

Banking Deregulation and Industry Structure: Evidence from the French Banking Reforms of 1985

Marianne Bertrand, Antoinette Schoar and David Thesmar *

August 21, 2003

Abstract

This paper investigates the effects of banking deregulation on changes in banks' lending behavior and the ensuing incentives for firms to improve operations. Most importantly we analyze the implication of these changes on exit and entry decisions of firms and overall product market structure in the non- financial sectors. We use the deregulation of the French banking industry in 1985 as an economy wide shock to the banking sector that affected all industries, but in particular those that relied most heavily on external finance and bank loans. The deregulation eliminated government interference in lending decisions, allowed French banks to compete more freely against each other in the credit market and did away with implicit and explicit government subsidies for most bank loans.

Post deregulation, banks seem to tie their lending decisions more closely to firm performance. Low quality firms that suffer negative shocks do not receive large increases in bank credit anymore. Instead, these firms display much a higher propensity to undertake restructuring measures post-reform, e.g. reduce wages and outsource production etc. We also observe a strong increase in performance mean reversion post 1985, especially for firms that were hit by negative shocks. Moreover, we find that poorly performing firms experience a steeper increase in the cost of capital after the reforms than good firms. All these results are particularly strong for firms in more bank-dependent industries. On the product market side, we observe a strong increase in asset reallocation in more-bank-dependent industries, mostly coming from higher entry and exit rates in these sectors. We also find an increase in allocative efficiency across firms in these sectors as well as a decline in concentration ratios.

***Preliminary draft. Please do not circulate.** University of Chicago Graduate School of Business, NBER and CEPR; MIT, NBER and CEPR; ENSAE- CREST and CEPR. We thank Atif Mian, Sendhil Mulainathan, Stew Myers and seminar participants at the MIT finance lunch for helpful comments. Email: marianne.bertrand@gsb.uchicago.edu; aschoar@mit.edu; thesmar@ensae.fr.

1 Introduction

A central topic in finance and economics is the role of capital markets, particularly the role of banks, in economic development and growth. A large macroeconomic literature has documented a strong positive relationship between banking sector efficiency and economic growth.¹ Much less attention has been devoted to explaining the micro-foundations behind this reduced-form macro relationship.

One micro-foundation could be a variant of the credit channel which has primarily been used to explain business cycle fluctuations. The credit channel operates when frictions in the banking sector amplify macroeconomic shocks through changes in the cost of capital and has mainly been used to explain business cycle fluctuations. (See for example Bernanke and Gertler (1989), Kayshap and Stein (1994) or Holmstrom and Tirole (1997)).

In this paper, we empirically investigate a different mechanism for the role of banks. We study how banking reforms affect the industrial organization and dynamic evolution of all firms in the economy by changing how banks' allocate capital *across* firms. While studies of industry concentration and efficiency typically focus on *industry-specific barriers* to entry, our analysis suggests that banks can have first-order effects on industrial structure by affecting entry and exit rates, the number and size of firms in an industry, and the allocation of assets across firms and industries.

The current study analyzes the effects of the deregulation of the French banking sector in the mid 1980s on the lending behavior of banks and the effects on the structure and dynamics of the non-financial sectors in the economy. This reform provides an economy-wide shock that affected all firms and industries but in particular, as we will show, those industries that relied more heavily on external finance prior to the reform. The deregulation eliminated government interference in bank lending decisions, abolished subsidized bank loans, and allowed French banks to compete more freely against each other in the credit market. According to most observers, the main effects of the reform were to introduce a stronger profit maximization motive and to increase competition within the banking sector.

While our analysis will naturally be restricted to a single country, the types of distortions that were present in the French banking sector prior to the reform are rather typical of the distortions

¹See for example Gerschenkron (1962), King and Levine (1993a, 1993b), Jayaratne and Strahan (1996), Rajan and Zingales (1998), Demirguc-Kunt and Maksimovic (1998), Levine, Loayza and Beck (2000).

in place in many other countries. State-ownership of banks, forced lending, subsidized credit, non-performing loans and limited competition are indicative of the banking sector in many developing countries. In many of these countries, governments are also often directly or indirectly involved in bank dealings, either through state- ownership, or through some price and quantity regulation. In this regard, the French deregulation experience should provide an informative and more general perspective on the consequences of banking reforms.

A second advantage of focusing on the French experience is the availability of very detailed and exhaustive firm-level data. While most commonly used international firm data sets cover only publicly traded firms, our data includes both private and public firms. The coverage of private firms is important in at least two regards for our study. First, the effect of banking reforms might be particularly relevant for smaller private firms rather than the larger public firms, since the former have access to few other sources of external finance besides bank loans. Second, because we are interested in the impact of the reform on industry-wide structure and dynamics, it is essential to include private firms in this analysis as these represent a large fraction of all economic activity in France. More broadly, such a coverage of private firms is essential for any generalization of our results as most of the countries that rely heavily on bank finance tend to have a much larger fraction of private firms than the US.

A few recent papers have documented the impact of U.S. interstate banking on firm entry, number of firms and firm size distribution in the non-financial sectors (see Black and Strahan (2002), Cetorelli and Strahan (2003)). Our contribution to this prior literature falls along two important dimensions. First, the main effect of the French banking reform was an increase in the efficiency of the banking sector rather than a positive shock to credit availability as is the case for the U.S. banking deregulation. In fact, one important consequence of the French banking reform was a sharp drop in the amount of new bank loans provided and an overall increase in the cost of capital due to the quasi-elimination of subsidized loans. In this regard, the French banking deregulation may be more representative of the reforms that might occur in many other countries where banks are still operating under tight governmental controls. Second, the detailed firm-level accounting data we use in this study allow us to analyze the specific impact of the reform on the capital allocation process across firms, firm level responses to these changes in lending practices, and overall implications for gross asset and employment flows, as well as industry structure.

Using a firm-level panel over the period 1978 to 1999, we first document large changes in capital structure and banks' lending behavior following the reform, especially for the industrial sectors that were most reliant on bank debt prior to the reform. We find a sharp decline in bank debt, especially among small and lower performance firms. This decline is in part compensated by a strong increase in trade credit for these firms. These changes in bank lending, in combination with the deregulation of interest rate, also led to a significant increase in the cost of capital in the most bank dependent sectors. Following the deregulation, we also find a significant increase in the interest rate spread between poorly and better performing firms. Moreover, banks appear now more reluctant to extend credit to firms experiencing negative shocks to performance. Lastly, we show that firms that receive net new loans post deregulation show much stronger improvements in future performance. This indicates that bank lending has become predictive of firms' future performance. Overall, these results are consistent with improved monitoring or screening by banks after the reform.

In a second step, we look at the behavioral response of firms to these changes in the banking sector. We find that firms in bank-dependent sectors are more likely to undertake cost minimizing measures following the reform. They are more likely to reduce wages, outsource some of their activities, and become somewhat less employment intensive. We also observe a strong decrease in the persistence of firm-level shocks to performance after the reform. This decrease in persistence is especially strong for those firms that have been hit by a negative shock to performance.

In a final step, we look at the implications of these changes on industry dynamics and concentration ratios. We analyze industry-level asset (job) creation through investment by existing firms and entry of new firms. We also look at industry-level asset (job) destruction, both through divestitures by existing firms and exit of firms. Our results indicate increased reallocation Rates in the bank-dependent sectors. Most interestingly, the reallocation rates increase most on the extensive margin, i.e. through entry and exit decisions. These results are consistent with a view where the banking sector distortions created artificial barriers to entry in the most bank-dependent industries. New potential entrants may have been discouraged by the easy access to cheap credit for incumbent firms. We also find suggestive evidence of improved allocative efficiency in the most bank-dependent sectors, with better performing firms controlling higher market shares after the reform. Finally, industry concentration (measured either using a Herfindhal index or based on the market share of the largest firms) decreases in bank-dependent sectors. Overall, most of our results

on industry structure are reminiscent of the Schumpeterian idea of “creative destruction.” Banks appear to have a more Central role in improving market dynamics in the post-reform period.

The rest of the paper is organized as follows. In section 2, we describe in more details the institutional changes that took place in the French banking industry around 1985. Section 3 summarizes the related theoretical and empirical literature. In section 4, we describe the data sources and sample construction. We also define the major variables used in the analysis. The results are reported in Section 5. We summarize and highlight directions for future extensions in Section 6.

