countries. Foreign investors, are likely to be interested in high–risk/high–return ventures, given that the idyosyncratic risk associated to a given developing country is easily diversifiable in a large international portfolio. Consequently they are likely not to rule out (and possibly favor) risk taking strategies. Yet, such investment strategies, and the corresponding financial crises risks, can generate large costs for the undiversified inhabitants of developing

countries. In addition, in the context of a high–risk/high expected returns approach, foreign investors may not be the ideal agents to discipline non–benevolent governments prone to risk generating political interference.

- Strong and independent regulatory agencies could well propose a useful tool to ensure that governments do not indulge in political interference, and to rule out excessive risk–taking. In this sense, regulation is not made redundant by privatization. Quite to the contrary, independent regulatory agencies are key to ensure that privatized banking sectors play an efficient role in the financing of developing countries.

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## Appendix: data

We have collected data on balance sheet and income statement, aggregated at a country level, for the 7 countries of the Union Monétaire Ouest Africaine, from 1990 to 1997. In particular, we have data on bank profits (measured asProduit Net Bancaire), total loans (Total Emplois), bad loans (Crédits en Souffrance), wages (Frais de personnel), and operating costs (Coûts d'exploitation).We have also collected data on equity ownership, in the banking sector, by the government and by foreigners, for each bank from 1989 to 1997. These data stem from the Rapport de la Commission Bancaire, 1996 and 1997, the Notes d'Information et de Statistique of 1996 and 1997, and the Annuaires des Banques de l'UMOA (Union Monétaire de l'Ouest Africain). Furthermore, we have collected in the Annuaires des Banques of UMOA for each in the 7 countries the changes in CEO from 1990 to 1994. In addtion we have collected for Senegal, in the Notes d'Information et de Statistique of BCEAO, the split of credit to the different industries, country by country from 1990 to 1995. Finally, we have collected macro–economic indicators (such as inflation, gnp, investment) country by country, from 1990 to 1996.

**Table 1: The impact of foreign investors on profits.**
**Dependent variable: $perf_t$=ln (banks net profits/total loans)**
**Explanatory variables: $for_{t-1}$=lagged ln (foreign ownership)**
(t statistics are in parenthesis)
(49 observations)

| Model | OLS fixed effects | GLS error components | Anderson-Hsiao Second step estimator |
|---|---|---|---|
| $for_{t-1}$ | 0.79 (1.5) | 0.97 (2.22) | 0.62 (2.01) |
| $perf_{t-1}$ | | | -0.35 (–2.5) |
| p–value | p–value for F–test of null that all country dummies are equal 2.7 % | p–value for null hypothesis that 1) no individual error component (Lagrange Multiplier Test): 1.6 % 2) error component model correct specification (Hausman test): 55 % | |

**Table 2: The impact of foreign investors on risk**
**Dependent variable: ratio of bad loans to total loans (denoted $bad_t$)**
**Explanatory variables: lagged ratio of bad loans to total loans, lagged foreign ownership (denoted $for_{t-1}$)**
(t statistics are in parenthesis)
(49 observations)

| Model | OLS fixed effects | GLS error components | Anderson–Hsiao Second step estimator |
|---|---|---|---|
| $for_{t-1}$ | 1.13 (1.28) | 1.73 (1.96) | 1.1 (1.64) |
| $bad_{t-1}$ | | | 0.68 (3.07) |
| p–value | p–value for F–test of null that all country dummies are equal: 35.69 % | p–value for null hypothesis that: i) no individual error component (Lagrange Multiplier Test): 0.7 % ii) error component is correct specification (Hausman test): 0 % | |

**Table 3: The impact of profits on foreign ownership**
**Dependent variable: ratio of bank net profits to total loans (denoted $\text{perf}_t$)**
**Explanatory variables: lagged ratio of bank net profits to total loans, lagged foreign ownership (denoted $\text{for}_{t-1}$)**
(t statistics are in parenthesis)
(49 obserrvations)

| Model | OLS fixed effects | GLS Error Component | Anderson–Hsiao Second step estimator |
|---|---|---|---|
| $\text{for}_{t-1}$ | 0.74 (2.17) | 0.85 (2.61) | 0.23 (0.5) |
| $\text{perf}_{t-1}$ | | | 0.2 (2.45) |
| p–value | p–value for F–test of null that al country dummies are equal: 0 | p–value for null hypothesis that: i) no individual error component (Lagrange Multiplier Test): 0 % ii) error component is correct specification (Hausman test): 25 % | |

