

# The Politics of Financial Development: Evidence from Trade Liberalization

MATIAS BRAUN and CLAUDIO RADDATZ\*

## ABSTRACT

Incumbents in various industries have different incentives to promote or oppose financial development. Changes in the relative strength of promoter and opponent industries thus result in changes in the political equilibrium level of financial development. We conduct an event study using a sample of 41 countries that liberalized trade during 1970 to 2000, and show that the strengthening of promoter relative to opponent industries resulting from liberalization is a good predictor of subsequent financial development. The benefits of developing the financial system are insufficient for financial development, and rents in particular hands appear to be necessary to achieve it.

IT HAS BEEN EXTENSIVELY DOCUMENTED that the level of financial development varies greatly across countries (LaPorta et al. (1997), (1998)). Existing theories that try to explain these differences tend to rely on stable, largely predetermined factors such as a country's legal origin (in the line of LaPorta et al. (1997), (1998)), pattern of colonization (Acemoglu and Johnson (2003)), religion and culture (Stulz and Williamson (2003)), and social capital endowment (Guiso, Sapienza, and Zingales (2004)). Less documented, however, is the fact that a country's financial development exhibits nontrivial changes over time that rival its cross-sectional variation. A quick look at the data reveals that the rank in terms of level of private credit to GDP in the early 1970s explains only 51% of the cross-country variance in the rank 25 years later.<sup>1</sup> This

\*Braun is from IM Trust and Universidad Adolfo Ibañez; Raddatz is from the World Bank. We are grateful to an anonymous referee and the Editor, whose suggestions greatly improved the paper. We also thank participants of seminars at the Federal Reserve Bank of Boston, University of California Los Angeles, University of California Santa Cruz, Latin American Finance Network, NBER Corporate Finance Meeting, University of Chicago, New York University, Emerging Markets Finance Conference, the World Bank, and Inter-American Development Bank for their comments. The following provided insightful comments: Ricardo Bebczuk, Thorsten Beck, Antonio Bernardo, Michael Brennan, Mark Germaise, Borja Larrain, Alejandro Micco, Enrico Perotti, Avaniidhar Subrahmanyam, Aaron Tornell, and Luigi Zingales (NBER discussant). Braun thanks the Research Department of the Federal Reserve Bank of Boston and UCLA Anderson, where part of this research was conducted. We also thank Abdul Abiad and Ashoka Mody for generously sharing their data for an earlier version of the paper. The views expressed in this paper are the authors' only and do not necessarily represent those of the World Bank, its executive directors, or the countries they represent. This paper circulated previously under the title: Trade Liberalization and the Politics of Financial Development.

<sup>1</sup> The figures mentioned in this introduction come from a sample of the 73 countries for which we have data on both the financial system and trade indicators since 1970.

suggests that, successful as they are in explaining the cross-sectional variation, predetermined factors cannot be the only force behind the observed differences in financial development.

If financial development matters for economic performance, as demonstrated by the large body of literature that documents its positive, first-order impact on economic growth,<sup>2</sup> and it is not completely predetermined, why then do some countries achieve financial development while others do not? A compelling answer to this question has been put forward by a recent literature that emphasizes the role of private interests and politics as determinants of financial development (Rajan and Zingales (2003), Perotti and Volpin (2004)). The political economy approach seems sensible. First, there is ample evidence that policies such as the protection of creditor rights or minority shareholders do matter for financial development (La Porta et al. (1997)). Second, financial development does not seem to affect everybody equally, as documented by several recent papers that focus on the differential impact of financial development across industries and firms (Rajan and Zingales (1998), Kroszner and Strahan (1999), Braun (2002), Raddatz (2006), Braun and Larrain (2005)). This suggests that distinct policies affecting the development of financial markets are likely to have important distributive consequences,<sup>3</sup> providing fertile ground for political economy mechanisms.

This paper takes the political economy view of financial development to the data and provides empirical evidence that, indeed, political economy considerations can go a long way in explaining differences in financial development observed within countries across time.

We start from Rajan and Zingales's (2003) idea that the main source of conflict arising from financial development comes from the fact that a well-developed financial system enhances competition in the industrial sector by allowing an easier entry. We note, however, that the impact of financial development on competition is likely to vary across industries. In some industries the lack of external finance may be an important constraint to entry, while in others technological considerations such as a minimum efficient scale may be the main constraint on competition. Thus, incumbents in various industries may weigh differently the benefits of easier access to credit associated with a more developed financial system and the costs of more intense competition.

Using industry-level data for a large cross-section of countries we exploit the de-facto heterogeneous impact of cross-country financial development on incumbents' rents across industries to measure each sector's willingness to promote or oppose financial sector development. We classify each industry as either a *promoter* or an *opponent* to financial development, assuming that this industry characteristic is maintained across countries because of its technological

<sup>2</sup> See King and Levine (1993), Demirguc-Kunt and Maksimovic (1998), Rajan and Zingales (1998), and Jayaratne and Strahan (1996), among others.

<sup>3</sup> This approach, which has a long tradition in the analysis of regulatory reform dating at least since the seminal work of Stigler (1971), has only recently been applied to the regulation of financial markets. See Kroszner (1998) for a discussion of the issues when the framework is applied to banking and financial regulatory reform across countries.

drivers. We presume that incumbents in sectors in which financial development has a smaller (larger) impact on rents are less (more) willing to incur the costs of blocking financial reform.

Incentives alone are not enough to induce political change, however. Having the means to transform one's views into actual policies (i.e., convince policy makers) is critical. We therefore associate the relative strength of promoters vis-à-vis opponents with their relative rents. Here is where our story departs from nonpolitical economy explanations for financial development. Our null hypothesis is that if political economy considerations related to the impact of financial development on competition matter, variation in the relative strength of promoters should map into changes in financial sector development.

In order to avoid the omitted variable bias problem of cross-country regressions and to address the endogeneity of rents, we conduct an event study based on the effects that trade liberalization has on relative industry rents. We treat trade liberalization as a discrete, reasonably exogenous shock to the political economy equilibrium of financial sector development. Although we initially assume the exogeneity of the event, we provide extensive evidence in favor of this assumption.

We find that those countries where trade liberalization results in an increase in the relative strength of promoters end up with a significantly larger financial system than those countries where trade liberalization favors those who oppose financial development. The difference in financial development, measured as the ratio of private credit to GDP, between these two groups of countries increases by 18 percentage points. The result is robust to a battery of tests that includes controls for demand-side determinants of financial development, different strategies for classifying promoters and opponents, the use of different event study windows, the exclusion of potentially influential industries, strategies for dealing with potential endogeneity concerns, and several other changes to the specification.

Of course, trade liberalization is not the only shock that can change the politics of financial development. In order to validate our results, we replicate the procedure with the 1973 oil shock, an event that is arguably more exogenous than trade liberalization. We find the same results.

Our paper is related to several strands of literature. Previous evidence on the relation between financial development and competition, which forms the basis of our political economy mechanism, is provided by Rajan and Zingales (1998), who show that financial development affects the difference in growth between more and less external financial dependent industries mainly through differences in the growth of the number of firms as opposed to the growth of the typical establishment. Related to this work, Cetorelli (2001), (2003) and Cetorelli and Strahan (2003) show that lower degrees of banking competition are associated with larger firms across countries, across U.S. states, and following the passage of the Second European Banking Directive. We provide additional evidence on the link between financial development and competition by showing that both aggregate manufacturing sector price-cost margins and average firm size are significantly negatively correlated with financial development

across countries. However, we also show that there is important *heterogeneity* in the impact of financial development on these measures across industries.

Of course, the effect of financial development on product market competition that we consider here is not the only way in which political economy considerations can matter for the financial system. Pagano and Volpin (2005a), (2005b), Perotti and von Thadden (2006), and Roe (2003), among others, have explored other sources of conflict.

The remainder of this paper is organized as follows. Section I explains our empirical methodology, including measurement issues and the assumptions that are implicit in our approach. Section II presents the main result of the paper. Section III concludes.

## I. Methodology

Our empirical approach aims at testing for the hypothesis that a shock to the ability to influence politics of those parties that favor or oppose financial development will affect the subsequent development of the financial sector. If we were able to identify the different parties, had a measure of their relative strength, and knew the date in which a shock to this relative strength occurred for a sample of countries, we could test the hypothesis by conducting an event study around the date of the shock and estimating the parameters of the following regression:

$$\Delta FD_c = \alpha + \beta \times [\textit{Strengthening of Promoters}]_c + X_c \gamma + \varepsilon_c, \quad (1)$$

where  $\Delta FD_c$  is a measure of the change in financial development, *Strengthening of promoters* is a measure of the change in the relative strength of the parties that favor financial development (the promoters), both computed around the date of the shock (we define this variable more precisely below),  $X_c$  is a general set of possible controls, and  $\varepsilon_c$  is the error term, which may include several components. Testing the hypothesis in this setting would be equivalent to testing whether the coefficient  $\beta$  is significantly positive.

We make three major assumptions in order to apply the framework above: one, incentives of firms for financial sector development vary by industries, but are similar across countries; two, the means to oppose or promote financial development are related to industry rents; and three, relative industry rents are affected by discrete events such as trade liberalization or the 1970s oil shock. The first assumption allows us to identify the different parties of the political economy game, the second to measure their relative strength at any point in time, and the third to capture reasonable exogenous changes in this relative strength.

### A. Identifying Promoters and Opponents of Financial Development

There are many dimensions along which the development of the financial system can have an asymmetric effect across groups. Although in principle, we

could identify winners and losers along each dimension, this paper focuses on the conflict across groups, which derives from the effect that financial development has on the product market. The idea that finance has an effect on how firms conduct business is not new (see, for instance, Chevalier (1995), Phillips (1995)). Rajan and Zingales (2003), in particular, provide the basic mechanism on which we build here. They argue that a more developed financial system reduces the correlation between credit allocation and a borrower's collateral and reputation, which facilitates the entry of new firms, increasing the degree of competition and therefore reducing the rents of incumbents.