2 The French Banking Deregulation of 1985

The 1985 banking reform we focus on marked a dramatic change in direction for a banking sector that had been subject to multiple forms of government interventions for more than 80 years. Since the turn of the century, the French government has exerted strong control over banks. For example, certain banks (known as *mutuelles*) were granted tax exemptions, monopolies over some types of deposits (such farmers’ deposits for the Crédit Agricole) or monopolies over certain types of loans (such as construction for the Crédit Foncier). In 1945, some of the biggest banks (Société Générale, Banque Nationale de Paris) became state property. De Gaulle’s 1945-1946 reforms imposed further distortions in the banking sector by creating a division between deposit and investment banks, thus preventing short-term deposits from providing long-term finance to the industry.

The bureaucratic reaction to the 1970s economic turmoil further strengthens state involvement in the banking sector. In the aftermath of the oil shock in the early 1970s, the French economy experienced a continuous productivity slowdown. A combination of miscalculated government interventions, intense labor-capital conflicts and pressures through the European currency union left the French economy with high levels of inflation, large budget deficits and growing unemployment. In an attempt to revive job creation, the conservative government of the late 1970s set up a system of bank loan subsidies with the intention to encourage firms to invest and export more.² By 1984, subsidized loans accounted for some 50% of all loans granted in France. At the same time, banks were increasingly accumulating non-performing loans.

²Loan subsidies had existed throughout the post war era, but they rose in importance in the 1970s (Melitz, 1990). Loan subsidies were granted to selected industrial projects with the Treasury’s approval.

Distortions did not only come from subsidized loans, but also from the way monetary policy was conducted. Monetary authorities imposed quantitative ceilings on the number of loans banks could grant, a procedure known as *encadrement du crédit*. This quantity regulation interacted with the loan subsidies in a most perverse way. Since subsidized loans were regarded as ‘national priorities’ by the bureaucracy, they were exempted from the quantitative ceilings. Banks therefore started to grant more and more of these loans.

When the socialist government came to power in 1981, it undertook a wide-ranging nationalization of the banking sector. While some of the largest banks were already state owned since World War II, 36 more banks were purchased by the state in 1982. At the end of this process less than 1% of total credits and deposits remained managed by private banks (Anne Politique, 1981). This increased the pressure on state-owned banks to bail out failing industrial groups even more than before.

However, by 1983 this interventionist approach was threatening the banking sector with *immobilism*, as a report by the Senate put it. Professionals from the industry shared this viewpoint (Anne Politique, 1983). In fact, the French financial industry at the time was so heavily regulated that prices played almost no role in the allocation of capital. In short, the French banking market in the early eighties was facing three serious structural problems: (1) half of the loans were subsidized, (2) monetary policy was conducted through quantity rationing, *encadrement du crédit*, not interest rates, and (3) banks faced serious restrictions in their ability to compete with each other because of regional and industrial segmentation of credit markets.

The evident failure of these policies, combined with personnel changes in the government, explain why the socialist government moved from the plan to the market in the mid-1980s. Three sets of reforms relating the banking industry took place in 1984-1985. First, starting in 1985 nearly all subsidized loans were eliminated.³ Between 1984 and 1986, subsidies went down drastically, from 38 to 12 billion francs. Second, the quantitative “encadrement du credit” was abolished in 1985. Monetary policy was now conducted through interest rates on the money market and through legal reserve requirements. Hence, from 1985 onwards, banks were given more flexibility in the allocation of their loans. Finally, the 1984 banking act, implemented in 1985, epitomizes the restructuring of the French credit market. This act removed a myriad of banking regulations and

³The only exception were some loans to “small firms,” whose total sales were below 1 billion francs (about 150 million dollars at the time).

regulatory authorities, and consolidated all banks under the supervision of one authority, known as the “Commission Bancaire.”

The enactment of the 1985 banking reforms was followed by a sharp decrease in the leverage of French firms. According to the flow of funds data published by the Bank of France, the ratio of total debt to assets was very high in the early 1980s, around 70%. Within two years after the reforms, this ratio went down by 20% and remained stable around 50% over the 1986 to 1996 period (see Figure 1). Half of this decrease in leverage was due to a reduction in bank loans, which went down from 35% to some 25% over the same time period.

Part of this aggregate trend might be explained by the sharp increase in interest rates in the mid-1980s, which reached its highest level in the early 1990s (Figure 2). Indeed, monetary policy was tightened from 1983 onwards in order to fight inflation; the resulting increase in interest rates likely reduced the use of bank loans. It seems, however, that tighter monetary policy cannot be the sole force behind the sharp decrease in leverage. Most importantly, the change in capital structure occurred very quickly after 1985 and stabilized thereafter, while the increase in real interest rates continued progressively until 1992.

3 Literature Review

In our empirical analysis, we focus on the importance of banks in the capital allocation process across firms and industries. In particular, we study how a reduction of government involvement and stronger reliance on market forces and the profit motive in the banking sector affects the allocation of credit in the economy, firm behavior and possible spillover effects on the industrial structure of the non-financial sectors.

A large theoretical literature in banking has highlighted two main functions that banks perform in the capital allocation process: (1) ex-ante screening of firms, i.e. reducing the adverse selection problem between investors and firms, and (2) ex-post monitoring of firms, i.e. alleviating the moral hazard problem after capital has been invested.⁴ Our goal in this section is to summarize the possible empirical implications of this theoretical literature for firm behavior and industry structure.

The idea that banks effectively reduce the information asymmetry between borrowers and lenders has a long tradition in the finance literature. See for example Leland and Pyle (1977)

⁴For a detailed overview of this literature, see Gorton and Winton (2002).

or Innes (1989). If banks have stronger incentives, or higher ability, to carefully screen creditors, fewer loans should be granted to firms whose true underlying credit quality is bad. One would also expect the spread in the cost of capital for higher versus lower credit quality firms to increase. Stricter screening by banks should affect all firms in an industry, since only those firms that are of high credit quality are able to access the credit markets in the future. This provides incentives for firms that experience negative shocks to performance to take measures to improve their credit quality.

A second important strand of the literature emphasizes banks' comparative advantage in monitoring firms. One of the seminal papers focusing on the role of banks as delegated monitors is Diamond (1984). An improvement in the efficiency of bank monitoring would lead to a reduction in moral hazard *ex post*. From an empirical perspective, better monitoring implies that, conditional on getting a loan, firms should become more efficient. This would be observable in the form of reduced bankruptcy probability conditional on lending, since firms would be less able to hide poor performance, and faster recovery of firms that experience a negative shock. If we assume that worse credits require more (costly) monitoring than good credits and banks want to break even on a individual loan, these models would also predict higher interest rates for "bad" firms than for "good" firms.

Observationally, the predictions of the monitoring model are very similar to those of the screening model. This is the case because we cannot observe the actual process of screening or monitoring, but can only measure *ex ante* conditions and *ex post* outcomes. In fact, one important function of banks is precisely the ability to incorporate in the lending decision information that is not observable to an outsider. So, for example, if we observe an increase in performance following the grant of a new bank loans, this could be due to banks spending more time monitoring firms, or banks lending to firms that will have better prospects of repayment, or both mechanisms. While we might not be able to differentiate the exact mechanism through which banks might improve firm behavior, our first-order goal is to understand *whether* the banking reforms had an effect on firm behavior.

A reduction in moral hazard and information asymmetry between banks and their creditors has possible broader implications for industry structure and concentration. If banks are less willing to provide financing for firms with poor projects and only finance those with positive NPV projects,

good firms can invest more and will grow faster than bad firms. On the flip side, if worse performing firms cannot find other sources of external finance they will shrink and ultimately drop out of the market. Another implication of this change in capital allocation could be that entry may become more attractive. Since (lower quality) incumbents will no longer be bailed out by banks, startups that operate more efficiently will be able to compete more easily with incumbents. A similar argument was recently made Caballero, Hoshi and Kyashap (2003) in the context of the Japanese banking crisis. Overall, because of the exit of comparatively weaker firms, superior bank screening ability should result in an increase in allocative efficiency within a sector, with better firms controlling larger market shares.⁵

It is important to note that the theoretical literature does not offer unambiguous predictions on the economic effect of a more competitive financial sector. A different strand of this literature highlights the potential drawbacks of a greater reliance on competition and profit motives in the banking sector, if these threaten the long-term nature of the lender-borrower relationship. For example, Petersen and Rajan (1995) present a model where increased competition in the banking market can in fact lead to inferior outcomes, i.e. many positive NPV projects do not get funded. They postulate that in a competitive banking market where lenders face ex ante uncertainty about the quality of a firm, lenders will offer an interest rate that reflects the average quality of the pool of creditors. If the lemons problem in the credit market is severe, this can result in very high interest rate, which in turn could induce even good credits to take riskier bets. Such a risk-shifting a la Stiglitz and Weiss (1981) can lead to credit rationing in the economy. In contrast in a less competitive banking environment, banks can charge ex ante lower interest rates, since they can expect to break even by charging firms more once they become successful. Under this scenario, an increase in the competitiveness of banks would result in higher cost of capital, since cross subsidization ex post will not be possible anymore, and less firm entry overall.