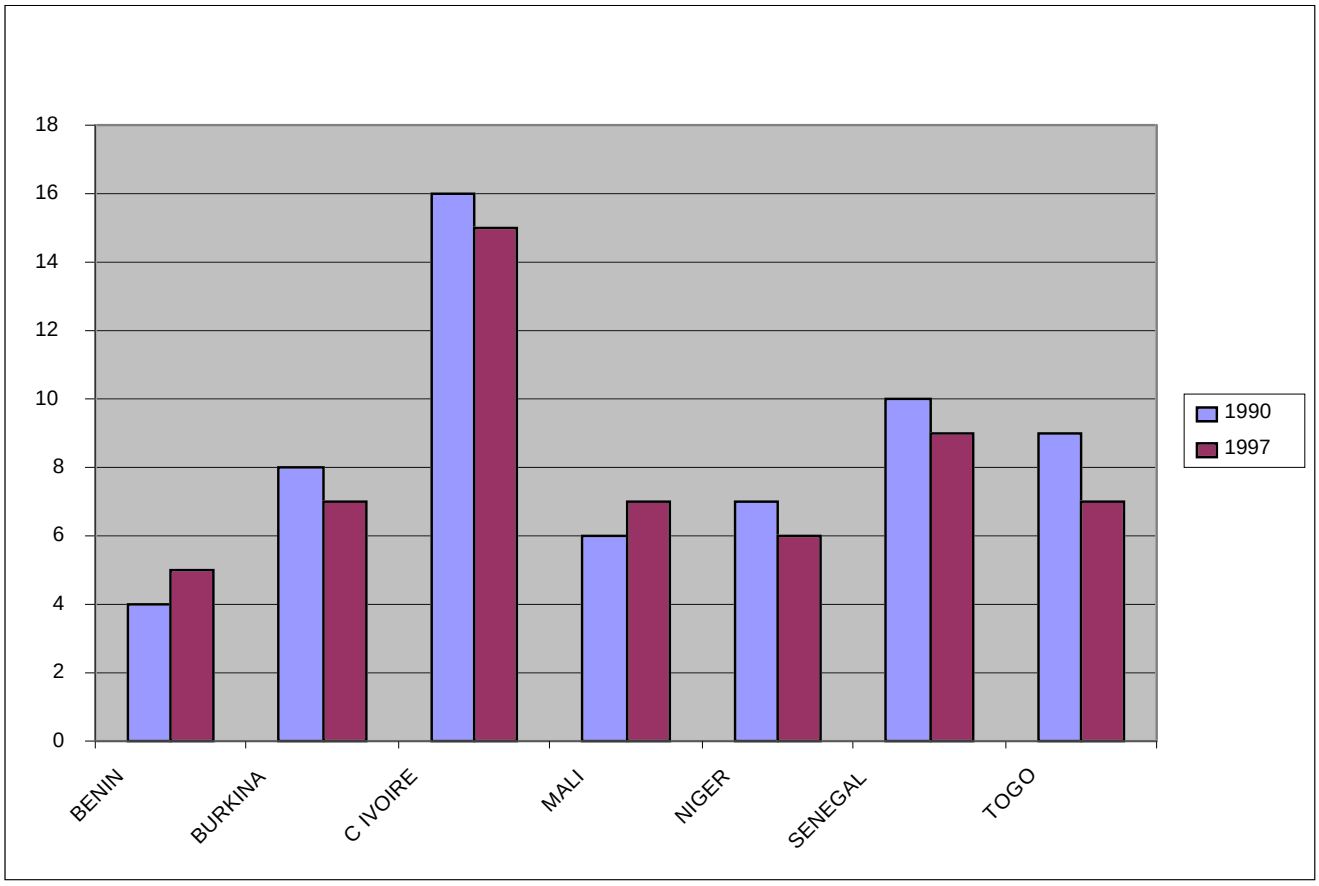


Figure 6.1: Number of banks in 1990 and 1997 country by country.