Figure 1 suggests that, indeed, the link between financial development and rents is empirically relevant. Panel A plots, for a sample of countries, the average ratio of *Private credit to GDP* during the 1980s and 1990s versus the average *Price-cost margin* in manufacturing during the same period. The correlation is negative and significant ( $-0.27$ , significant at the 0.2% level). The price-cost margin (henceforth PCM), computed using industry data from the UNIDO (2002) data set, is defined as follows:

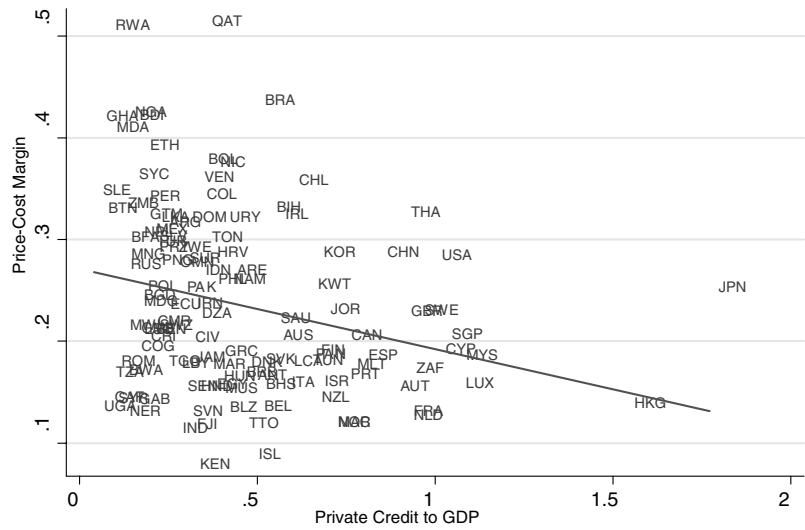
$$PCM = \frac{\text{Value of Sales} - \text{Payroll} - \text{Cost of Materials}}{\text{Value of Sales}}. \quad (2)$$

PCM is essentially a measure of the profitability of incumbents, the flow accrued to the owners of capital. One can think of a number of refinements to this indicator, for instance, refinements that would take into account the amount of capital invested and indirect taxes. Our choice is dictated primarily by simplicity and data availability. Since, as will be made clear below, we will not be using the level of PCM but will just rely on its within-country, cross-industry variation, the simplification is unlikely to be of first-order importance. The methodology implies that the fact that some industries have higher margins everywhere due to larger capital requirements or taxes (tobacco and oil, for instance) or some countries exhibit higher margins across the board (perhaps due to a lower level of competition or higher regulatory requirements) will have no impact on our measurement.

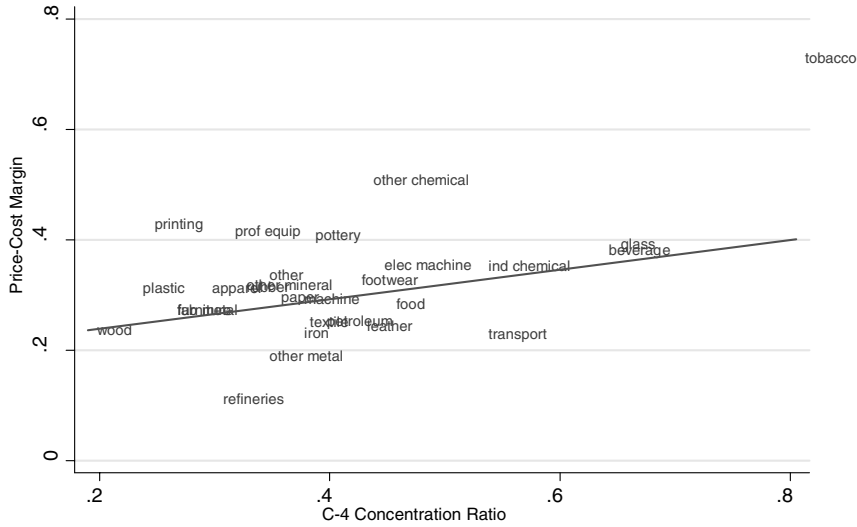
We are not the first to use PCM to proxy for the degree of product market competition. This measure has been shown to be strongly positively correlated with measures of concentration across industries (see, for example, Domowitz, Hubbard, and Petersen (1986), Collins and Preston (1969), Clarke, Davies, and Waterson (1984) and Encaoua and Jacquemin (1980)). Panel B of Figure 1 shows this relation in the United States.

Although incumbents appear worse off on average relative to potential entrants in countries with more developed financial systems, the effect can vary significantly across industries. Incumbents whose rents are positively affected are probably more willing to maintain policies to increase financial sector development. Of course, financial development may also have some differential impact on rents within industries but we focus only on the between-industries dimension mainly because our data do not allow us to consider within-industry

Panel A: Financial Development and Price-Cost Margins, Average 1980-2000.



Panel B: Price-Cost Margins and Competition in the U.S., 1992.



**Figure 1. Margins decrease with financial development and competition.** Panel A plots, for a sample of countries, the average ratio of *Private credit to GDP* during the 1980s and 1990s versus the average *Price-cost margin* in manufacturing during the same period. Panel B displays the relation between the *Price-cost margin* (on the x-axis) and the *C-4 concentration ratio* (on the y-axis) across industries in the United States in 1992 (year for which we have data on the concentration ratio). The C-4 concentration ratio is the share of total output accounted for by the largest four firms in a given industry.

heterogeneity.<sup>4</sup> We do not believe our approach significantly limits or biases the analysis. First, in many countries incumbents participate in trade associations organized along industry dimensions. This suggests that relying on these existing channels to organize within an industry may be easier than organizing across industries. Second, if the boundaries that define who favors or opposes financial development were just loosely connected with industry dimensions, the classification we present next would be a poor proxy for the real political forces behind financial reform. This would considerably stack the cards against finding any evidence for our political economy mechanism based on such classification.

To identify the relative *promoters* and *opponents* of financial development we look at the effect of financial development on the PCM of 28 different three-digit ISIC industries across countries by estimating the parameters of the following regression:

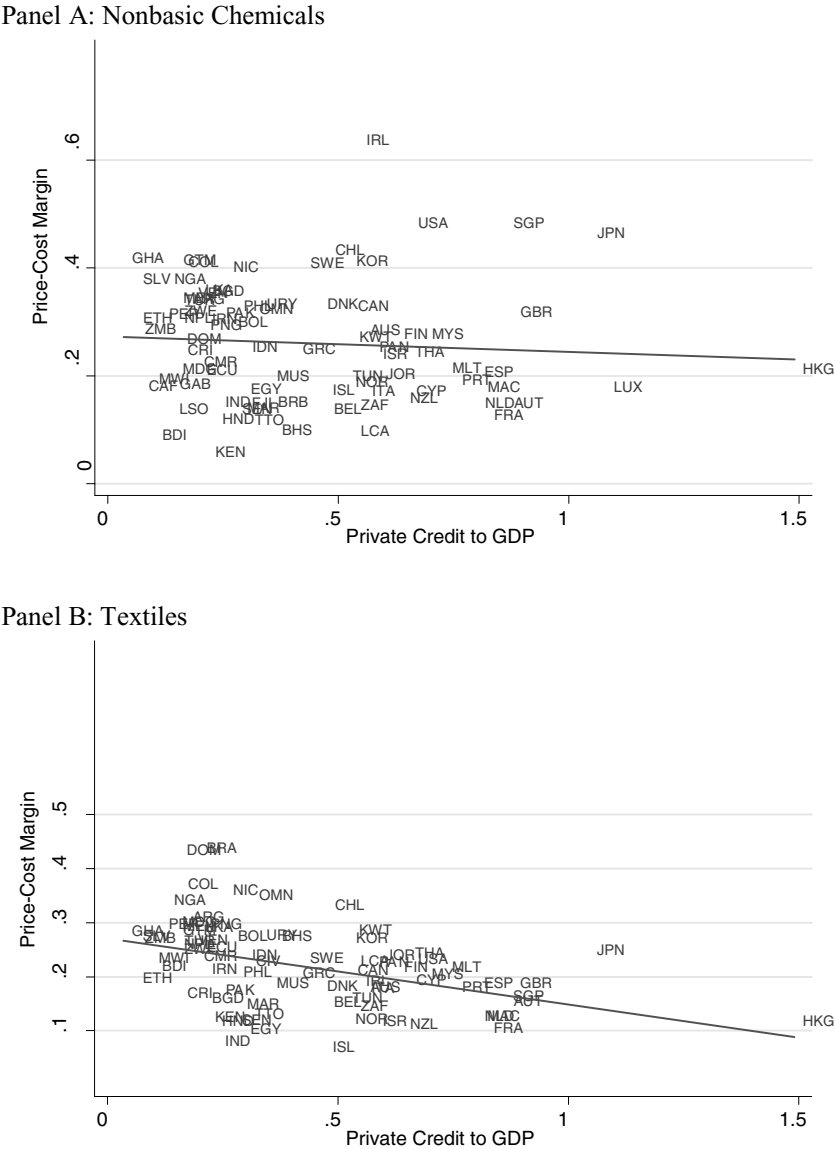
$$PCM_{ic} = \alpha_0 + \alpha_i + \alpha_c + \eta_i \cdot FD_c + \varepsilon_{ic}, \quad (3)$$

where  $PCM_{ic}$  is the PCM of industry  $i$  in country  $c$ ,  $\alpha_0$  is a constant,  $\alpha_i$  and  $\alpha_c$  are industry and country fixed effects, respectively,  $FD_c$  is the financial development of country  $c$  measured as the ratio of *Private credit to GDP* (obtained from World Development Indicators 2003), and  $\eta_i$  measures the relative effect of financial development on industry  $i$ 's PCM, the incentives of industry  $i$  in promoting financial sector development. Both the PCM and private credit correspond to the averages for the 1980 to 2000 period.

Figure 2, which shows the relationship between private credit and margins for two different industries (Nonbasic Chemicals and Textiles), suggests that, indeed, the effect is heterogeneous across industries. The relative effects of financial development on the margins of different manufacturing industries (the  $\eta$  coefficients), obtained from the estimation of equation (2), are presented in Table I. Column 1 reports the estimated effects, and Column 2 the standard deviations. The demeaned values of the effects are reported in Column 3. A simple inspection of the table shows that there is indeed a significant variation in the estimated effects across industries. The dispersion in the estimated sensitivities can be observed also in Figure 3a. The figure plots the  $\eta$  coefficients of each industry against its private credit-weighted average PCM. It is apparent that the relationship is not materially affected by the few outliers that are present.

Two comments regarding the estimation of (2) are in order. First, if our political economy story is relevant, the specification in (2) suffers from reverse causality because when rents are high incumbents have more resources to restrict the development of financial markets. We address this problem by instrumenting the measure of financial development with each country's legal origin, as is standard in the law and finance literature (La Porta et al. (1997),

<sup>4</sup> The use of the firm level data available for different countries is not an option in our case because these data sets have a very limited number of countries and data typically start after 1990 for those developing countries included.



**Figure 2. Financial development has a heterogeneous effect on the margins of industries: Nonbasic chemicals versus textiles.** The two panels of the figure show the relation across countries between *Private credit to GDP* and the average *Price–cost margin* during the 1980 to 2000 period for the nonbasic and textiles industries (Panels A and B, respectively).