⁵A third set of papers analyzes the potential for hold-up between monopolistic banks and their borrowers. If banks have market power, they are able to extract more rents from the borrowers ex post, which in turn leads borrowers to under-provision of project specific investments. See for example Sharpe (1990) and Rajan (1992). These studies predict that an increase in the competitiveness of the banking sector leads to less potential for hold up and thus increased investment by entrepreneurs and better overall performance. A related prediction is that the cost of capital for good firms will go *down* over time, since there is less scope for hold up.

4 Data Source

The firm- and industry-level data sets used in this study are based accounting information for all French firms, public or private, whose annual sales exceed 100,000 Euros in the service sector and 200,000 Euros in other sectors. This accounting data is extracted from the tax files used by the Ministry of Finance for corporate tax collection purposes. French firms above one of these two thresholds are required by tax authorities to fill in a detailed balance sheet and profit statement. Because individual firms can be tracked over time in this data by the use of unique identifier, one can construct a panel data set providing detailed balance sheet and profit statement information for all firms above these thresholds. Also included in the data is a 4-digit industry classification that is very similar to the SIC coding system in the US. In addition, the data also contains firm-level employment figures that have been crosschecked with information from employer labor tax reports.

4.1 Firm-Level Sample

Our firm-level sample covers the period 1978 to 1999. Because the tax files cover some 600,000 firms each year, we decide to focus for the firm-level analysis on firms with revenues above 30 million Euros or firms with at least 500 employees. More specifically, firms enter our sample if they lie above any of these two thresholds for more than three years. We then follow these firms throughout the full sample period or until they leave the tax files data. We end up with a data set that has about 135,000 firm-year observations, which corresponds to about 7,500 firms per year.

Throughout the text, corporate performance is measured using return on assets (ROA), computed as the ratio of operating profits to total assets. Operating profits are computed as sales minus intermediate consumption minus wages minus employer taxes. We also compute operating margin (ROS), which is measured as the ratio of operating profits over total sales.

Capital structure is computed using balance sheet information. We use four different measures of capital structure:

1. Equity, which is defined as the ratio of book value of equity to (book value of equity + debt + trade payables);
2. Trade credit, which is the ratio of trade payables to (book value of equity + debt + trade payables);

3. Leverage, which is defined as the ratio of (debt + trade payables) to (book value of equity + debt + trade payables);
4. Debt, which we define as the ratio of debt over (book value of equity + debt + trade payables).

In most of our analysis, we will use this last measure to compute our proxy for banking dependence. This is clearly a somewhat controversial measure, since this measure also includes group loans, debt owed to the owners of the firms, and payables to the tax authorities and social security administration. We choose to focus on this measure due to a limitation of the data in the pre-1984 period and the need to measure firms' debt uniformly over time.

Due to a change in accounting regulation in 1984, balance sheet information is somewhat less detailed before 1984. Prior to 1984, total liabilities are broken down into: debt and trade payables. Debt is then divided into debt with less than a year of maturity and debt with more than a year of maturity. Debt with less than a year of maturity includes (1) credit lines (2) indebtedness to the state and social insurance and (3) short-term loans from owners and potentially other group firms (if the firm is part of a business group). Debt with more than a year of maturity is divided into bonds (which is rarely above zero in our sample) and other long-term debt. After 1984, there is substantially more detailed information on long-term debt. Total non-trade related debt is broken down into: (1) non-financial debt (indebtedness to tax authorities and social security) and (2) financial debt. Financial debt is then broken down into (1) bonds, (2) bank debt and (3) other financial debt. Bank debt is itself broken down into credit lines, short-term bank loans (less than 2 years of maturity) and long-term loans. Other financial debt includes group and owner loans.

Based on calculation for the post-1984 period, we estimate that non-bank debt represent about 30% of total debt excluding trade payables. We also used the post-1984 data and verified that this measure, while likely a noisy estimate of bank debt, is however very strongly correlated with actual bank debt. The correlation is about .8.⁶

We measure capital cost as the ratio of interest payments on financial debt over debt minus trade credit. Investment is measured as the ratio of capital expenditures (in terms of tangibles and intangibles) to total fixed assets (including tangible, intangible and fixed financial assets, i.e. long-term loans granted by the firm, or shares in other firms).

⁶The high correlation of the two measures is not surprising given that two of the main components of non-bank debt, payables to the tax authorities and social security administration, vary little for a given firm size.

Based on this firm-level data, we construct a measure of banking dependence by sector in the pre-reform period. Due to the data limitation highlighted above, we define this measure as average debt (over book value of equity plus debt plus trade payables) at the 4 digit-industry over the years 1978 to 1983. We compute both non-weighted and asset-weighted measures. While we will focus our analysis on the non-weighted measure, these two measures are highly correlated and our results are unchanged when we use the asset-weighted measure instead.

A more precise measure of true industry-level banking dependence could be computed based on the more detailed post-1984 data. However, one major difficulty with this alternative measure is that it is nearly contemporaneous with the changes in the banking sector. As we discussed above, the change in lending were quite abrupt and immediate following the reform and one might therefore be concerned that the measure would be endogenous to the banking reform. For the sake of completeness, we however replicated all of all results based on this alternative industry-based measure of bank debt in 1984. This measure was highly correlated to the pre-1984 measure we focus on in our analysis. Also, all of our findings carried through under this alternative measure..

4.2 Industry-Level Data

All of the industry-level measures used in the second part of the empirical analysis are constructed from the full corporate tax files data set (hence, covering about 600,000 firms each year). Again, we compute these industry measures for the period 1978-1999.

For each 4-digit industry/year cell, we compute two different measures of concentration: a sales-based Herfindhal index and the market share (in terms of sales, asset and employment) of the largest firms in that industry/year cell. There is a clear, though moderate, aggregate downward trend for these concentration measures over the period under study.

We also construct industry-year measures of asset and employment reallocation, as well measures of number of firms entering and exiting a given industry each year. Measures of reallocation on the intensive margin are based on incumbent firms. Using firms that were present in the industry in the previous year, we construct the sum of all positive changes in assets or employment. For these incumbents firms, we also construct the sum of all negative changes in assets or employment.

Measuring reallocation on the extensive margin is somewhat more complicated. One source of complication is the substantial amount of industry switches. For example, industry switchers

represent about 25% of all entries in an industry in a given year. It is unlikely that this is solely the results of noisy data, as the industry information is crosschecked by INSEE using alternative survey tools on firm activities. However, we decided to be conservative and separately tracked “true” entries and exits and entries and exits due to firms switching industries. For these two types of entry and exit measures, we computed flows in terms of number of firms (entering and exiting an industry), assets (created or destroyed) and jobs (created or destroyed).

5 Results

5.1 Changes in firm-level capital structure

The aggregate trends reported above document large changes in the capital structure of firms following the banking reform. However, aggregate trends do not allow us to definitively separate effects of the banking reform from larger macroeconomic changes in the economy. Therefore, we now turn to firm-level data to get a better perspective of which firms and which industrial sectors were most affected by these changes.

Table 2 reports, by firm size and performance quartiles, the evolution of bank debt as a fraction of total financing. We sort firms into size and performance quartiles, where size is measured as total assets and performance as ROA. In panel A, we report pre-reform levels based on 1983 averages; in panel B we report post-reform levels based on 1987 averages. While the overall averages confirm the drop in leverage we saw in the macro data, we find that the smallest firms experience the biggest declines. Moreover, within these smaller firms, the worst performing ones experience the sharpest changes. Interestingly, among larger firms, the better performing firms seem to experience larger drops in bank dependence.

One can speculate about why we see the largest declines for these two distinct groups of firms. As discussed above, part of the banking reforms was a drastic reduction of the amount of subsidized loans to firms. The resulting increase in the cost of bank capital after the reforms changed the optimal capital structure of firms. Firms that had access to alternative sources of capital tried to switch away from expensive loans. Since large firms with good performance usually have easier access to other sources of financing (such as equity, bond etc.), it is intuitive that these firms displayed a sharper decline in their bank leverage.

On the other hand small firms have only very limited access to other sources of financing. Among these firms, we see the sharpest decline in leverage for the poorly performing firms. This could be a first indication that banks became more selective in their lending practices after the reform.