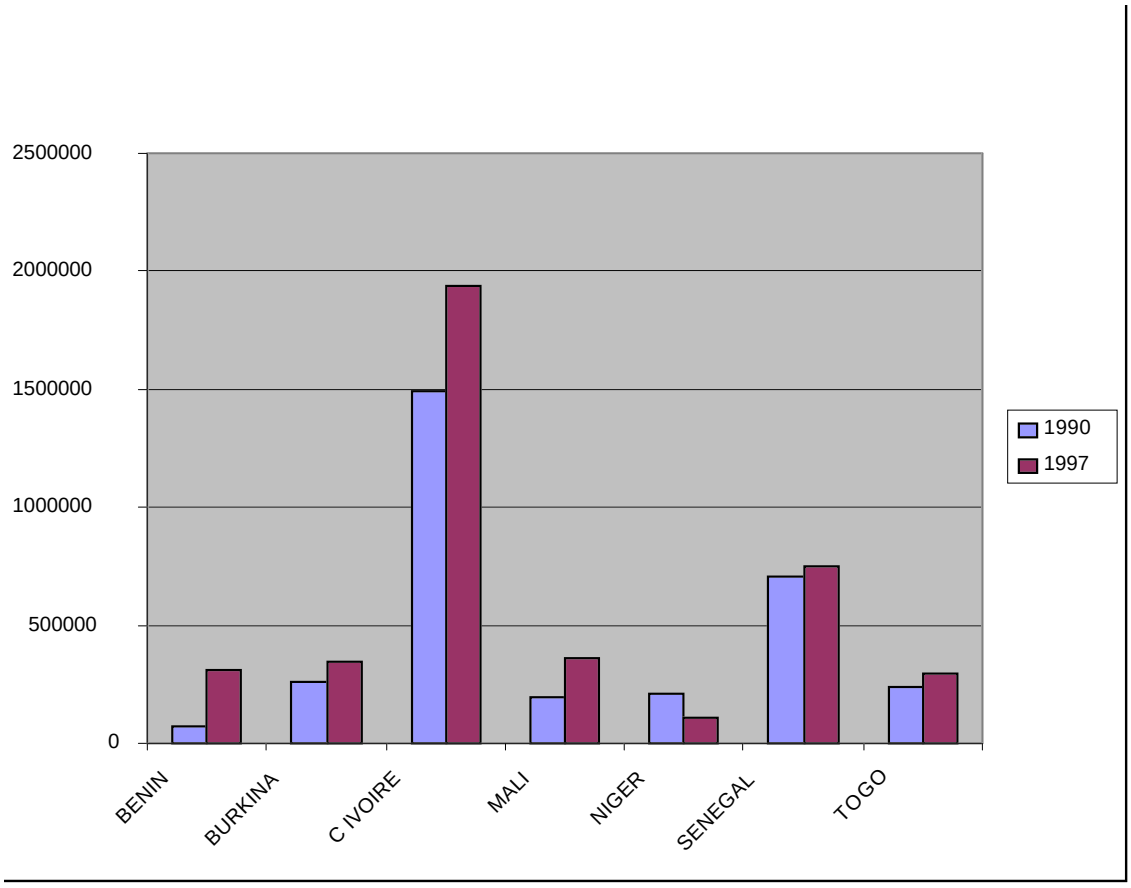


Figure 6.2: Value of total assets of the seven countries in 1990 and 1997

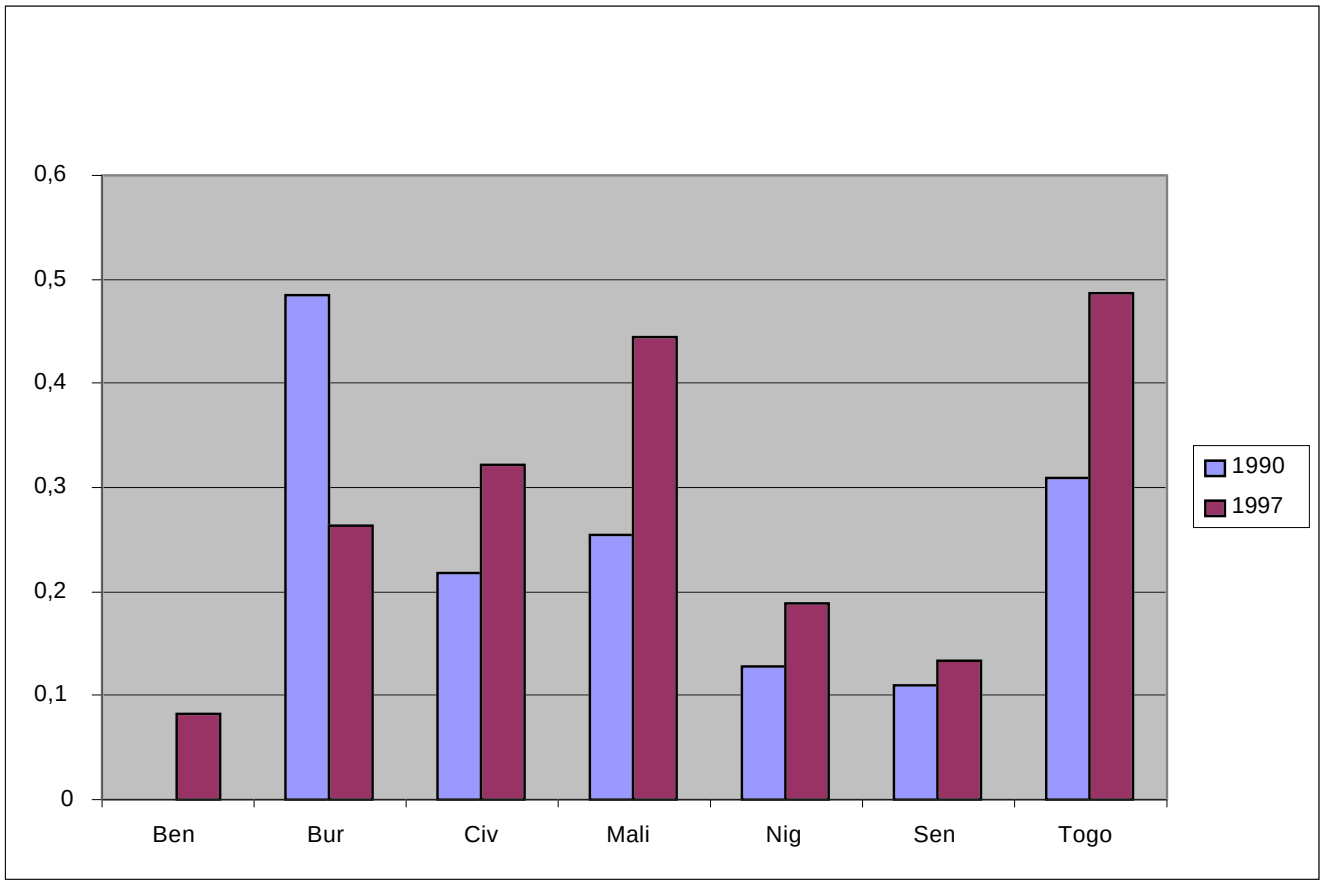