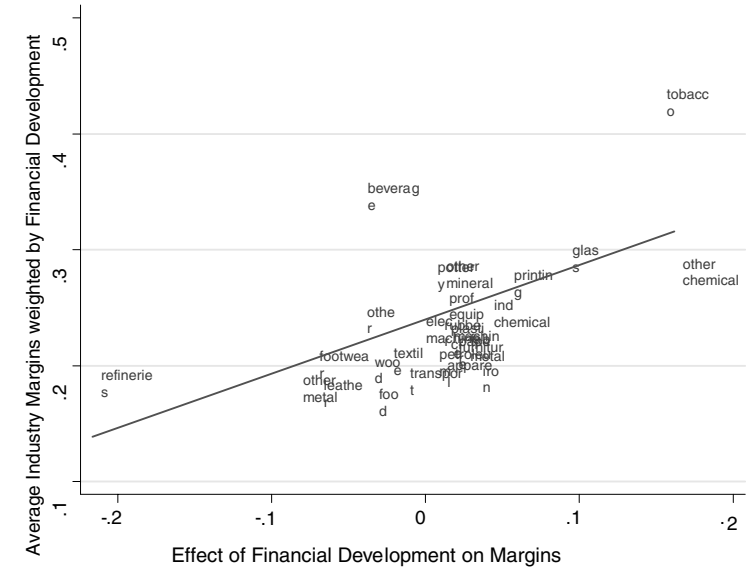
Beck Levine, and Loayza (2000)). Second, because of the multicollinearity induced by the “dummy problem” we can only identify relative effects. Thus, the  $\eta_i$  coefficient captures the impact of financial development on industry  $i$ ’s PCM relative to an arbitrary benchmark industry.

**Table I**  
**Financial Development and Industry Margins**

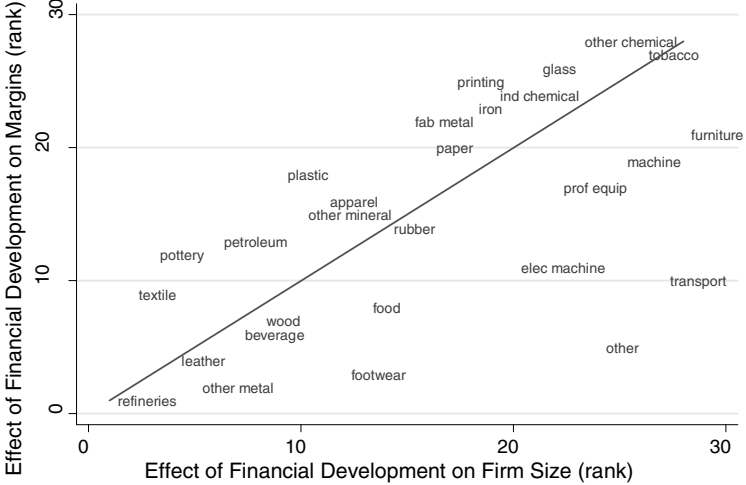
The table shows the coefficients obtained for the industry dummies that capture the sensitivity of each industry's price–cost margin to financial development in a regression of the price–cost margin of each industry in each country on an industry dummy, a country dummy, and an industry dummy interacted with each country's level of private credit (these last dummies are the ones reported below). The data for the regression correspond to averages of the variables for the period 1980 to 2000. The parameters were obtained by 2SLS instrumenting the level of private credit for each country's legal origin. The standard errors are robust to heteroskedasticity and clustered by country.

| Industry                                             | ISIC | Financial<br>Dev. Effect | Standard<br>Error | Demeaned Financial<br>Dev. Effect | Promoters       |
|------------------------------------------------------|------|--------------------------|-------------------|-----------------------------------|-----------------|
| Refineries                                           | 353  | −0.181                   | 0.067             | −0.217                            | 0               |
| Other metals                                         | 372  | −0.049                   | 0.048             | −0.085                            | 0               |
| Footwear                                             | 324  | −0.038                   | 0.050             | −0.074                            | 0               |
| Leather                                              | 323  | −0.036                   | 0.048             | −0.072                            | 0               |
| Beverage                                             | 313  | −0.007                   | 0.080             | −0.043                            | 0               |
| Other                                                | 390  | −0.007                   | 0.045             | −0.043                            | 0               |
| Wood                                                 | 331  | −0.003                   | 0.057             | −0.039                            | 0               |
| Food                                                 | 311  | —                        | —                 | 0.038                             | 0               |
| Textiles                                             | 321  | 0.010                    | 0.039             | −0.026                            | 0               |
| Transportation<br>equipment                          | 384  | 0.021                    | 0.055             | −0.015                            | 0               |
| Electrical<br>machinery                              | 383  | 0.031                    | 0.048             | −0.005                            | 0               |
| Pottery                                              | 361  | 0.038                    | 0.063             | 0.002                             | 0               |
| Petroleum                                            | 354  | 0.039                    | 0.072             | 0.003                             | 0               |
| Rubber                                               | 355  | 0.043                    | 0.048             | 0.007                             | 0               |
| Other Mineral                                        | 369  | 0.044                    | 0.045             | 0.008                             | 1               |
| Apparel                                              | 322  | 0.045                    | 0.042             | 0.009                             | 1               |
| Professional<br>equipment                            | 385  | 0.046                    | 0.064             | 0.010                             | 1               |
| Plastic                                              | 356  | 0.047                    | 0.051             | 0.011                             | 1               |
| Machinery                                            | 382  | 0.049                    | 0.047             | 0.013                             | 1               |
| Furniture                                            | 332  | 0.052                    | 0.043             | 0.016                             | 1               |
| Paper                                                | 341  | 0.052                    | 0.048             | 0.016                             | 1               |
| Fabricated metals                                    | 381  | 0.060                    | 0.045             | 0.024                             | 1               |
| Iron                                                 | 371  | 0.068                    | 0.047             | 0.032                             | 1               |
| Industrial<br>chemicals                              | 351  | 0.075                    | 0.059             | 0.039                             | 1               |
| Printing                                             | 342  | 0.088                    | 0.053             | 0.052                             | 1               |
| Glass                                                | 362  | 0.126                    | 0.048             | 0.090                             | 1               |
| Tobacco                                              | 314  | 0.187                    | 0.249             | 0.151                             | 1               |
| Other chemicals                                      | 352  | 0.198                    | 0.065             | 0.162                             | 1               |
|                                                      |      |                          | diff              | <i>t</i> -stat                    | <i>p</i> -value |
| Test of all<br>coefficients are<br>equal             |      |                          |                   |                                   | 0.0001          |
| Test Financial Dev. Effect Opponents – Promoters = 0 |      |                          |                   |                                   |                 |
| –All industries                                      |      |                          | −0.092            | −4.17                             | 0.0000          |
| –Excluding<br>extremes                               |      |                          | −0.054            | −3.88                             | 0.0000          |

Panel A: Financial Development and Margins



Panel B: Margins vs. Size Measure



**Figure 3. Industry margins and average firm size vary with financial development.** The two panels of the figure summarize the relation between financial development and the average margins and size of different industries. Panel A, which plots the estimated effect of financial development on the *Price-cost margins* of different three-digit ISIC industries across countries (on the x-axis) against the *Private-credit-weighted* average of the *Price-cost margins* of these industries in the same sample of countries, shows that there is dispersion in the effect of financial development on margins across industries and that the dispersion is not dominated by particular observations. Panel B plots the estimated effect of financial development on *Average size*, measured as the log of value-added per firm, (on the x-axis,) and *Price-cost margins* (on the y-axis) of different three-digit ISIC industries across countries.

The relationship between incumbent rents and financial development is, of course, quite complex. A number of industry characteristics are likely to be involved. Since there is not much previous research upon which to rely here, it is difficult to come up with good a priori proxies for some potentially important characteristics (such as the importance of innovation or the minimum efficient scale). Our approach reflects these problems. Specifically, we take an agnostic position regarding which industries we expect to be relatively more and less affected, and let the data speak under the assumption that the relative incentives of different industries in promoting financial sector development are reasonably constant across countries. The de-facto measure turns out to be correlated with a number of industry characteristics that should be relevant for the effect of financial development on the outcome of incumbents across industries, and because of their technological nature are not likely to change significantly across countries. Promoter industries tend to naturally (i.e., as measured in the U.S. data) have higher liquidity needs (as measured by the cash conversion cycle<sup>5</sup>), invest a higher share of cash flows, have fewer tangible assets, and have lower natural entry and exit. Also, the external finance requirements of old promoters are higher than for young promoters, and the gap is larger than that between old and young opponents. In the empirical section we explore further the role of external finance dependence.

It should be noted, however, that PCM also includes the normal returns to capital, which may depend on the price of capital relative to labor and which varies significantly across countries. Financial development could be a proxy for a country's capital abundance, and rents a proxy for an industry's capital intensity. If this channel were empirically important then  $\eta$  should be strongly positively correlated with an industry's capital intensity, and financial development should increase with PCM. Instead, the correlation between  $\eta$  and capital per worker is negative and insignificant, and financial development is associated with lower, not higher, average PCMs. Despite these findings, we control for the possible implications of this channel in our benchmark regression below. The channel will prove to be unimportant.

As a robustness check we consider an alternative measure of how incumbents are differently affected by financial development based on quantity instead of price variables. In particular, we measure the extent to which average firm size across industries is related to private credit. The ranking of industries along this dimension is very similar to the one using the PCM measure. The correlation of the two variables is 0.58, significant at the 1% level. The results turn out to be basically the same. The relationship between the PCM and the size measures is depicted in Figure 3b.

We use the  $\eta$  coefficients to distinguish between those industries that favor (in relative terms) policies conducive to the development of the financial system (henceforth the "*Promoters*") and those industries that oppose these policies (henceforth the "*Opponents*"). We identify the promoters (opponents)

<sup>5</sup> Cash conversion cycle is defined as  $\text{inventories} * 365 / (\text{cost of goods sold}) + \text{receivables} * 365 / \text{total sales} - \text{payables} * 365 / \text{costs of goods sold}$ .

as those industries with a  $\eta$  coefficient above (below) the median. We follow this approach for three reasons. First, it allows us to classify industries in a parsimonious manner that has the advantage of (i) simultaneously taking explicitly into consideration the relative nature of the estimated coefficients, and (ii) including the same number of industries in each group. In this way we are not stacking the cards against one particular group simply by including more industries among its members.<sup>6</sup> Second, this separation takes into account the natural clustering of the estimated coefficients. Third, although it would be possible to rely on the point estimates as measures of the degree an industry is opposed to financial development instead of classifying the industries into two groups, we do not follow this route because it requires the specific numerical differences in coefficients across industries to have explanatory power. Given the lack of precision of individual estimates and the lack of significance of many one-to-one comparisons, we believe it is preferable to focus instead on the broad, statistically significant differences across groups of industries. Nevertheless, we check our results using the point estimates as measures of the degree of opposition and find that, although considerably less precise, our results are qualitatively similar.