Our empirical strategy below will rely on identifying the effect of the reforms from differential effects in the sectors that dependent most on banks prior to the reforms. Our hypothesis is that industries where banks play an important role in financing projects should have been more strongly affected by the distortions in the banking sector prior to 1985 and should therefore also show the strongest response post 1985. This identification strategy will allow us to separate the impact of the banking reforms from other macroeconomic shocks that might have affected the French economy during this time period. As the description of the macroeconomic climate in section 2 highlights, this is important because the 1980s were characterized by changes in business cycle activities.

However, before we can proceed with this empirical strategy, we first need to verify that the most bank dependent sectors indeed experienced the largest changes in capital structure after the reform. In particular, we want to see whether the decrease in leverage documented above was disproportionately concentrated in the sectors that depended most strongly on bank financing. We study this question in Table 3.

The regressions reported in this table follow the standard estimation approach that we will use for most of the analysis. Each regression includes a dummy for the post-reform period, an interaction of that dummy with the pre-reform level of bank dependence in the firm's industry, firm and year fixed effects and a control for firm size (the logarithm of lagged sales). The regressions also allow for differential time trends by industry. We account for serial correlation by clustering standard errors at the firm level. In the even columns of Table 3, we also allow for differential changes in capital structure based on firm performance, which we proxy with ROA in the base-year.

The findings in this table confirm that firms in more bank-dependent sectors experienced the largest changes in capital structure. The dependent variable in column 1 is bank debt as a fraction of total assets. Firms in more bank-dependent sectors experience a larger drop in bank debt after the banking reform. This drop in bank debt is only in part compensated by an increase in equity

finance (column 3).⁷ Most strikingly, we see that firms in bank-dependent sectors experience a substantial relative increase in the use of trade credit after the reforms (column 5). In addition, we find that the increase in trade credit is particularly large for the poorly performing firms in the bank-dependent industries, while the better performing ones are less likely to rely on this form of relatively expensive financing (column 6). This suggests that poorly performing firms may have suffered from more severe capital rationing than better performing ones.⁸

Finally, the effects of the banking reform are also reflected in an increase in the cost of capital, which is again especially strong for the firms in the bank-dependent sectors (column 7). This change reflects the reduction in the number of subsidized loans and other forms of forced lending. We also find that this increase in capital is more pronounced for low performance firms (column 8).

Overall, the patterns in Table 3 confirm that the reform of the banking sector had a substantial impact on the capital structure of French firms, especially those firms that were previously most reliant on bank loans. However, these results could be largely driven by changes in firms' *demand* for bank capital. Due to the increase in the cost of capital, firms might be optimally restructuring their financing by relying less on bank loans. This might be independent of any change in the behavior of banks towards stricter monitoring and screening of creditors. In the following section, we therefore turn to a more detailed analysis of changes in banks' lending behavior.

5.2 Changes in banks' lending patterns

Are banks changing their lending behavior after the reform? To address this question, we first look at the correlation between new net bank loans and shocks to firm performance. The idea is that we would expect to find a greater willingness of banks to "bail out" poorly performing firms prior to the reform and a reduction of this behavior post reform. Second, we will analyze whether, conditional on getting new bank loans, firms are more likely to improve their performance after the reform. An improvement of the bank monitoring and screening abilities should reduce the provision of credit to firms that will subsequently perform poorly.

In Table 4, we study firm-level changes in bank debt as a function of firm-level changes in ROA. All the regressions included in this table include industry and year fixed effects, a control for

⁷Our sample covers both listed and non-listed firms. We find that the increase in equity financing in previously bank dependent sectors was especially strong for the listed firms in these sectors.

⁸See Rajan and Petersen (1995) for a discussion of the use trade credit in capital constraint firms.

firm size (the logarithm of lagged total assets) and allow for differential time trends by industry. Standard errors are clustered at the firm-level.

In column 1, we simply regress change in bank debt on one-year lagged change in the rate of return on assets.⁹ The estimated coefficient on change in ROA is negative and marginally significant. This indicates that, on average, firms that experience negative shocks to performance receive more loans. Interestingly, we find that this relationship changes post 1985. Column 2 of Table 4 shows that the estimated coefficient for the post-reform period is positive and significant. This suggests that, post-reform, banks are less likely to lend more to firms that have experienced negative shocks. Column 3 shows that this effect is quantitatively stronger in the most bank-dependent sectors, even though it is quite noisily estimated.

The results in Table 4 so far suggest that banks may have become more conservative in their lending decisions post reform. But increased conservatism by itself is not a sign of better capital allocation, since banks might be inefficiently under-investing in firms that have temporary low performance but could have been long run positive NPV projects. As such, these results could simply be symptomatic of the increased financial pressures the banks are experiencing.

To test whether banks have improved their ability to screen good credit firms from bad ones, we separately estimate the relationship between new loans and change in performance for firms that have on average higher performance and those that have on average lower performance. We define a firm as a high (low) performer if its average ROA over the first four years in the sample was in the top (bottom) 25% of the firms in its industry.¹⁰ The results in columns 4 and 5 of Table 4 focus on lower performance firms, those columns 6 and 7 on higher performance firms. Columns 4 and 6 correspond to the pre-reform period (pre 85), columns 5 and 7 to the post-reform period (post 85).

Strikingly, we find that the change in lending behavior is much more pronounced for the lower performance firms. While in the pre-period banks were willing to bail out poorly performing firms when they experienced negative shocks, they are no longer willing to do this in the post period. For the higher performance firms, the relationship between new net loans and shocks to performance stays negative across both periods, though it is smaller in magnitude in the post- period.

⁹Note that the results in this table and following tables are qualitatively similar when we use return on sales as an alternative performance measure.

¹⁰We also repeated these tests where we measure average performance as the average ROA of a firm over the entire sample period. The results are qualitatively unchanged.

In a second step, we now analyze whether there is a closer relation between bank lending and *future* performance of firms conditional on obtaining new bank credits. If banks improved their screening and monitoring of the firms they lend to, we would expect that firms receiving new net bank loans would display more systematic improvement in future performance after the reform.

For this purpose, we look exclusively at *firm-level* measures of bank debt. This approach differs from the regressions presented above in that we previously used *average bank dependence* in a sector to identify the effect of the banking reforms. Relying on firm-level measures of bank dependence is subject to more potential endogeneity problems than the industry measure we focused on so far. While this would be of concern in other contexts, it is this precise endogeneity that we are interested in estimating here. More specifically, we want to know whether banks now lend to firms that have better unobservable characteristics.

To proceed, we first compute a measure of residual change in bank dependence at the firm level. We regress firm-level change in bank debt (as a fraction of total assets) on observable firm characteristics (lagged ROA, lagged total assets, lagged employment, lagged fraction of tangible assets, whether a firm is public or private and industry fixed effects). We use the residual from this regression as our measure of change in firm-level bank debt that cannot be explained by observable characteristics.

In column 1 of Table 5, we regress future change in firm performance (between year $(t + 3)$ and year t) on this measure of change in bank dependence (between year t and year $t - 1$).¹¹ The regression includes controls for firm size, industry and year fixed effects and industry-specific time trends. The estimated coefficient on the change in debt is positive and significant over the entire period, indicating that firms that receive new net bank loans on average improve their performance in the following periods. In column 2, we allow this effect to differ between the pre- and post-reform periods. We find that the positive effect in column 1 is entirely driven by the post-reform period. Prior to the reform, we find no relationship between bank lending and subsequent increase in ROA. In the next two columns of Table 5, we separate small and large firms. For small firms (column 3), we find a positive relationship between new net loans and future performance improvement both before and after the banking reform. However, the effect is quantitatively much stronger in the later period. For larger firms (column 4), we find that new net loans have if anything a negative

¹¹We also experimented with shorter time frame for the future earnings response (between year $(t + 2)$ and year t). The results were unaffected.

effect on future performance pre-reform. The effect however becomes positive and significant after the reform.

In the last two columns of Table 5, we replicate the analysis of columns 1 and 2 respectively but using actual firm-level change in bank debt (rather than residual change). We find similar results.

In summary, our findings suggest that one major effect of the banking reforms may have been an improvement in banks' screening and monitoring functions. This could either reflect a change in the explicit objectives of banks, with the government previously required banks to bail out poorly performing firms. Alternatively, this might reflect a switch from an environment where banks operated under very soft budget constraints to a more competitive environment where budget constraints became more binding.