Figure 6.3: Government shareholdings in banking sector in West Africa in 1990 and 1997

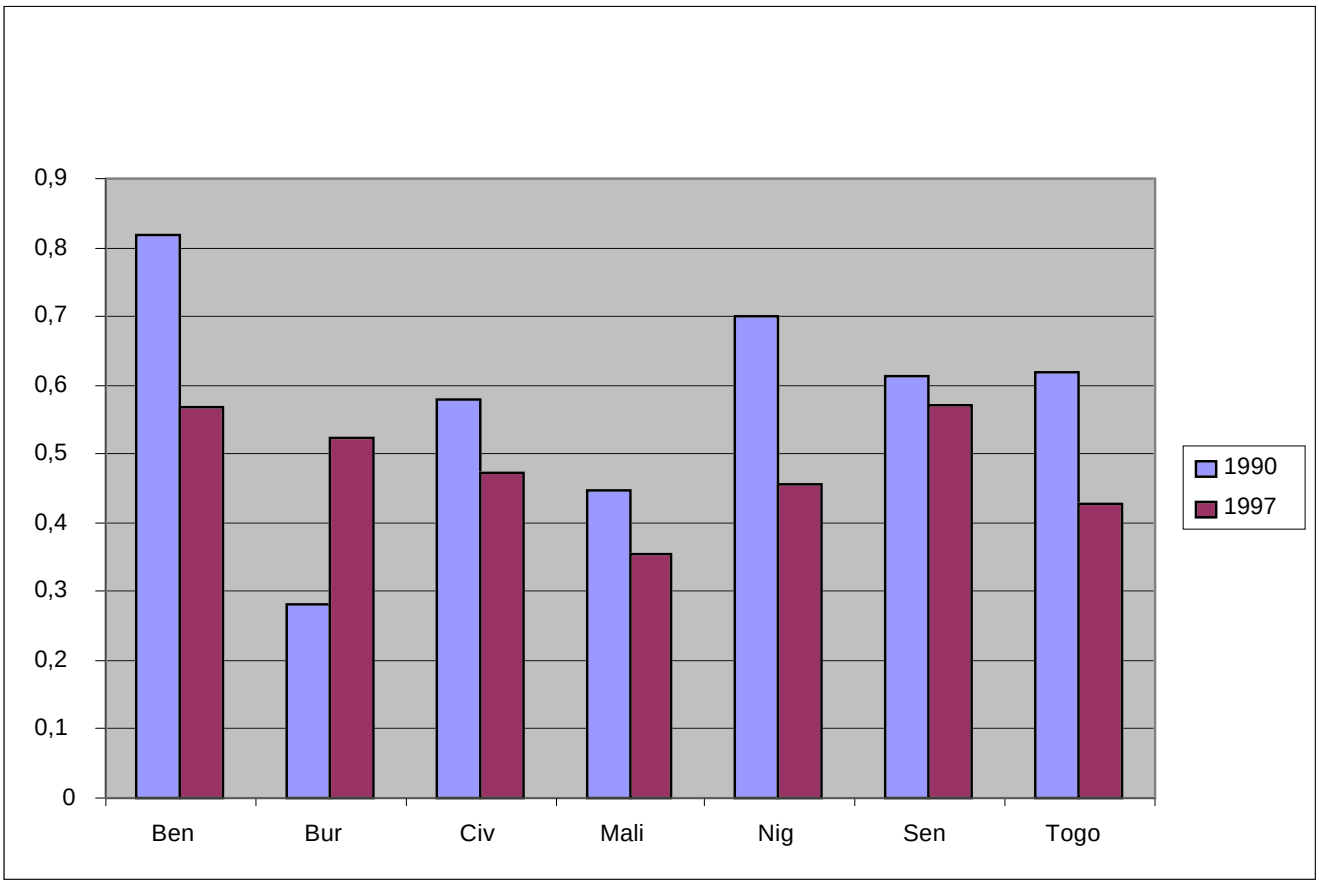


Figure 6.4: Foreign shareholdings in banking sector in West Africa in 1990 and 1997