### B. Measuring the Relative Strength of the Parties

Incentives by themselves are not enough to induce financial development in our political economy story: The ability to influence policies is also necessary. We measure this ability by the rents of promoters relative to opponents. Rents provide promoters (opponents) the means to foster (obstruct) financial development through campaign contributions, fees for lobbying services, or the direct bribing of politicians depending on the institutional environment. Arguably, a competitive firm whose income covers only factor payments would have a harder time trying to finance these types of activities than a firm with abundant rents at its disposal. Accordingly, we define the relative Strength of promoters of financial development as follows:

$$\begin{aligned} \text{Strength of Promoters} &= PCM^{PROM} - PCM^{OPP} \\ &= \sum_{i \in \text{Promoters}} share_i \cdot PCM_i - \sum_{i \in \text{Opponents}} share_i \cdot PCM_i \end{aligned} \quad (4)$$

where  $PCM^{PROM}$  and  $PCM^{OPP}$  are the value-added weighted average PCM of promoters and opponents, respectively, and, for each industry  $i$  that belongs to the group of promoters or opponents,  $share_i$  is the share of that industry's value added in the total manufacturing value added in the country.<sup>7</sup>

<sup>6</sup> As mentioned above, we cannot identify the absolute impact of financial development on PCM for different industries but only the differential effect across industries. Any classification based on the actual values of the coefficients will therefore have no economic content.

<sup>7</sup> A previous version of the paper used the share in the value-added in each group of promoters and opponents. Similar results obtain because both groups tend to have similar sizes.

*C. Trade Liberalization and the Shock to the Political Economy Equilibrium*

In the mechanism we have in mind, the relative strength of promoters is an important determinant of the equilibrium level of financial system development. Testing whether countries dominated by promoters tend to have more developed financial systems directly is problematic for two reasons. First, omitted variable bias would be a significant concern. We do not intend to argue that the mechanism we propose here is the only or main determinant of financial development; after, we agree that it is relevant. Second, the very nature of the mechanism implies that relative rents should be endogenous if the groups care enough about financial development to try to shape it. Also, it is not clear that the test would have enough power since absent significant perturbations to this political economy equilibrium we would not expect significant changes in financial development.

We address both the omitted variable and endogeneity issues using an event study methodology instead. This also allows us to explore the time series of financial development, which is one of the main motivations of this paper. Three main assumptions are needed for this method to be valid: First, there is an event in the sense of a discrete change in conditions; second, that the event perturbs the relative strength of promoters; and third, the event is reasonably exogenous to the politics of financial development. We discuss and provide evidence for each of these assumptions in the context of trade liberalization below.

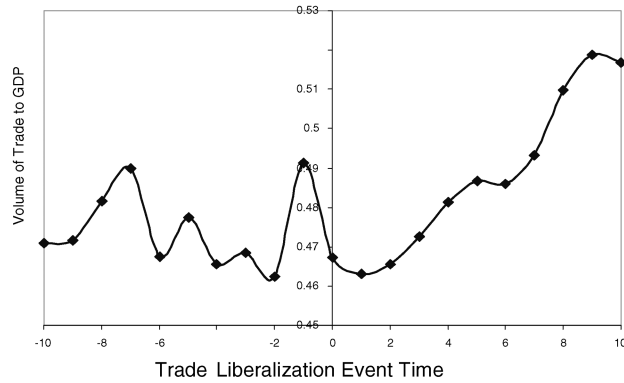
A significant change that potentially affects the relative strength during the last 20 years is that of trade liberalization, whereby an important number of countries opened their borders for trade in goods. As Rajan and Zingales (2003) stress, trade can have profound effects on the politics of financial development. The essence of the argument is that trade liberalization decreases incumbents' rents and consequently their ability to oppose financial sector development.<sup>8</sup> Relative prices are profoundly and permanently affected by trade liberalization. Since the change in prices is a function of world prices, comparative advantages, and the initial structure, the effect of trade liberalization across sectors varies from country to country. This and the different sizes of sectors across countries provide us with useful variation in the strength of promoters.

Following Sachs and Warner (1995), we consider trade liberalization as a discrete event that occurred at a specific time for each country. The dates of trade liberalization come from Wacziarg and Horn Welch (2003), who update the dates originally estimated by Sachs and Warner (1995).<sup>9</sup> A plausible argument against this approach is that trade liberalization is a gradual process instead of a one-time event. Although there is always some degree of gradualism in the implementation of reforms, an important aspect of trade liberalization is the removal of tariffs and quantitative restrictions that can have an immediate impact on the volume of a country's commerce. Figure 4a, which plots the average

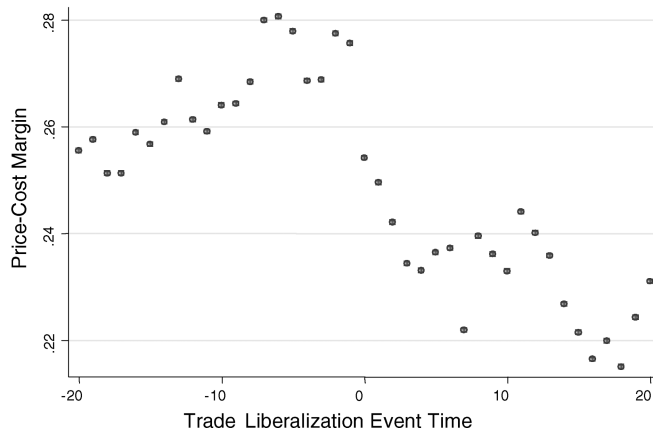
<sup>8</sup> Rajan and Zingales (2003) point out that the effect on financial development is likely to be stronger when the opposition of financial sector incumbents is muted by the free flow of capital.

<sup>9</sup> The sample of countries used in the study and the corresponding dates of trade liberalization are reported below in Table IV.

Panel A: Volume of Trade



Panel B: Aggregate Price-Cost Margin



**Figure 4. Trade liberalization has the expected effects on trade volume and margins.** The three panels of the figure show the effect of financial development on different variables. Panel A plots the average *Volume of trade* (exports plus imports) as a fraction of GDP around the time of trade liberalization, after controlling for year fixed effects. Panel B presents a similar figure for the evolution of *Price-cost margins* around the liberalization event. Panel C shows the median absolute deviation of the residuals of a regression of the strength of promoters on its lagged value around the liberalization date. In all three panels, the x-axis corresponds to years in the event time horizon ( $t = 0$  in the year of trade liberalization).

volume of trade as a fraction of GDP around the time of trade liberalization, shows that our liberalization dates do indeed capture a discrete break in the trend of the volume of trade for the typical country.<sup>10</sup>

As expected, there is a large discrete decline in average margins following the liberalization event (Figure 4b). The impact of trade liberalization on the equilibrium between promoters and opponents (i.e., on the relative margins)

<sup>10</sup> Volume of trade corresponds to the sum of exports and imports as a fraction of GDP, and is obtained from the World Bank World Development Indicators 2003.

Panel C: Relative Price-Cost Margins

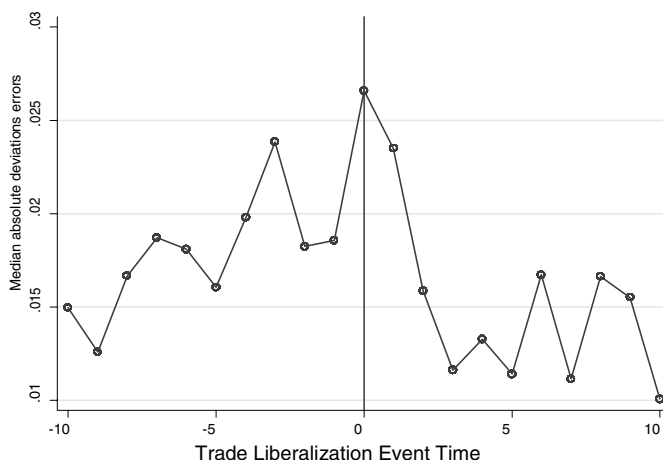


Figure 4.— Continued

is shown in Figure 4c. The figure shows the median absolute deviation of the residuals of a regression of the strength of promoters on its lagged value around the liberalization date.<sup>11</sup> If changes in the strength of promoters across countries were just random, the median absolute deviation of the residuals would be stable around the event. On the contrary, we observe a spike around the time of the event that signals that trade liberalization has a significant heterogeneous effect on the strength of promoters across countries. Notice also that by year  $t + 5$  this relationship as well as the level of aggregate margins seem to stabilize.

Thus, trade liberalization seems to be a reasonably discrete event that has a heterogeneous effect on relative margins. This is the main source of variation our dependent variable is based upon. Following this idea, *Strengthening of promoters* is computed for each country as the change in the *Strength of promoters* resulting from variations in the relative rents of this group around the trade liberalization event:

$$\begin{aligned} \text{Strengthening of promoters} &= \Delta PCM^{PROM} - \Delta PCM^{OPP} \\ &= \sum_{i \in \text{Promoters}} \text{share}_i \cdot \Delta PCM_i - \sum_{i \in \text{Opponents}} \text{share}_i \cdot \Delta PCM_i, \end{aligned} \quad (5)$$

where the shares correspond to the average value in the 5-year window before liberalization, and are computed as above,<sup>12</sup> and  $\Delta PCM_i$  corresponds to the

<sup>11</sup> We use the median absolute deviation instead of the standard deviation or the  $R^2$  because the small number of countries for which we can perform the exercise (average number of countries in a given event time is around 25) renders the last two measures too sensitive to outliers. A robust measure of  $R^2$  obtained from a trimmed regression (not reported) gives similar results.

<sup>12</sup> The total change in the strength of promoters includes a term associated with the change in the average shares of the groups around liberalization. We omit this term because the actual changes in shares in the 5-year window are minor, and also may be contaminated by entry. For

change in average PCM of an industry in a 5-year window around liberalization date  $\tau$ :

$$\Delta PCM_i = \sum_{t=\tau}^{\tau+5} \frac{1}{6} PCM_i - \sum_{t=\tau-5}^{\tau-1} \frac{1}{5} PCM_i. \quad (6)$$

The last cause of concern with our view of trade liberalization as a shock to the political economy equilibrium is the potential endogeneity of trade liberalization. Agents could anticipate the financial effects of trade liberalization and internalize them in their decision to open up. Below we deal with this issue in a number of ways. It will prove to be unimportant for our main results. However, in order to test our hypothesis in the broadest possible way and with the caveat of data limitations, we also look at the impact of the oil price shock on the strength of the different parties in the same way we measure the impact of trade liberalization. This shock is more clearly exogenous to the balance of power between local parties.

## II. Results

In this section we show that the cross-country variation in financial development following trade liberalization can be explained in part with our measure of the strengthening of promoters. We first document some stylized facts on the relation between trade liberalization and financial development in the cross-section of countries that highlight both the role of liberalization as a shock to the political economy equilibrium and the variation in the data that we try to explain. Next, we present our main result, check its robustness, provide details of the mechanism, and use the liberalization experiment within the political economy framework to further explore the real effects of financial development.