5.3 Firm level response to changes in the banking sector

The evidence so far indicates that banks changed their lending practices after the reform. In this section, we will evaluate possible responses of firms to these changes. First, we study the impact of the reforms on a set of corporate decision variables. Based on our previous findings on capital structure, we would expect that firms in more bank-dependent sectors face stronger pressures to improve their balance sheets and credit-worthiness. Moreover, these pressures should be especially large for low performing firms in these sectors. Indeed, we showed in Table 4 that low performing firms may have had an especially tough time getting access to bank credit after the reform.

Table 6 present the results of this analysis. Our identification again consists in analyzing whether firms in more bank-dependent industries experience differential changes after the reforms. All the regressions in this table include firm and year fixed effects, industry specific time trends as well as a control for firm size. The inclusion of industry-specific time trends is especially important here in that we allow different sectors to follow different trajectories over time. In other words, our identification relies on a break in trend around the time of passage of the banking reform. Standard errors are clustered at the firm-level.

The first variable we consider is the logarithm of average wage, where average wage is measured as total wage bill divided by total number of employees. We find that average wages went down substantially more in the more bank- dependent sectors after the reform (column 1). We show in column 2 that this decline in real wages was stronger for the worse performing firms in these

sectors. This finding is interesting in light of our conjecture that these firms faced the strongest pressures to restructure.¹²

Another cost dimension firms have control over is the decision whether or not to outsource part of their operations to other firms. Outsourcing has often been discussed as a viable way for French firms to avoid the high labor costs they face domestically. We study this variable in columns 3 and 4. Outsourcing here is measured as expenditures on intermediary inputs, as a function of total sales. We find significantly more outsourcing in the most bank-dependent sectors after the reform (column 3). Again, consistent with our earlier results, we find this effect to be especially large among the worst performing firms in these sectors (column 4).

In the last two columns of Table 6, we study changes in firms' asset to employment ratio. Earlier evidence suggests that French firms may have responded to the very high labor costs in the 1980s by rebalancing their input mix towards more capital and less labor (Blanchard, 1997). We ask whether this move towards more capital-intensive technologies was stronger in the more bank-dependent sectors. The point estimate in column 5 suggests that this might have been the case. However, the point estimate is too noisy to draw any strong conclusion. We find no significant differences by firm performance level (column 6).

In summary, we find some evidence that firms in more bank-dependent sectors did react to the banking sector reforms by engaging in more cost-cutting activities and maybe somewhat reducing their dependence on labor input in their production function.

Another way to look at the changes in firm behavior is to analyze their response to negative shocks to performance. If banks monitored firms more tightly after the reforms, we would expect firms in bank dependent sectors to take quicker and more significant measures in response to a negative shock.

In Table 7, we study the relationship between changes in employment and prior shock to performance. All the regressions in this table include sector and year dummies, industry-specific time trends as well as a control for firm size.

Overall, it appears that, after the reform, employment becomes more sensitive to performance. This effect is statistically significant (column 1). In column 2, we look for any differential pattern

¹²Note that because our wage measure is average wage per worker, we cannot distinguish between changes in average wage for a given job and changes in the composition of jobs at these firms (i.e. a move towards a skilled workforce). However, we will be able to separate these two possible interpretations in the future as the French firm-level accounting data can be matched to another firm-level data set on employment structure.

in the bank-dependent sectors, which we expect to have been more affected by the banking reform. The sign of the effect on the triple interaction term confirms that the increase responsiveness of employment to performance shocks is especially pronounced in the most bank- dependent sector.

The last two columns of Table 7 contrast larger and smaller firms. Given our results in Table 2 we expect that smaller firms faced especially strong pressures to rapidly improve their performance, moreover smaller firms face somewhat less institutional rigidity in their ability to hire and fire workers. Our findings in columns 3 and 4 indicate that the higher employment-performance sensitivity is concentrated among smaller firms.

We also study the persistence of performance at the firm level. If poorly performing firms now face stronger incentives to improve their operations, we might expect an overall a decrease in the persistence of firm-level performance. More specifically, this reduction in persistence should be strongest for firms at the bottom of the performance distribution.

In Tables 8 and 9, we measure the persistence between a firm's performance in the current period (based on ROA) and its two- year lagged performance.¹³ Column 1 of Table 8 indicates a substantial drop in the persistence of performance after 1985. In order to better isolate the role of the banking reform in this drop in persistence, we again look at any differential effect in the more bank-dependent sectors. Consistent with our prior, we find a much stronger drop in persistence in the most bank dependent sectors (column 2). In columns 3 and 4, we replicate the analysis of column 2 but separate large and small firms. Consistent with our results in Table 7, we find that within the most bank-dependent sectors, smaller firms experience an especially large drop in performance persistence.

If banks are affecting firm behavior through improved monitoring and screening of poorly performing firms, one would expect the reversal in ROA to be especially strong in the case of a negative shock. We test this hypothesis in Table 9. The first three columns of that table focus on the pre-reform years; the last three columns focus on the post-reform years. "Low" is a dummy variable that equals one if a firm's change in ROA from period $t - 1$ to $t - 2$ was among the 25% largest drops in performance relative to its industry, and zero otherwise.

A comparison of columns 1 and 4 confirms the large decline in the persistence of performance across the two time periods. Comparing columns 2 and 5, we see that this drop is especially strong

¹³We have also considered longer lags. The results were qualitatively similar. Also, all of the results in Tables 8 and 9 carry through when we regress change in performance on lagged change in performance.

for firms that experienced a negative shock. The coefficient on the interaction term $ROA_{t-1} * Low$ is not statistically different from 0 in the pre-period but becomes negative and significant in the post period. In other words, firms that experience a negative shock are more likely to improve their performance quickly in the post-period than they are in the pre-period.

As before, if the banking reform is driving these changes, we expect these patterns in performance reversion to be especially important in more bank-dependent sectors. This is confirmed when we compare the results in columns 3 and 6. We find significantly less persistence of negative shocks in the most dependent sectors after the reform. The point estimate on $ROA_{t-1} * Low * Bankdep$ is negative and significant.

We obtain qualitatively similar results by computing performance transition matrices for the pre and post-reform periods. More specifically, we constructed transition matrices where firms were originally assigned to four performance quartiles (based on average performance over a 3-year period). We then track the performance quartile for these firms based on their average performance in the next 3 years. When comparing such a transition matrix for the 1979-1984 period to a similar matrix for the 1986-1991 period, we found much less density on the main diagonal in the later period. Most saliently, in the post-reform period, we found that a much lower fraction of firms that start in the lowest performance quartile stay that in quartile in the next 3 years (70% versus 60%).

5.4 Changes in industrial structure

So far we have focused on the micro implications of the French banking reforms: the change in banks' lending behavior and, most importantly, the impact of these changes on firm-level behavior. We find that low-performance firms face stronger pressure to restructure after the reforms. All these results are strongest for firms that rely most on bank loans for their financing.

The next step is to analyze the implications of these changes for the overall structure of industries, and in particular the more bank-dependent industries. For example, our results appear to indicate that low performance firms will find it more difficult to survive in the post-reform period. This may imply an increased exit rates in the bank-dependent sectors. The fact that low performing incumbents do not get as much access as before to cheap bank loans could also have implications for the rate of entry of new firms. Indeed, by subsidizing incumbents, banks may have discouraged new entry in these industries (Caballero, Hoshi and Kashyap, 2003). We examine these possible

implications for industry dynamics by looking at aggregate flows of capital and employment at the industry level.

As we discussed in Section 4, we construct industry-level time series based on *all* firms included in the original tax files data. For each industry-year cell, we compute the following variables: total number of firms, number of entering firms, number of exiting firms, total asset, creation of assets (jobs) by incumbent firms, creation of assets (jobs) due to entry, destruction of assets (jobs) by incumbent firms, and destruction of assets (jobs) due to exit. When measuring asset flows due to entry and exit, we also distinguish between two categories: true entries and exits, and entries and exits due to firms switching industries.

All the results reported in Table 10 result from regressing these different flow measures on year and industry dummies as well as an interaction term of the post banking reform dummy with pre-reform industry-level banking dependence. Each cell in this table corresponds to a different regression and contains the estimated coefficient on this interaction term. Standard errors are clustered at the industry-level to allow for correlation of the error term across years within an industry.