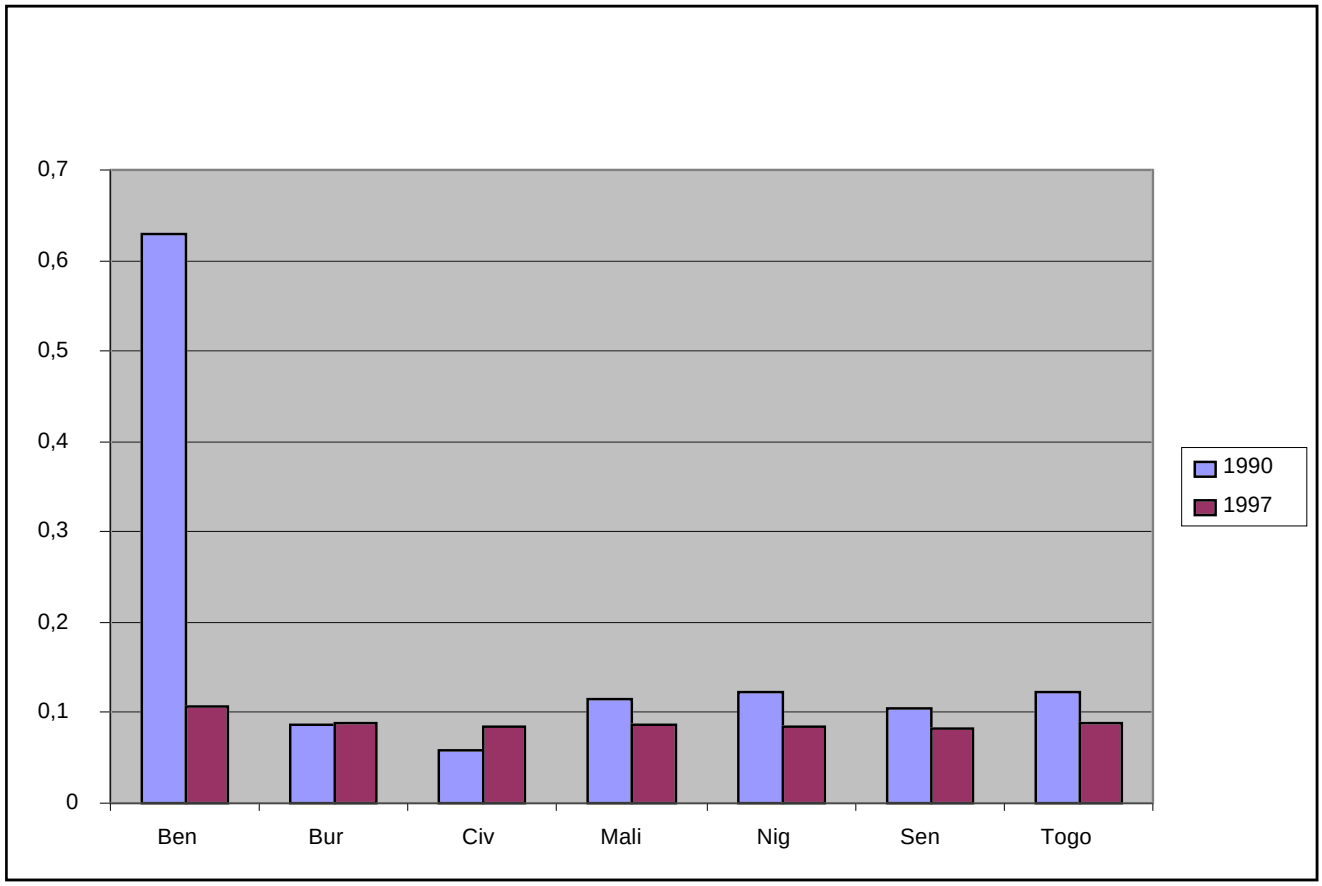


Figure 6.5: Ratio of net bank profit to total loans in West Africa in 1990 and 1997