### *A. Trade and Financial Development*

Here we present some new evidence on the relationship between trade and financial development.<sup>13</sup> Table II provides summary statistics for a sample of 73 countries for which we have complete data for both trade openness and private credit to GDP during the 1970s, 1980s, and 1990s. We split the data into two groups based on whether the country liberalized trade during the period or not,

instance, suppose that incumbents in a sector are weakened by liberalization and their rents are reduced, so that they cannot block entry. The size of that sector may therefore expand giving the wrong impression that the strength of the sector may have increased. Using the initial shares solves this problem and can be understood as a way of capturing the change in rents of incumbents only. Nevertheless, results obtained using different shares before and after are analogous but a few of the observations are lost because of data availability and outlier behavior.

<sup>13</sup> For previous evidence see, for example, Rajan and Zingales (2003), and Stulz and Williamson (2003).

**Table II**  
**Persistence of Financial Development and Trade Liberalization**

The table shows the characteristics of the ranking of countries based on private credit to GDP for the 1995 to 1999 and 1970 to 1974 periods, and three different groups: trade liberalizers, nonliberalizers, and the whole sample. The persistence of the position in the ranking is significantly higher for the group of countries that did not liberalize trade. \*, \*\*, \*\*\* denotes significance at the 10%, 5%, and 1% level, respectively.

|                                                                 | Mean     | St. Dev. | Median | Minimum | Maximum |
|-----------------------------------------------------------------|----------|----------|--------|---------|---------|
| <b>Whole Sample (73 countries)</b>                              |          |          |        |         |         |
| Private Credit Rank in 1995–1999                                | 37.0     | 21.2     | 37.0   | 1       | 73      |
| Private Credit Rank in 1970–1974                                | 37.0     | 21.2     | 37.0   | 1       | 73      |
| Change in Rank                                                  | 0.0      | 0.0      | 0.0    | –28     | 48      |
| Share of Variance of Rank 1995–1999 explained by Rank 1970–1974 | 51.0%    |          |        |         |         |
| Rank Correlation Private Credit 1970–1974 / 1995–1999           | 0.677*** |          |        |         |         |
| <b>Liberalizers (28 countries)</b>                              |          |          |        |         |         |
| Private Credit Rank in 1995–1999                                | 29.6     | 15.9     | 30.0   | 3       | 67      |
| Private Credit Rank in 1970–1974                                | 25.7     | 14.5     | 22.5   | 4       | 64      |
| Change in Rank                                                  | 3.9      | 19.1     | 1.0    | –28     | 48      |
| Share of Variance of Rank 1995–1999 explained by Rank 1970–1974 | 0.136    |          |        |         |         |
| Rank Correlation Private Credit 1970–1974 / 1995–1999           | 4.6%     |          |        |         |         |
| <b>Non-Liberalizers (45 countries)</b>                          |          |          |        |         |         |
| Private Credit Rank in 1995–1999                                | 41.6     | 22.9     | 48.0   | 1       | 73      |
| Private Credit Rank in 1970–1974                                | 44.0     | 21.8     | 49.0   | 1       | 73      |
| Change in Rank                                                  | –2.4     | 13.5     | –1.0   | –25     | 32      |
| Share of Variance of Rank 1995–1999 explained by Rank 1970–1974 | 67.0%    |          |        |         |         |
| Rank Correlation Private Credit 1970–1974 / 1995–1999           | 0.756*** |          |        |         |         |

and compute a ranking based on private credit, taking the average value in the 1970 to 1974 and 1995 to 1999 periods. The first panel reports statistics for the whole sample.

At first glance, it would appear that opening up to trade has little impact on financial development. Countries that liberalized trade (first panel) advanced

on average just 3.9 positions in the ranking of 73 countries. Aside from this figure not being economically noteworthy, it is not statistically significant either. The median change in the ranking is even smaller (1 position). The data are not particularly supportive of the view that trade liberalization triggers financial development automatically. Notice also that the ranking of private credit is highly persistent over time. When considering liberalizers and nonliberalizers together (third panel) the rank correlation of the measures in the early 1970s and the late 1990s is 0.68. The countries' initial position then explains more than 50% of their position more than a quarter century later.

Consider, however, what happens when we compare the persistence of liberalizers and nonliberalizers. While for the countries that did not open up for trade during the period the initial position in the ranking explains two thirds of the variation in the final position, for the liberalizers it explains less than 5% and the correlation is not statistically significant. Figure 5 makes the point graphically by plotting the relationship between initial and final rank for the two groups separately. Countries above (below) the upper (lower) straight line in each figure gained (lost) at least as many positions as to outpace (lag behind) one-fifth of the countries in their respective group. While over 60% of the liberalizers lie outside the region, only 23% of the nonliberalizers do so.

The data show that trade liberalization is a perturbation to the high persistence of financial development. There is thus a way to reconcile the view that financial development is determined by a country's institutions, consistent with high persistence, with the idea that opening the economy to trade changes matters.

## B. Trade Liberalization and the Political Economy Determinants of Financial Development

### B.1. Specification and Data

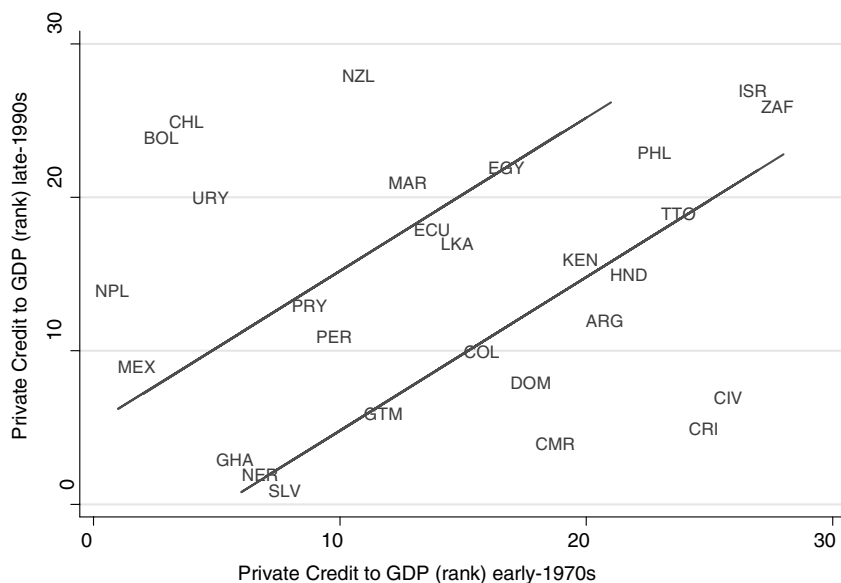
Using the measure of the *Strengthening of promoters* defined in Section II.B, introducing some specific controls, and specifying the form of the error term, the benchmark specification in (1) becomes

$$\Delta FD_c = D_{event}\delta + \alpha \times FD_{0,c} + \beta \times [\textit{Strengthening of promoters}]_c + \varepsilon_c + \mu_{event}, \quad (7)$$

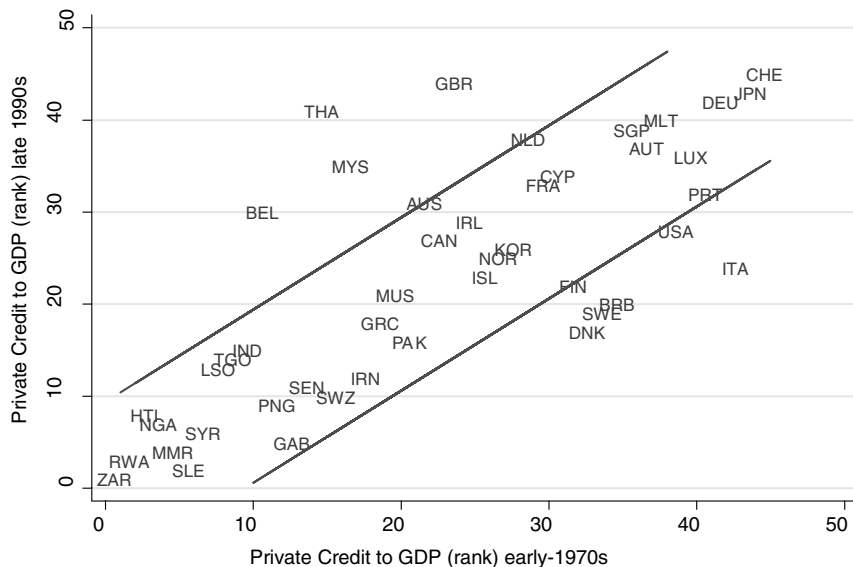
where  $\Delta FD$  is the change in the ratio of bank credit to the private sector to GDP computed as the difference between the average ratio between  $t - 5$  and  $t - 1$ , and the average ratio between  $t + 5$  and  $t + 10$  (everything in event time);<sup>14</sup>

<sup>14</sup> Notice that we do not include the years immediately after the event ( $\tau$  to  $\tau + 5$ ) to compute the level of postevent financial development because we assume that the political economy mechanism operates with some delay. Nevertheless, as will be shown later, this assumption can be significantly relaxed.

## Panel A: Trade Liberalizers



## Panel B: Trade Non-Liberalizers



**Figure 5. The persistence of financial development is higher for countries that did not liberalize trade.** The two panels of the figure plot a country's world ranking of its level of *Private credit to GDP* in the years 1970 to 1975 (x-axis) against the same ranking in the 1995 to 2000 (y-axis). Panels A and B show this relation for countries that did and did not liberalize trade during the 1970 to 2000 period, respectively.

$FD_0$  is average private credit between  $t - 5$  and  $t - 1$ ;  $D_{event}$  is a set of dummies for the year of trade liberalization; *Strengthening of promoters* is the measure of the change in the relative strength of promoters as defined as in equation (3); and  $\varepsilon_c$  and  $\mu_{event}$  are country and event error components. The coefficients  $\alpha$ ,  $\beta$ , and  $\delta$  are the parameters to be estimated. Our hypothesis is that the coefficient of interest,  $\beta$ , is positive and statistically significant.

We do not include stock market measures of financial development in the analysis mainly for data reasons. A number of countries in the sample simply do not have a stock market, and, for those that do, traditional data sources only provide indicators for very recent periods (from 1992 to 1996), well after the date when they liberalized trade. This reduces the sample significantly and does not generate any clear-cut result. We also think that within-industry heterogeneity is likely to be much more important in the decision of whether to promote or oppose stock market development than the cross-industry heterogeneity we exploit in this paper. While virtually all firms within an industry will depend on bank credit, only a few firms (the very large ones) will even consider going public.

Table III shows the basic characteristics of the sample of 41 countries.<sup>15</sup> The mean (median) value of the change in private credit is 8% (6%) with a standard deviation of 19%. This confirms previous cross-country evidence on the positive relation between trade openness and financial development. This is reassuring given the difficulty in interpreting cross-country relationships. In our setting, where fixed-country characteristics are controlled for, we show that the dependent variable follows the change in openness over time.