The first column of Table 10 focuses on asset flows, the second column on job flows and last column on firm flows. We start by discussing the asset-based measures. The dependent variable in column 1 is the logarithm of the stock of total assets in the industry. The estimated coefficient on the interaction term is negative but statistically insignificant. We now turn to the flows of assets in and out of the industry. In row 2, we report the results for the creation of assets through entries in the industry. The coefficient is positive and significant, indicating a relatively higher rate of entry post-reform in the bank-dependent sectors. When we break down these asset flows into newly created firms (row 3) and industry switchers (row 4), we find that most of the economic impact comes from newly created firms. In row 5, we study the destruction of assets through exits. The estimated coefficient on the interaction term is positive but not statistically significant. Parallel to above, we break down firm exits into true firm exits (row 6) and industry switches (row 7). We find a positive and statistically significant increase in true exits in the bank dependent sectors. Finally, the last 2 rows focus on investment and disinvestment by incumbent firms. The estimated coefficients are insignificant, indicating much less changes in asset flows on the intensive margin.

We obtain qualitatively similar results when we focus on job flows (in column 2) or entry and

exits of new firms (in column 3). Interestingly, row 1 of column 3 shows that the overall number of firms may have grown more rapidly in the bank- dependent sectors post banking reform. We will come back to this issue below when we study changes in industry concentration measures.

In summary, the results in Table 10 strongly point towards a differential increase in the reallocation of assets and employment in the bank dependent sectors after the banking reforms. This increase in reallocation is especially strong on the extensive margin. After the reform, a higher fraction of assets are created and destroyed by entry and exit firms compared to the intensive margin (investment and disinvestment by incumbent firms). These results are consistent with the view that distortions in the financial sector may have created effective barriers to entry prior to the reform in the non- financial sectors. The higher exit rates are also consistent with a view that banks are no longer willing to bail out poorly performing firms.

Increased reallocation rates are often interpreted as a positive sign for more dynamic and competitive sectors. This view goes back to Schumpeter’s idea of a “creative destruction” process (Schumpeter, 1934). However, one might argue that an increase in the turnover of firms could also be inefficient if it is either driven by an overly conservative capital market that inefficiently terminates projects and firms too early or where the wrong type of firms are forced to exit, e.g. good firms are terminated and bad ones are not.

To investigate whether the increase in firm turnover is symptomatic of an increase in allocative efficiency within industries, we go back to the firm- level data. If prior to the reforms low performing firms were given access to financial resources despite their poor performance, we would not expect a very tight relationship between firm performance and market share in the pre-period. With an increased banks’ selectiveness in which firms they lend to and the exit of the lower performance firms, this relationship should become stronger in the post 1985 period.

The results reported in Table 11 analyze the dynamics of market shares before and after the banking reforms. All of these regressions include industry and year fixed effects, as well as industry specific trends. In column 1, we regress a firm’s market share in year t on its market share in year $t - 2$. We measure a firm’s market share as the fraction of the firm’s sales in total industry sales in that year. While market shares appear quite persistent over the entire time period, column 2 shows that the persistence has dropped since 1985. Most importantly for our study, column 3 shows that the drop in persistence has been especially large in the most bank dependent industries.

The last column of Table 11 addresses the question of allocative efficiency within industries more directly. The set up is parallel to before in that we look at a differential effect in the relation between firm market share and firm performance for the more versus less bank dependent sectors post reform. As expected, we find that better performing firms command higher market shares in the most bank dependent industries following the banking reform.

In a final step, we study the impact of the banking changes on measures of industry competitiveness. If banking distortions effectively created barriers to entry in the bank dependent sectors, we would expect decreasing market concentration in these sectors after the reforms. We study this question in Table 12.

We use two different measures of concentration: a Herfindhal index and the market share of the largest firms in the industry. We compute these two measures based on three different firm-level variables: sales, total assets and employment. All regressions in Table 12 include industry and year fixed effects.

The results suggest of a lessening of concentration in the bank-dependent sectors after the reform. This is true whether we use Herfindhal indices (columns 1, 3 and 5) or measures of market concentration based on the market share of the largest firms (columns 2, 4 and 6). Similarly, we find consistent results whether we use sales (columns 1 and 2), total assets (columns 3 and 4) or employment (columns 5 and 6) to construct these concentration measures.

6 Conclusion and Directions for Future Work

Our findings suggest that an increase in the for-profit motive and competitiveness of French banks after the 1985 banking reform increased firm-level efficiency as well as the efficiency of capital allocation across firms. Among other things, we find that firms respond to negative shocks to their performance more effectively after the reforms and start to implement more cost-cutting measures (such as lowering wages or increasingly outsourcing activities). All of these changes are particularly strong in the bank dependent sectors, suggesting that they do not simply capture other non-banking related shocks to the economy. We have also analyzed the impact of these banking changes on the overall competitive structure and dynamics of product markets. Our industry-level analysis shows higher rates of entry and exit in the bank dependent sectors, a decrease in industry concentration

and an improved allocation of assets across firms within these industries after the reforms.

These findings suggest that the soft incentives in the banking sectors prior to the reform may have created artificial barriers to entry by unduly favoring incumbents in these sectors and thereby dampening competition. Overall, our results suggest substantial effects of the financial sector on the industrial organization of the sectors most dependent on outside financing. Our results suggest a multiplier effects of the banking reforms through improved product market competition. Indeed, while the reform directly affected the competitiveness of the financial market, we find that it also increased the competitiveness of non-financial markets. These findings add an interesting dimension to the debate about the real effects of banking market reforms.

There are several extensions we plan to pursue in future work. First, we would like to study any possible differential response to the banking reforms for group and non-group firms. We think that this is promising direction of research in that it might get us to learn more about business group objectives. For example, if business groups correct for imperfections in the external capital market, we might expect differential responses to the reforms by these firms.

Second, we would like to extend our firm-level analysis to the very small firms. While our results on industry flows and concentration measures are based on all firms, our firms-level analysis focused only on medium to large firms. While the firms we have covered represent a substantial fraction of total employment, it would be interesting to directly study the smallest firms as these depend even more strongly on bank lending for their financing. These firms also typically rely on more local sources of financing. This could potentially allow us to exploit regional differences in the distribution of credit providers as a way to further refine our identification strategy. Finally, because these firms typically compete in geographically smaller markets, we could also consider more local measures of competition.

References

- Black, Sandra and Philip Strahan, 2002, "Entrepreneurship and Bank Credit Availability," *Journal of Finance* 57 (6); 2807-2833.
- Bernanke, Ben S. and Mark Gertler, 1995, "Inside the Black Box: The Credit Channel of Monetary Policy Transmission," *Journal of Economic Perspectives*, 9 (4): 27-48.
- Blanchard, Olivier, 1997, "The Medium Run," *Brookings Papers on Economic Activity*, 2: 89-158.
- Caballero, Ricardo, Takeo Hoshi and Anil Kashyap, "Zombies," Mimeo, University of Chicago, 2003.
- Cetorelli, Nicola and Philip Strahan, "Finance as a Barrier to Entry: Bank Competition and Industry Structure in Local U.S. Markets," Mimeo, Boston College, June 2003.
- Demirguc-Kunt, Asli and Vojislav Maksimovic, 1998, "Law, Finance and Firm Growth," *Journal of Finance*, 53: 2107-2137.
- Diamond, Douglas, 1984, "Financial Intermediation and Delegated Monitoring," *Review of Economic Studies* 51: 393-414.
- Gerschenkron, Alexander, 1962, *Economic Backwardness in Historical Perspective*, Cambridge, MA: Harvard University Press.
- Gorton, Gary and Andrew Winton, 2002, "Financial Intermediation," NBER Working Paper no. 8928.
- Holmstrom, B. and J. Tirole, 1997, "Financial Intermediation, Loanable Funds and the Real Sector", *The Quarterly Journal of Economics* 112 (3): 663-691.
- Innes, R.D., 1990, "Limited liability and incentive contracting with ex-ante action choices", *Journal of Economic Theory* 52 (1): 45-67.
- Jayaratne, Jith and Philip Strahan, 1996, "The Finance-Growth Nexus: Evidence from Bank Branching Deregulation," *The Quarterly Journal of Economics*, 111 (3): 639-670.
- Kyashap, A. and J. Stein, 1994, "Monetary Policy and Bank Lending", in G.N. Mankiw, *Monetary*