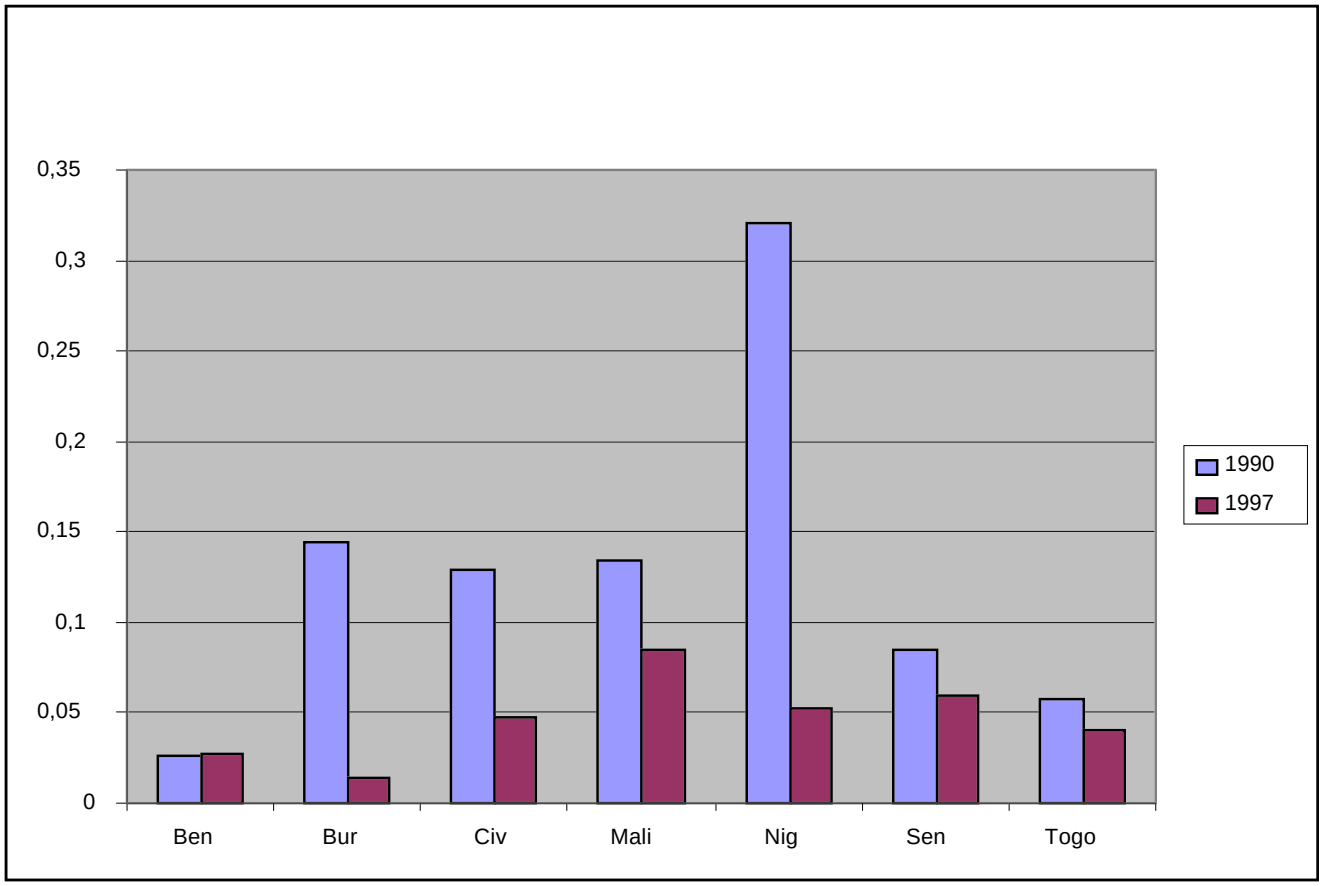


Figure 6.6: Ratio of doubtful loans to total loans in West Africa in 1990 and 1997