Note, however, that although significantly positive, there is important cross-country variation in the change in private credit that follows trade liberalization. A 95% confidence interval places the effect between 2.4 and 13.4 points of GDP. Moreover, for 12 of the 41 countries in the sample private credit actually decreases. The dispersion of private credit right before trade liberalization is, in comparison, quite small: 17% over a mean of 24%. The correlation between initial credit and its change is negative ( $-0.23$ ) but not significant. The statistical moments suggest that there is ample variation across countries in the change in private credit that cannot be explained simply by initial conditions or any time-invariant country characteristic. The *Strengthening of promoters* variable also displays ample variation: It is centered on a mean (median) of zero ( $-1\%$ ) with a standard deviation of 4%.

<sup>15</sup> There are six developed (Australia, Ireland, Korea, Japan, New Zealand, and Singapore) and 35 developing countries. Latin America is the largest group with 17 countries, followed by East Asia Pacific and Sub-Saharan Africa with six each. The sample also includes three transition economies (Hungary, Poland, and Romania). Eight countries liberalized in 1991, four in 1996 and 1986 each, and three in 1990, 1989, and 1985.

**Table III**  
**Sample Characteristics**

The table presents the timing of trade liberalization, the evolution of financial development, and the extent to which promoters of financial development were strengthened relative to opponents.

| Country           | Trade<br>Liberalization<br>Year | Bank Credit to<br>Private Sector to GDP |       |        | Entrenchment<br>Strengthening of<br>Promoters<br>of Fin. Dev. |
|-------------------|---------------------------------|-----------------------------------------|-------|--------|---------------------------------------------------------------|
|                   |                                 | Initial                                 | Final | Change |                                                               |
| Argentina         | 1991                            | 0.22                                    | 0.22  | 0.00   | 0.002                                                         |
| Australia         | 1964                            | 0.19                                    | 0.24  | 0.06   | -0.001                                                        |
| Bangladesh        | 1996                            | 0.17                                    | 0.28  | 0.11   | -0.031                                                        |
| Bolivia           | 1985                            | 0.12                                    | 0.37  | 0.25   | 0.025                                                         |
| Brazil            | 1991                            | 0.43                                    | 0.30  | -0.13  | -0.018                                                        |
| Chile             | 1976                            | 0.08                                    | 0.59  | 0.51   | 0.038                                                         |
| Cameroon          | 1993                            | 0.23                                    | 0.08  | -0.15  | 0.029                                                         |
| Colombia          | 1986                            | 0.15                                    | 0.15  | 0.00   | -0.001                                                        |
| Costa Rica        | 1986                            | 0.18                                    | 0.12  | -0.06  | -0.037                                                        |
| Ecuador           | 1991                            | 0.12                                    | 0.25  | 0.13   | -0.026                                                        |
| Egypt             | 1995                            | 0.24                                    | 0.54  | 0.30   | 0.087                                                         |
| Ethiopia          | 1996                            | 0.06                                    | 0.23  | 0.17   | -0.018                                                        |
| Ghana             | 1985                            | 0.02                                    | 0.05  | 0.03   | -0.013                                                        |
| Guatemala         | 1988                            | 0.17                                    | 0.15  | -0.02  | -0.009                                                        |
| Honduras          | 1991                            | 0.25                                    | 0.32  | 0.07   | -0.013                                                        |
| Hungary           | 1990                            | 0.38                                    | 0.25  | -0.12  | -0.012                                                        |
| Ireland           | 1966                            | 0.33                                    | 0.27  | -0.05  | 0.003                                                         |
| Israel            | 1985                            | 0.71                                    | 0.62  | -0.09  | -0.010                                                        |
| Jamaica           | 1989                            | 0.24                                    | 0.23  | 0.00   | -0.014                                                        |
| Jordan            | 1965                            | 0.17                                    | 0.23  | 0.06   | -0.019                                                        |
| Japan             | 1964                            | 0.74                                    | 0.86  | 0.12   | 0.007                                                         |
| Kenya             | 1993                            | 0.20                                    | 0.25  | 0.05   | -0.018                                                        |
| Korea             | 1968                            | 0.12                                    | 0.33  | 0.22   | 0.000                                                         |
| Sri Lanka         | 1991                            | 0.20                                    | 0.29  | 0.09   | 0.002                                                         |
| Morocco           | 1984                            | 0.17                                    | 0.18  | 0.02   | 0.003                                                         |
| Mexico            | 1986                            | 0.15                                    | 0.28  | 0.13   | 0.000                                                         |
| Nepal             | 1991                            | 0.11                                    | 0.27  | 0.15   | -0.009                                                        |
| New Zealand       | 1986                            | 0.20                                    | 0.87  | 0.67   | -0.001                                                        |
| Panama            | 1996                            | 0.55                                    | 0.95  | 0.40   | 0.005                                                         |
| Peru              | 1991                            | 0.07                                    | 0.25  | 0.18   | -0.008                                                        |
| Philippines       | 1988                            | 0.22                                    | 0.41  | 0.19   | 0.048                                                         |
| Poland            | 1990                            | 0.04                                    | 0.23  | 0.20   | 0.016                                                         |
| Romania           | 1992                            | 0.53                                    | 0.09  | -0.44  | 0.006                                                         |
| Singapore         | 1965                            | 0.36                                    | 0.52  | 0.16   | -0.003                                                        |
| Slovenia          | 1989                            | 0.07                                    | 0.04  | -0.03  | 0.003                                                         |
| Trinidad & Tobago | 1992                            | 0.33                                    | 0.32  | -0.01  | 0.037                                                         |
| Turkey            | 1989                            | 0.18                                    | 0.20  | 0.03   | -0.029                                                        |
| Tanzania          | 1995                            | 0.12                                    | 0.05  | -0.07  | -0.007                                                        |
| Uruguay           | 1990                            | 0.38                                    | 0.38  | 0.00   | -0.004                                                        |
| Venezuela         | 1996                            | 0.14                                    | 0.10  | -0.04  | 0.001                                                         |
| South Africa      | 1991                            | 0.52                                    | 0.69  | 0.17   | -0.009                                                        |
| Mean              |                                 | 0.24                                    | 0.32  | 0.08   | 0.000                                                         |

(continued)

Table III—Continued

| Country                                 | Trade<br>Liberalization<br>Year | Bank Credit to<br>Private Sector to GDP |       |        | Entrenchment<br>Strengthening of<br>Promoters<br>of Fin. Dev. |
|-----------------------------------------|---------------------------------|-----------------------------------------|-------|--------|---------------------------------------------------------------|
|                                         |                                 | Initial                                 | Final | Change |                                                               |
| Median                                  |                                 | 0.19                                    | 0.25  | 0.06   | −0.001                                                        |
| Std. Dev.                               |                                 | 0.17                                    | 0.22  | 0.19   | 0.023                                                         |
| Correlation with:                       |                                 |                                         |       |        |                                                               |
| Initial Credit                          |                                 | 1                                       | 0.58  | −0.23  | 0.04                                                          |
| Final Credit                            |                                 |                                         | 1     | 0.66   | 0.26                                                          |
| Change in Credit                        |                                 |                                         |       | 1      | 0.28                                                          |
| Entrenchment                            |                                 |                                         |       |        | 1                                                             |
| Strengthening of Promoters of Fin. Dev. |                                 |                                         |       |        |                                                               |

Our sample only includes countries that did liberalize trade. Sample selection (i.e., the fact that some countries choose to open up for trade while others do not) potentially has an effect on the size of the constant in (5); however, it plays no role in the identification of the coefficient for the political economy variable. This is an important advantage of our methodology since we need not worry about the interaction between the decisions to liberalize trade and the financial system. This is not to say that we can safely treat trade and financial liberalization as independent. There are other possibilities. One is related to the timing of liberalization. For instance, some countries may have liberalized trade when the rest of the world was more open to the flow of both goods and capital, which might translate to higher impact on trade volume and capital flows—induced deepening of bank credit. This could show up through *Strengthening of promoters* if relative world prices across sectors were themselves a function of global trade time-varying characteristics such as the long-term decline of textiles or the diverse cyclical properties of industries around the world business cycle (in terms of durability, for instance). To address the issue of timing in a very general way, specification (5) includes trade liberalization year fixed effects. Lastly, we allow for heteroskedasticity and the possibility of errors to be clustered around trade liberalization dates.

### B.2. Main Result

The first column in Table IV shows that the coefficient on *Strengthening of promoters* is positive and highly significant. The initial level of private credit to GDP turns out not to be significantly associated with subsequent changes in the variable after the event. Figure 6a, which plots the partial relationship derived from the regression above, makes more apparent the sense in which the mean change in financial development after trade liberalization is not a very useful statistic in gauging the relationship between the two variables. It also shows that there is no noticeable clustering around geographical or economic

**Table IV**  
**Trade Liberalization and the Political Economy Determinants**  
**of Financial Development**

The dependent variable is, for each country, the change in private credit to GDP between the period  $t - 5$  to  $t - 1$  and the period  $t + 5$  to  $t + 10$ , where  $t$  denotes the year in which the country liberalized trade. *Strengthening of promoters* is the difference between the average (value added weighted) change in the price–cost margin of the promoters and opponents groups. Promoters (opponents) are those industries that score higher (lower) than median in the measure of the effect of financial development on margins (Columns 1 through 4) and average firm size (Columns 5 through 8). The change in the price–cost margin for each group is computed as the difference in the margin between the period  $t - 5$  to  $t - 1$  and  $t$  to  $t + 5$ . Errors (in parentheses below each coefficient) are robust to heteroskedasticity and allow for clustering by year of trade liberalization. Liberalization year fixed effects are included but not reported. \*, \*\*, \*\*\* denotes significance at the 10%, 5%, and 1% level, respectively.