- Policy. Studies in Business Cycles*, Vol. 29, University of Chicago Press, 221-256.
- King, Robert and Ross Levine, 1993a, "Finance and Growth: Schumpeter Might Be Right," *Quarterly Journal of Economics*, 108: 717-738.
- King, Robert and Ross Levine, 1993b, "Finance, Entrepreneurship and Growth," *Journal of Monetary Economics*, 32: 513- 542.
- Leland, H. E. and D. H. Pyle, 1977, "Informational asymmetries, financial structure and financial intermediation", *The Journal of Finance*, 32: 371-387.
- Levine, Ross, Norman Loayza and Thorsten Beck, 2000, "Financial Intermediation and Growth: Causality and Causes," *Journal of Monetary Economics* 46 (1): 31-77.
- Melitz, Jacques, 1990, "Financial Deregulation in France," *European Economic Review* 34: 394-402.
- Petersen, Mitchell and Raghuram Rajan, 1995, "The Effect of Credit Market Competition on Lending Relationships," *Quarterly Journal of Economics* 110: 407-443.
- Rajan, Raghuram, 1992, "Insiders and Outsiders: The Choice Between Informed and Arm's-length Debt," *Journal of Finance* 47: 1367- 1400.
- Rajan, Raghuram and Luigi Zingales, 1998, "Financial Dependence and Growth," *American Economic Review*, 88 (3): 559-586.
- Schumpeter, J.A., 1934, *The Theory of Economic Development*, Cambridge, MA: Harvard University Press.
- Sharpe, S., 1990, "Asymmetric Information, bank Lending and Implicit Contracts: A Stylized Model of Customer Relationships," *Journal of Finance* 45: 1069-1087.
- Stiglitz, J. E. and A. Weiss, 1981, "Credit Rationing in Markets with Imperfect Information", *American Economic Review* 71 (3): 393- 410.

Table I
Descriptive Statistics^a

	Mean	St. Dev.
Sales	301.5	340.3
Total Assets	427.5	793.2
Labor	409.6	487.7
Bank Debt	0.42	.23
Trade Credit	0.32	0.22
Equity	0.25	0.19
Capital Cost	0.09	0.08
ROA	0.16	0.20
ROS	0.14	0.23

^aNotes:

1. The sample is the firm-level panel dataset constructed from the tax files data set. See text for more details. The time period is 1978 to 1999. Sample size is 137550.
2. Total assets and sales are measured in 1980 francs. Labor is total number of workers employed in a given year in thousands. ROA and ROS are return on assets and sales, respectively. All financial ratios are calculated as a fraction of total outside financing.

Table II: Debt by Size and Performance Quartiles^a

<i>Panel A: Leverage Levels in 1983</i>				
	Size Quartile 1	Size Quartile 2	Size Quartile 3	Size quartile 4
Performance Quartile 1	0.43	0.42	0.45	0.49
Performance Quartile 2	0.41	0.41	0.43	0.45
Performance Quartile 3	0.37	0.37	0.43	0.48
Performance Quartile 4	0.45	0.37	0.43	0.46

<i>Panel B: Leverage Levels in 1987</i>				
	Size Quartile 1	Size Quartile 2	Size Quartile 3	Size quartile 4
Performance Quartile 1	0.36	0.40	0.44	0.41
Performance Quartile 2	0.35	0.40	0.44	0.40
Performance Quartile 3	0.38	0.39	0.40	0.44
Performance Quartile 4	0.41	0.37	0.38	0.41

^aNotes:

1. The sample is the firm-level panel dataset constructed from the tax files data set. See text for more details. The time period is 1978 to 1999.
2. We sort firms into size and performance quartiles, where size is measured by total assets and performance based on ROA. For each cell we form averages over a three year period of the leverage levels of firms in this quartile. The results in Panel A are based on average leverage levels from 1981 to 1983, the results in Panel B are based on average leverage levels between 1987 and 1989.

Table III
Change in Capital Structure Following the Banking Reform^a

<i>Dependent Variable</i>	<i>Bank debt</i>		<i>Equity</i>		<i>Trade Credit</i>		<i>Capital Cost</i>	
After*Bankdep	-0.274 (0.038)	-0.273 (0.051)	0.087 (0.030)	0.038 (0.041)	0.231 (0.031)	0.287 (0.040)	0.175 (0.016)	0.199 (0.021)
After*Bankdep*ROA ₁		0.050 (0.048)		0.006 (0.031)		-0.059 (0.041)		-0.036 (0.019)
After*ROA ₁		-0.169 (0.084)		0.010 (0.024)		0.085 (0.076)		0.020 (0.013)
Bankdep*ROA ₁		-0.039 (0.032)		0.072 (0.068)		0.032 (0.028)		0.054 (0.033)
Industry-specific trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.65	0.45	0.71	0.68	0.76	0.74	0.52	0.50

^aNotes:

1. The sample is the firm-level panel dataset constructed from the tax files data set. See text for details. The time period is 1978 to 1999.
2. “Bank debt” is defined as the ratio of all debt excluding trade credit and bonds over total outside financing (debt and book value of equity). “Equity” is the book value of equity divided by total outside financing. “Trade Credit” is the ratio of trade credit over total outside financing. “Capital Cost” is defined as the ratio of total interest paid divided by amount of bank debt on the balance sheet. “After” is dummy variable equal one after 1985 and zero before. “Bankdep” is the average level of bank leverage at the industry level between 1980 and 1983. “ROA₁” is firm-level ROA in the base year (1978).
3. Also included in each regression is the logarithm of lagged total assets.
4. Standard errors are reported in parentheses. Standard errors are corrected for clustering of the error term at the firm-level.

Table IV
Change in Firm-Level Bank Debt Following Shock to Firm-Level Performance:
Before and After the Banking Reform^a

Dependent Variable: Change in Bank Debt

Sample:	All Firms			Lower Perf. Firms		Higher Perf. Firms	
Time Period:	1978-1999			Pre-85	Post-85	Pre-85	Post-85
Lagged Change in ROA	-.017	-.026	.257	-.098	.008	-.074	-.041
	(.010)	(.026)	(.245)	(.047)	(.027)	(.046)	(.018)
After*Lagged Change in ROA		.056	-.264				
		(.029)	(.275)				
After*Bankdep*Lagged Change in ROA			.478				
			(.412)				
Industry F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-specific trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	.01	.01	.01	.01	.01	.01	.01

^aNotes:

1. Sample is the firm-level panel dataset constructed from the tax files data set. See text for details. The time period is 1978 to 1999.
2. "Higher Performance Firms" ("Lower Performance Firms") are firms whose average ROA over the first four years in the sample was in the top (bottom) 25% of the firms in its industry.
3. Also included in each regression is the logarithm of lagged total assets. Also included in column 3 are the two following double interactions: "After*Bankdep," and "Lagged Change in ROA*Bankdep."
4. Standard errors are reported in parentheses. Standard errors are corrected for clustering of the error term at the firm-level.

Table V
Firm Level Debt and Future Firm Performance:
Before and After the Banking Reform^a

<i>Dependent Variable: Change in ROA_{t+2}</i>						
Sample:	All Firms		Small Firms	Large Firms	All Firms	
Δ Residual Debt _{t-1}	0.010 (0.001)	-0.001 (0.001)	.005 (.002)	-.005 (.001)		
Δ Residual Debt _{t-1} *After		0.017 (0.002)	.018 (.003)	.016 (.002)		
Δ Debt _{t-1}					0.010 (0.001)	-0.001 (0.001)
Δ Debt _{t-1} *After						0.018 (0.002)
Industry-specific trends	Yes	Yes	Yes	Yes	Yes	Yes
Industry F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.06	0.07	0.04	0.11	0.06	0.07

^aNotes:

1. The sample is the firm-level panel dataset constructed from the tax files data set. See text for details. The time period is 1978 to 1999.
2. “ Δ Residual Debt_{t-1}” is the residual from a regression of changes in firm-level bank debt between t and $t - 1$ on observable firms characteristics such as the logarithm of total assets, the logarithm of total employment, ROA, industry fixed effects, and a dummy for whether a firm is public or private. “ Δ Debt_{t-1}” is the change in actual firm debt between year t and $t - 1$. “ Δ ROA_{t+2}” is the change in ROA between $t + 2$ and t .
3. Also included in each regression is the logarithm of lagged total assets.
4. Standard errors are reported in parentheses. Standard errors are corrected for clustering of the error term at the firm-level.