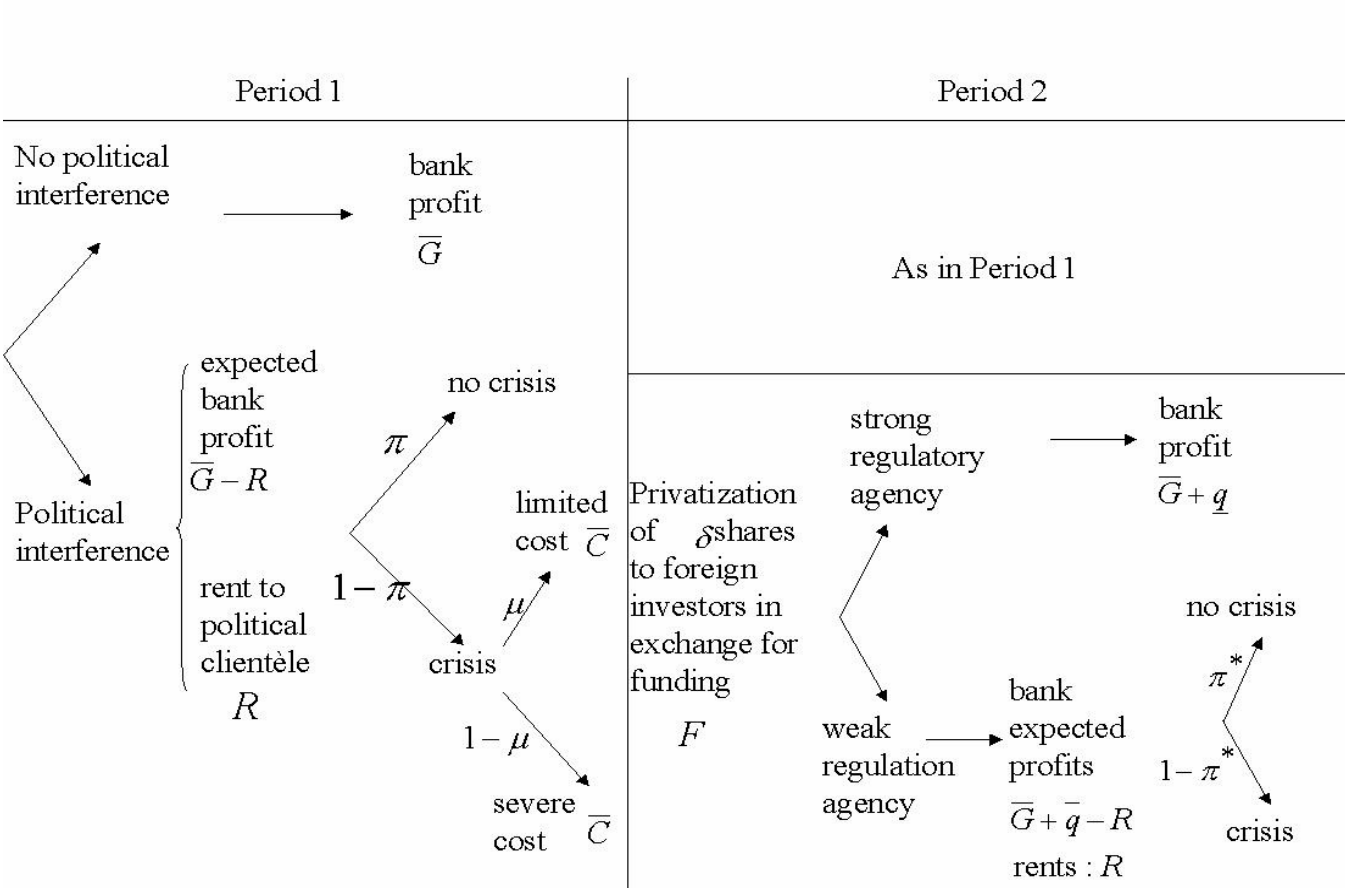


Figure 6.7: The sequence of events

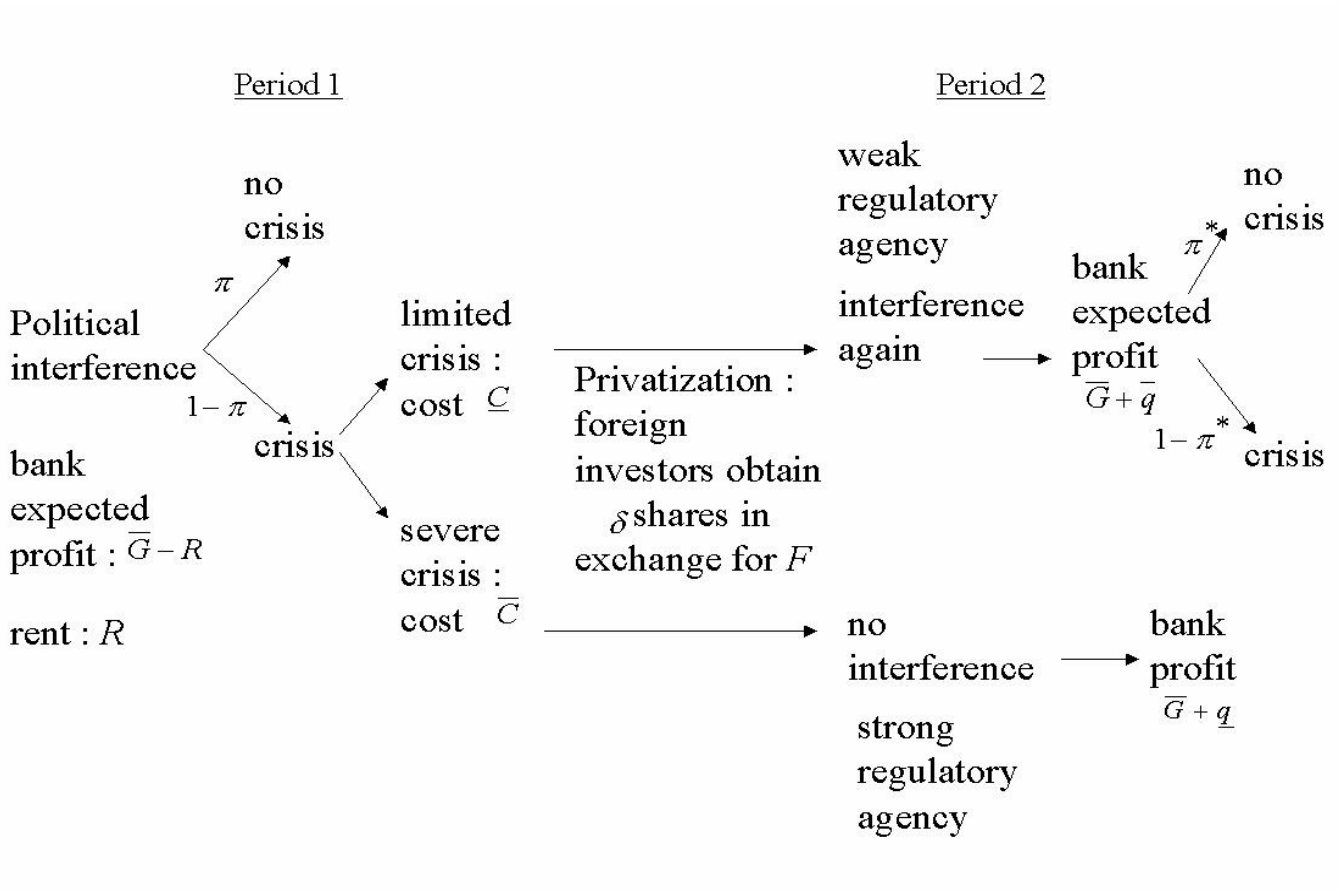


Figure 6.8: The equilibrium in proposition 1

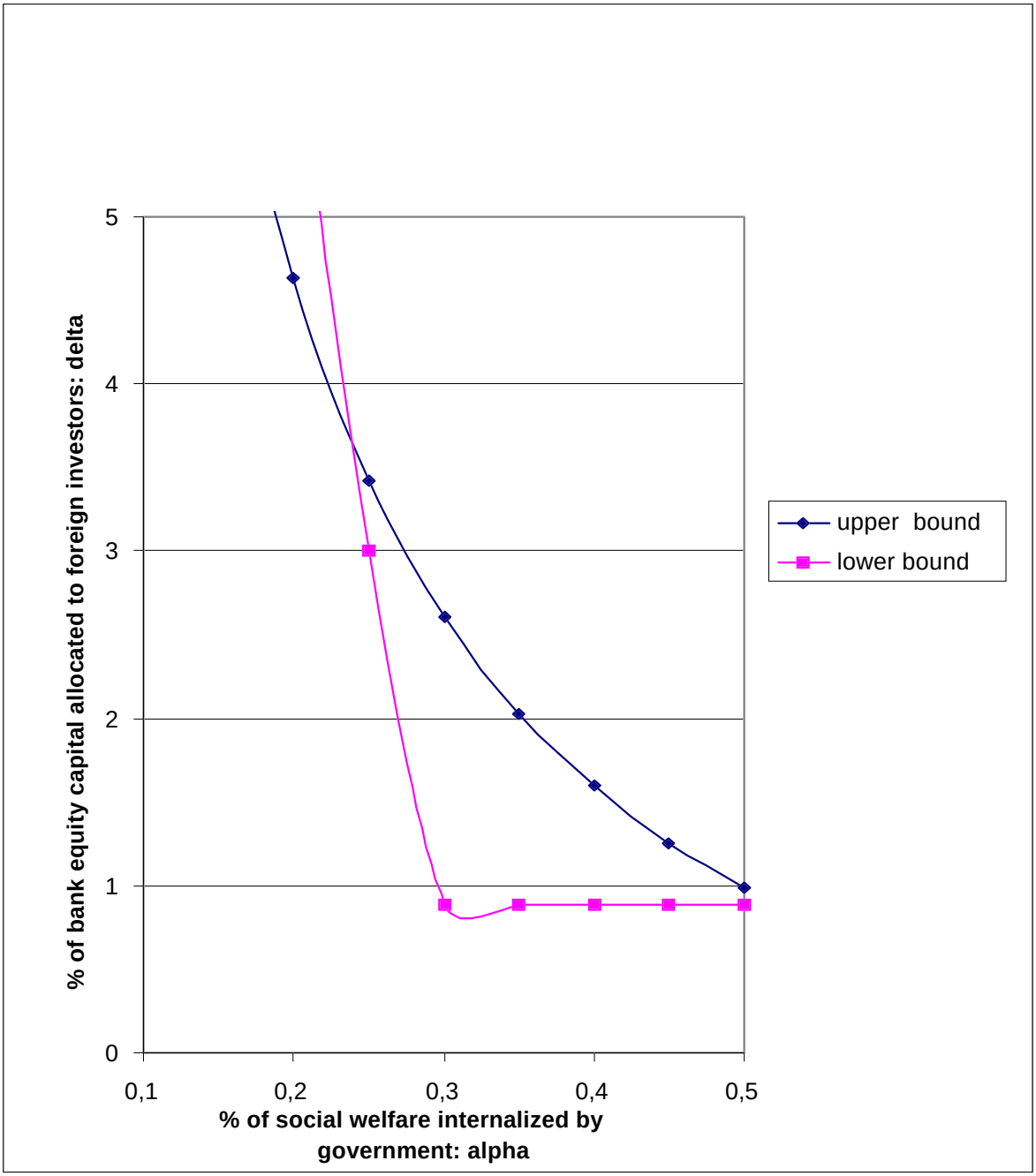


Figure 6.9: Upper bound for delta s.t. interference at 1st period and at 2nd period if no severe crisis, and lower bound s.t. foreign investors break even and no interference after a severe crisis