|                               | Margins Measure     |                     |                    |                    | Size Measure        |                     |                    |                    |
|-------------------------------|---------------------|---------------------|--------------------|--------------------|---------------------|---------------------|--------------------|--------------------|
|                               | (1)                 | (2)                 | (3)                | (4)                | (5)                 | (6)                 | (7)                | (8)                |
| Initial private credit to GDP | −0.094<br>(0.169)   | −0.065<br>(0.193)   | −0.150<br>(0.207)  | −0.129<br>(0.324)  | −0.056<br>(0.193)   | −0.025<br>(0.216)   | −0.131<br>(0.229)  | −0.153<br>(0.336)  |
| Strengthening of promoters    | 4.019**<br>(1.413)  | 3.798**<br>(1.517)  | 4.014**<br>(1.449) | 3.875**<br>(1.345) | 3.713**<br>(1.587)  | 3.623*<br>(1.846)   | 3.894**<br>(1.633) | 3.638**<br>(1.457) |
| GDP growth                    |                     | 0.065<br>(0.319)    |                    |                    |                     | −0.026<br>(0.342)   |                    |                    |
| Change in investment rate     |                     |                     | −0.301<br>(0.860)  |                    |                     |                     | −0.341<br>(0.822)  |                    |
| Ln (Initial GDP per capita)   |                     |                     |                    | 0.008<br>(0.066)   |                     |                     |                    | 0.023<br>(0.062)   |
| Constant                      | 0.367***<br>(0.052) | 0.357***<br>(0.090) | 0.209<br>(0.158)   | −0.094<br>(0.488)  | 0.452***<br>(0.030) | 0.457***<br>(0.080) | 0.235<br>(0.173)   | −0.234<br>(0.462)  |
| Observations                  | 41                  | 39                  | 38                 | 40                 | 41                  | 39                  | 38                 | 40                 |
| $R^2$                         | 0.54                | 0.55                | 0.54               | 0.54               | 0.50                | 0.52                | 0.52               | 0.52               |

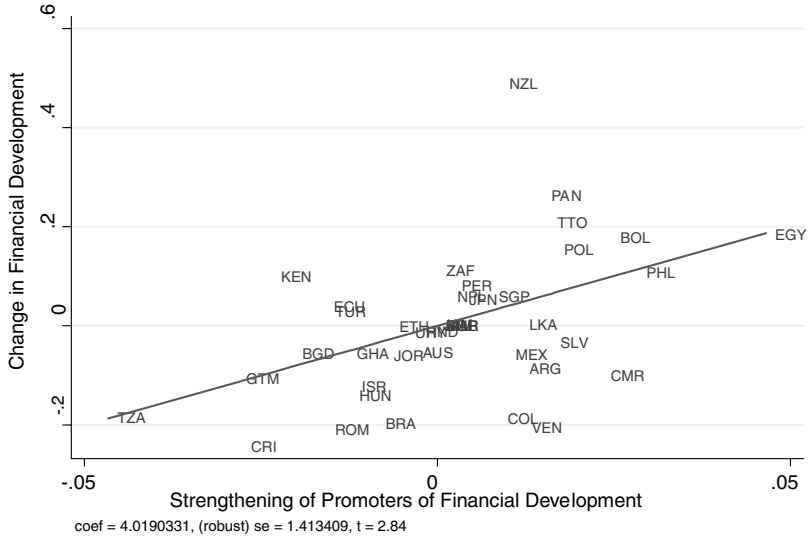
dimensions.<sup>16</sup> The degree of trade liberalization-induced strengthening of promoters explains the heterogeneous evolution of financial development. It alone explains around one-fourth of the variation in the dependent variable not accounted for in the initial level of financial development and the fixed effects. Furthermore, the relation does not seem to be driven by a few influential outliers but rather to be a robust pattern in the data.

Figure 6b shows the time pattern of private credit around the liberalization event. The figure plots average private credit to GDP against event time separately for the group of countries that score above and below the median in the *Strengthening of promoters* variable.<sup>17</sup> Before trade liberalization the two groups are remarkably similar both in terms of the level of bank credit (around

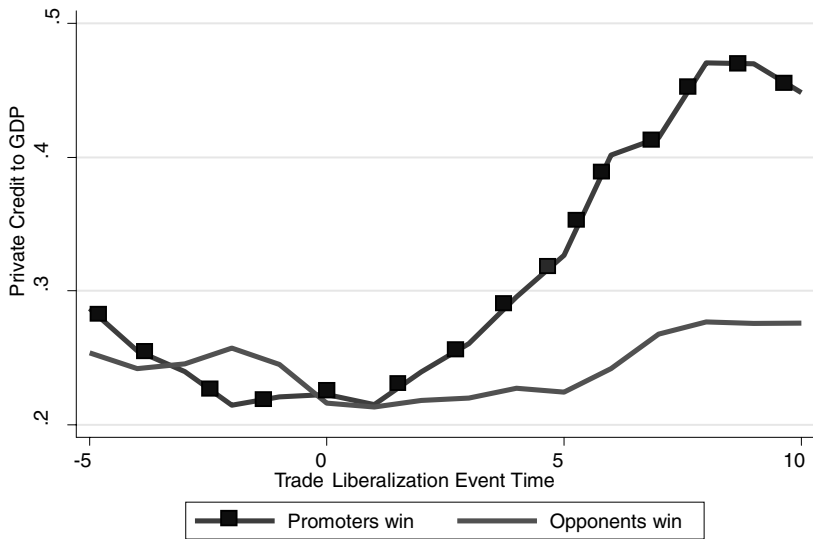
<sup>16</sup> Variables capturing geographical or economic proximity when included are almost always insignificant and they never affect the coefficient of the political economy variable in a material way (see some of them in the remainder of Table IV).

<sup>17</sup> This figure only considers the countries for which we have complete private credit data coverage for the  $\pm 10$ -year window around the trade liberalization event.

Panel A: Cross-country



Panel B: Dynamics



**Figure 6. The increase in financial development following trade liberalization is positively correlated with the strengthening of promoters.** Panel A shows the partial correlation between a country's *Strengthening of promoters* and change in *Financial development* (measured as the change in the level of *Private credit to GDP*) around the year of trade liberalization after controlling for the initial (preliberalization) level of financial development and liberalization-year fixed effects. Panel B displays the evolution of the level of *Private credit to GDP* around the year of trade liberalization among countries where the relative rents of promoter industries increase (line with squares) and decrease (simple line).

25% of GDP) and its evolution. Shortly after liberalization, though, the group of countries for which the shock advances the political prospects of improving the financial system shows rapidly increasing private credit, ending up at around 45% of GDP or almost twice the value before the event. In contrast, in the countries in which conditions for developing the financial system do not improve as much, private credit shows no significant change on average, ending up at roughly the same level as before. The postliberalization difference between the two groups is quite large, comparable to the distance between Denmark and Ecuador or Chile and Libya in the 1990s.

One can alternatively rely on quantity measures that, although indirect, also suggest the existence of incumbent rents. We compute the strengthening of promoters of financial development substituting the effect of financial development on margins with the effect of financial development on average firm size across industries. The average firm size measure has been used previously in similar contexts.<sup>18</sup> The ranking of industries along this dimension turns out to be almost identical to the one based on margins, and therefore yields very similar results in terms of its power to explain trade liberalization-induced financial development (see Column 5).

### *B.3. Supply or Demand*

The result in the first column, although indicative, does not necessarily imply that financial development was formerly constrained by poor policy. Demand considerations are also a possibility. In fact, whether the level of financial development responds primarily to demand or to supply factors has been the main issue in this literature at least since the pioneering efforts of Goldsmith (1969). In our context, trade liberalization, and more generally the reform process, can shift the investment possibility frontier and thus alter the demand for funds. This would introduce omitted variable bias if the change in demand for funds happened to be correlated with the strengthening of promoters variable.

Columns 2 and 3 (6 and 7 for the size-based measure of strengthening of promoters) try to address the issue by adding two controls thought to be associated with investment possibilities and the demand for funds: changes in GDP growth and changes in the investment rate around the liberalization date, respectively. Neither the effect of trade liberalization on GDP growth nor its effect on the change in the investment rate seems to be driving our result. They do not enter significantly nor do they materially affect the size of the coefficient on strengthening of promoters.

It might still be the case that growth or investment takes time to become visible, or that they are just poor measures of the change in investment possibilities. Instead of trying to measure how the frontier shifts one can assume that countries were initially close to their own frontier and that this frontier shifts out to achieve a common level for all countries that liberalize (a level given

<sup>18</sup> Among others, by Rajan and Zingales (1998), Cetorelli (2001, 2003), and Cetorelli and Strahan (2003).

Table V  
Endogeneity of Trade Liberalization and Further Robustness

The dependent variable is, for each country, the change in private credit to GDP between the period  $t - 5$  to  $t - 1$  and the period  $t + 5$  to  $t + 10$ , where  $t$  denotes the year in which the country liberalized trade. *Strengthening of promoters* is the difference between the average (value-added weight) change in the price-cost margin of the promoters and opponents groups. Promoters (opponents) are those industries that score higher (lower) than median in the measure of the effect of financial development on margins. The change in the price-cost margin for each group is computed as the difference in the margin between the period  $t - 5$  to  $t - 1$  and  $t$  to  $t + 5$ . *Change in volume of trade* is computed as the change in the ratio of imports plus exports to GDP between the period  $t - 5$  to  $t - 1$  and the period  $t + 5$  to  $t + 10$ . *Ln(Initial terms of trade)* is the average terms of trade (1995 = 100) in  $t - 5$  to  $t - 1$ . *Strength of promoters in the United States* is the average margin ( $t - 5$  to  $t - 1$ ) in the United States of promoters minus that of opponents. *Initial capital abundance* is the (log) average value of capital per worker from  $t - 5$  to  $t - 1$  constructed using data from Easterly and Levine (2001). *Initial IMF disbursement to GDP* is the average ratio of IMF disbursements to GDP between  $t - 5$  and  $t - 1$ . *Economic crisis* is a dummy equal to one if GDP growth is lower than  $-5\%$  in any year during the  $t - 5$  to  $t - 1$  period, and zero otherwise. *Political crisis* is a dummy that takes one if either a government crisis or revolution happens during  $t - 5$  to  $t - 1$ , and zero otherwise. *Sensitivity weighted change in PCMs* is the change in the price-cost margin of different industries weighed by the sensitivity of each industry's PCM to financial development. In (8) the coefficients and standard errors correspond to the means and standard deviations of the empirical distributions obtained after performing a parametric bootstrapping on the sensitivities of different industries to financial development. In (9) the effect of financial development on margins is measured using cross-country data for the 1960s only. Except from (8), errors (in parentheses below each coefficient) are robust to heteroskedasticity and allow for clustering by year of trade liberalization. Liberalization year fixed effects are included but not reported. \*, \*\*, \*\*\* denotes significance at the 10%, 5%, and 1% level, respectively.