Table VI
Banking Reform and Firms' Restructuring Activities^a

<i>Dependent Variable:</i>	<i>Log(Average Wage)</i>		<i>Outsourcing</i>		<i>Log(Assets/Employment)</i>	
After*Bankdep	-.31 (.04)	-.25 (.06)	.19 (.03)	.27 (.04)	.19 (.19)	.06 (.24)
After*Bankdep*ROA ₁		.13 (.06)		-.25 (.03)		-.32 (.26)
After*ROA ₁		.09 (.04)		.21 (.03)		.35 (.18)
Bankdep*ROA ₁		.22 (.14)		.24 (.06)		.54 (.50)
Firm F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Industry-specific trends	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	.89	.89	.85	.85	.88	.88

^aNotes:

1. Sample is the firm-level panel dataset constructed from the tax files data set. See text for details. The time period is 1978 to 1999.
2. Outsourcing is measured as expenditures on intermediary inputs as a function of total sales. Average Wage is measured as total wage bill divided by number of employees. "ROA₁" is firm-level ROA in the base year (1978).
3. Also included in each regression is the logarithm of lagged sales.
4. Standard errors are reported in parentheses. Standard errors are corrected for clustering of the error term at the firm-level.

Table VII
Change in Employment Following Shock to Performance:
Before and After the Banking Reform^a

	<i>Dependent Variable: Change in Employment</i>			
	All Firms	Small Firms	Large Firms	
ΔROA_{t-1}	-0.349 (0.144)	2.691 (1.401)	2.906 (1.815)	0.657 (3.574)
$\Delta \text{ROA}_{t-1} * \text{After}$	0.348 (0.143)	-2.674 (1.420)	-3.357 (1.832)	-0.562 (3.595)
$\Delta \text{ROA}_{t-1} * \text{After} * \text{Bankdep}$		4.525 (2.149)	5.132 (2.825)	1.944 (4.274)
$\text{After} * \text{Bankdep}$		-3.556 (1.243)	-4.496 (2.781)	-2.167 (4.245)
$\Delta \text{ROA}_{t-1} * \text{Bankdep}$		0.007 (0.053)	0.412 (0.102)	0.185 (0.089)
Industry-specific trends	Yes	Yes	Yes	Yes
Industry F.E.	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes
Adjusted R ²	0.011	0.013	0.012	0.013

^aNotes:

1. The sample is the firm-level panel dataset constructed from the tax files data set. See text for more details. The time period is 1978 to 1999.
2. The dependent variable is change in total employment at the firm level between period t and $t-1$. ΔROA_{t-1} is change in ROA from $t-1$ to $t-2$. "After" is dummy variable equal one after 1985 and zero before. Bankdep is the average level of bank leverage at the industry level between 1980 and 1983.
3. Also included in each regression is the logarithm of lagged total assets.
4. Standard errors are reported in parentheses. Standard errors are corrected for clustering of the error term at the firm-level.

Table VIII
Persistence of Shock to Performance:
Before and After the Banking Reform^a

<i>Dependent Variable: ROA</i>				
Sample	All Firms		Small Firms	Large Firms
Lagged ROA _{t-2}	.749 (.008)	.796 (.031)	.731 (.057)	.846 (.048)
After*ROA _{t-2}	-.326 (.012)	-.159 (.032)	-.128 (.058)	-.247 (.051)
After*Bandep*ROA _{t-2}		-.836 (.155)	-1.189 (.282)	-.094 (.242)
Bankdep*ROA _{t-2}		-.230 (.145)	-.150 (.278)	-.224 (.231)
Industry F.E.	Yes	Yes	Yes	Yes
Industry-specific trends	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes
Adjusted R ²	.29	.30	.21	.42

^aNotes:

1. Sample is the firm-level panel dataset constructed from the tax files data set. See text for details. The time period is 1978 to 1999.
2. Also included in each regression is the logarithm of lagged total assets.
3. Standard errors are reported in parentheses. Standard errors are corrected for clustering of the error term at the firm-level.

Table IX
Persistence of Negative Shock to Performance:
Before and After the Banking Reform^a

<i>Dependent Variable: ROA</i>						
Sample Period	Pre-85			Post-85		
Lagged ROA _{t-2}	.715 (.012)	.711 (.013)	.659 (.043)	.424 (.011)	.475 (.011)	.590 (.039)
Lagged ROA _{t-2} *Low		.040 (.033)	-.217 (.159)		-.337 (.028)	.118 (.123)
Bankdep*Lagged ROA _{t-2} *Low			1.253 (.758)			-2.259 (.609)
Bankdep*Low			.100 (.060)			.159 (.029)
Bankdep*Lagged ROA _{t-2}			.260 (.211)			-.561 (.191)
Low		.003 (.003)	-.017 (.012)		-.000 (.002)	-.031 (.006)
Industry F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Industry-specific trends	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	.59	.59	.59	.21	.22	.22

^aNotes:

1. Sample is the firm-level panel dataset constructed from the tax files data set. See text for details. The time period is 1978 to 1999.
2. "Low" is a dummy variable that equals one if a firm's change in ROA from period $t - 1$ to $t - 2$ was among the 25% largest drops in performance relative to its industry, and zero otherwise.
3. Also included in each regression is the logarithm of lagged total assets.
4. Standard errors are reported in parentheses. Standard errors are corrected for clustering of the error term at the firm-level.

Table X
Banking Reform and Industry-Level Reallocation Flows^a

Flows are:	Asset Flows	Job Flows	Firm Flows
<i>Dependent Variable:</i>			
<i>Total Stock</i>	-.30 (.62)	.26 (.94)	.37 (.22)
<i>Creation through entries</i>	1.35 (.58)	.67 (.45)	.41 (.20)
<i>Creation through true entries</i>	1.33 (.60)	.68 (.45)	.36 (.21)
<i>Creation through industry switches</i>	.70 (.85)	.75 (.77)	.65 (.28)
<i>Destruction through exits</i>	.68 (.74)	1.12 (.52)	.67 (.20)
<i>Destruction through true exits</i>	1.36 (.54)	1.25 (.53)	.56 (.20)
<i>Destruction through industry switches</i>	1.29 (.96)	.78 (.64)	1.30 (.27)
<i>Creation by incumbent firms</i>	-.37 (.39)	-.04 (.34)	
<i>Destruction by incumbent firms</i>	.41 (.48)	.52 (.36)	

^aNotes:

1. The dependent variables are annual industry measures of asset, employment and firm flows. These measures were computed based on all firms in the French tax files. All of these variables are measures in logarithms. See text for details.
2. Each cell in the table correspond to a separate regression. Reported in each cell is the estimated coefficient on the interaction term "After*Bankdep." Also included in each regression are industry and year fixed effects and, in all rows except 1, a control for the logarithm of the relevant stock (asset in column 1, employment in column 2, number of firms in column 3) in that industry-year.
3. Standard errors are in parentheses. Standard errors are corrected for clustering of the error term at the industry-level.

Table XI
Correlation Between Firm Market Share and Firm Performance:
Before and After the Banking Reform^a

Dependent Variable: Market Share					
Market Share _{t-2}	0.891 (0.004)	0.915 (0.005)	0.911 (0.007)		
Market Share _{t-2} *After		-0.032 (0.006)	-0.022 (0.008)		
Market Share _{t-2} *After*Bankdep			-0.068 (0.042)		
Market Share _{t-3} *Bankdep			0.003 (0.035)		
After*Bankdep			0.001 (0.001)	-0.134 (0.050)	
Bankdep*After*ROA ₁				0.093 (0.034)	
Bankdep*ROA ₁				0.902 (0.246)	
After*ROA ₁			0.045 (0.013)	0.064 (0.028)	
Industry-specific trends	Yes	Yes	Yes	Yes	Yes
Industry F.E.	Yes	Yes	Yes	Yes	Yes
Firm F.E.	No	No	No	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.856	0.857	0.857	0.878	0.889

^aNotes:

1. The sample is the firm-level panel dataset constructed from the tax files data set. See text for details. The time period is 1978 to 1999.
2. The dependent variable is a firm's market share in its industry (sales based measure). "After" is a dummy variable equal to one after 1985 and zero before. "Bankdep" is the average level of bank leverage at the industry level between 1980 and 1983.
3. Standard errors are reported in parentheses. Standard errors are corrected for clustering of the error term at the firm-level.

Table XII
Banking Reform and Industry Concentration^a

<i>Dependent Variable:</i>	<i>Sales-based</i>		<i>Asset-based</i>		<i>Employment-based</i>	
	<i>Herfindhal</i>	<i>% of Largest</i>	<i>Herfindhal</i>	<i>% of Largest</i>	<i>Herfindhal</i>	<i>% of Largest</i>
After*Bankdep	-0.11 (.06)	-0.13 (.07)	-0.15 (.06)	-0.16 (.08)	-0.16 (.06)	-0.20 (.07)
Industry F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	.76	.74	.74	.72	.79	.76

^aNotes:

1. The dependent variables are annual measures of industry concentration computed from all firms the French tax files. See text for details.
2. Standard errors are in parentheses. Standard errors are corrected for clustering of the error term at the industry-level.