|                                   | (1)                | (2)                | (3)                 | (4)                | (5)                | (6)                | (7)                | (8)                 | (9)                | (10)               | (11)              |
|-----------------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|--------------------|--------------------|---------------------|--------------------|--------------------|-------------------|
| Initial private credit to GDP     | -0.126<br>(0.235)  | -0.105<br>(0.182)  | -0.098<br>(0.177)   | -0.129<br>(0.231)  | -0.057<br>(0.296)  | -0.196<br>(0.173)  | -0.089<br>(0.172)  | -0.086<br>(0.030)   | -0.098<br>(0.184)  | 0.115<br>(0.221)   | -0.049<br>(0.167) |
| Strengthening of promoters        | 3.812**<br>(1.487) | 4.001**<br>(1.512) | 4.247***<br>(1.384) | 3.806**<br>(1.341) | 4.110**<br>(1.598) | 4.047**<br>(1.378) | 5.142**<br>(1.964) | 2.880***<br>(0.664) | 1.567**<br>(0.630) | 5.487**<br>(2.226) |                   |
| Change in volume of trade         | -0.182<br>(0.206)  |                    |                     |                    |                    |                    |                    |                     |                    |                    |                   |
| Initial terms of trade            |                    | -0.043<br>(0.306)  |                     |                    |                    |                    |                    |                     |                    |                    |                   |
| Strength of promoters in the U.S. |                    |                    | 0.362<br>(0.524)    |                    |                    |                    |                    |                     |                    |                    |                   |
| Initial capital abundance         |                    |                    |                     | 0.016<br>(0.046)   |                    |                    |                    |                     |                    |                    |                   |
| Initial IMF disbursement to GDP   |                    |                    |                     |                    | 0.958<br>(3.291)   |                    |                    |                     |                    |                    |                   |

(continued)

Table V—Continued

|                                     | (1)              | (2)              | (3)                 | (4)              | (5)               | (6)                 | (7)                | (8)                 | (9)                 | (10)              | (11)                |
|-------------------------------------|------------------|------------------|---------------------|------------------|-------------------|---------------------|--------------------|---------------------|---------------------|-------------------|---------------------|
| Economic crisis                     |                  |                  |                     |                  |                   | −0.106*             |                    |                     |                     |                   |                     |
|                                     |                  |                  |                     |                  |                   | (0.054)             |                    |                     |                     |                   |                     |
| Political crisis                    |                  |                  |                     |                  |                   |                     | −0.069**           |                     |                     |                   |                     |
|                                     |                  |                  |                     |                  |                   |                     | (0.032)            |                     |                     |                   |                     |
| Sensitivity weighted change in PCMs |                  |                  |                     |                  |                   |                     |                    |                     |                     |                   |                     |
| Constant                            | 0.001<br>(0.092) | 0.175<br>(1.473) | 0.368***<br>(0.052) | 0.215<br>(0.442) | −0.040<br>(0.074) | 0.239***<br>(0.020) | 0.239**<br>(0.102) | 0.416***<br>(0.055) | 0.448***<br>(0.028) | 9.965<br>(12.570) | −13.730<br>(10.235) |
| Observations                        | 38               | 39               | 41                  | 41               | 32                | 41                  | 41                 | 41                  | 41                  | 41                | 41                  |
| R <sup>2</sup>                      | 0.56             | 0.54             | 0.55                | 0.54             | 0.50              | 0.59                | 0.61               | 0.49                | 0.52                | 0.42              | 0.56                |

by common world factors). If this is so, a country's initial position can be used as a measure of the distance to the expanded frontier or new investment possibilities. We approximate each country's initial position with the average GDP per capita in the 5-year period preceding trade liberalization. Again, adding this variable has no effect on our results (Columns 4 and 8).

#### *B.4. Endogeneity of Trade Liberalization and Further Robustness*

Why would some countries liberalize trade knowing that this would unleash political economy forces leading to financial underdevelopment? Wouldn't the agents involved anticipate the effects? This issue is important but should not be overemphasized. First, trade liberalization has been shown to have a positive effect (for the effect on growth, see Sachs and Warner (1995)), in which case it may be worthwhile to open up even at the cost of having a relatively less well-developed financial system. Second, our result shows that on average trade liberalization is associated with 8 points higher private credit to GDP; only a few countries actually decrease their degree of development in absolute terms. Furthermore, the exact effect of trade liberalization across sectors might not be obvious a priori (see, for instance, the argument put forward by Hausmann and Rodrik (2002)). In expectation the effect on subsequent financial development is in fact an additional benefit in the aggregate.

The general issue we are concerned with is the existence of a third (omitted) variable driving both the political economy variable and financial development. Having included only those countries that actually liberalized and having controlled for the timing of the decision, the issue speaks to the reasons for liberalizing trade and how these reasons interact with those associated with developing the financial system. Trade and financial liberalization do not necessarily come separately but rather may be part of a reform process that includes both. To introduce bias in our estimation one needs to argue that the reason some countries adopt them together and others don't is correlated with the strengthening of promoters variable.

One possibility is that the degree of bundling of policies is a function of local forces. The outcomes of initial reforms may matter a lot in securing political support for the next round (see, for the case of mass privatization, Roland and Verdier (1994) and Boycko, Shleifer, and Vishny (1995)). It might be the case that the countries we see developing their financial systems faster do so not because the political balance between promoting and opposing incumbents changes, but simply because the first round of reforms (trade liberalization) worked well and the liberalization process gained further political support. We check this possibility by introducing the effect of trade liberalization on the volume of trade, which we compute in the same way we do the effect on private credit. The correlation between this variable and the political economy one is negative and insignificant, and when included in the regression appears insignificantly negative leaving the results mostly unaltered (see Column 1, Table IV).

**Table VI**  
**The Oil Shock and the Political Economy Determinants**  
**of Financial Development**

The dependent variable is, for each country, the change in private credit to GDP between the period  $t - 5$  to  $t - 1$  and the period  $t + 5$  to  $t + 10$ , where  $t$  corresponds to 1973. Strengthening of promoters is the difference between the average (value added weighted) change in the price-cost margin of the promoters and opponents groups. Promoters (opponents) are those industries that score higher than median in the measure of the effect of financial development on margins. The change in the price-cost margin for each group is computed as the difference in the margin between the period  $t - 5$  to  $t - 1$  and  $t$  to  $t + 5$ . In Columns 5 through 7 the industries of Petroleum Refineries and Miscellaneous Oil Products are dropped from all computations. Errors (in parentheses below each coefficient) are robust to heteroskedasticity and allow for clustering by year of trade liberalization. Liberalization year fixed effects are included but not reported. \*, \*\*, \*\*\* denotes significance at the 10%, 5%, and 1% level, respectively.

|                               | All Industries      |                     |                     |                     | Non-Oil Industries Only |                   |                   |                     |
|-------------------------------|---------------------|---------------------|---------------------|---------------------|-------------------------|-------------------|-------------------|---------------------|
|                               | (1)                 | (2)                 | (3)                 | (4)                 | (5)                     | (6)               | (7)               | (8)                 |
| Initial private credit to GDP | 0.102<br>(0.111)    | 0.097<br>(0.098)    | 0.101<br>(0.123)    | -0.079<br>(0.133)   | 0.129<br>(0.127)        | 0.106<br>(0.112)  | 0.117<br>(0.138)  | -0.053<br>(0.149)   |
| Strengthening of promoters    | 2.622**<br>(1.166)  | 2.738**<br>(1.274)  | 2.793**<br>(1.203)  | 2.958**<br>(1.069)  | 2.597**<br>(1.119)      | 2.427*<br>(1.331) | 2.530*<br>(1.270) | 2.686**<br>(1.131)  |
| Initial oil to total exports  | 0.004***<br>(0.001) | 0.004***<br>(0.001) | 0.004***<br>(0.001) | 0.003***<br>(0.001) | 0.001<br>(0.001)        | 0.001<br>(0.001)  | 0.001<br>(0.001)  | 0.001<br>(0.001)    |
| Middle-East & North Africa    | 0.238**<br>(0.090)  | 0.195*<br>(0.110)   | 0.205*<br>(0.109)   | 0.207**<br>(0.082)  | 0.162**<br>(0.076)      | 0.136<br>(0.109)  | 0.146<br>(0.116)  | 0.148*<br>(0.083)   |
| GDP growth                    |                     | 0.017<br>(0.099)    |                     |                     |                         | 0.041<br>(0.106)  |                   |                     |
| Change in investment rate     |                     |                     | -0.064<br>(0.373)   |                     |                         |                   | 0.002<br>(0.436)  |                     |
| Ln (Initial GDP per capita)   |                     |                     |                     | 0.049**<br>(0.018)  |                         |                   |                   | 0.048**<br>(0.018)  |
| Constant                      | -0.011<br>(0.038)   | -0.019<br>(0.056)   | -0.014<br>(0.041)   | -0.345**<br>(0.123) | -0.007<br>(0.037)       | -0.016<br>(0.056) | -0.004<br>(0.039) | -0.329**<br>(0.122) |
| Observations                  | 29                  | 28                  | 27                  | 28                  | 29                      | 28                | 27                | 28                  |
| $R^2$                         | 0.36                | 0.33                | 0.33                | 0.46                | 0.33                    | 0.26              | 0.26              | 0.38                |

Another possible explanation is that countries may be more likely to liberalize trade and the financial system when the external conditions are most favorable. If terms of trade were associated more tightly with the prices of opponent industries, and tended to mean-revert, there could be a spurious association between the strengthening of promoters and financial development. The correlation between the strengthening of promoters and the initial terms of trade (the average for the 5 years preceding trade liberalization), although positive, turns out to be small and not significant. When the initial level of terms of trade is included in the benchmark regression (Column 2) it does not enter significantly. Similar results obtained when measuring the ex-ante incentives to liberalize using the growth rate of trading partners (not reported).

Cross-industry incentives can also be at the heart of the reasons to liberalize trade. It may be the case that those countries that developed the financial

system further after opening to trade just happened to be those in which promoters of trade and finance coincided, and not necessarily those in which promoters of financial development were strengthened by trade liberalization.<sup>19</sup> We address this concern in the following way. For each group (promoters and opponents of financial development) we compute the average margin for those industries in the United States in the period right before trade liberalization. We interpret the margin in the United States as the (normalized) international price of output and take its difference across groups as an indicator of the relative incentive of promoters of financial development to liberalize trade. Column 3 shows that this is not the case: This variable is virtually uncorrelated with our main variable and does not enter significantly in the regression.<sup>20</sup>

A final possibility is that the link between the simultaneity of reforms and the strengthening of promoters may result from technological factors. If among countries that liberalized trade only those that were initially capital scarce also engaged in financial liberalization, a trivial relation may appear between the strengthening of promoters and financial development. This relation could result from the possible response of the PCM of capital-intensive industries to the decline in the relative price of capital in capital-scarce countries predicted by standard trade theory. To control for this possibility we directly add a measure of the relative abundance of capital before trade liberalization to our benchmark regression. If this mechanism were important, this measure should be negative and significant, while our measure of promoters' strengthening should become statistically and economically insignificant. The results reported in Column 4 show that, on the contrary, the initial level of capital per worker has a positive and insignificant coefficient, while the coefficient on the strengthening of promoters is largely unaffected.

The politics of trade liberalization do not seem, at least in this sample, tightly intertwined with the specific political economy mechanism of financial development discussed here. The fact that almost all countries decided to liberalize in a relatively short period of time, and that this time happened to coincide with the emergence of a strong international political agenda towards free trade, points to the view that the trade process was more the result of external forces and largely independent of the financial development ones.

Still, external forces can also be related to the bundling of reforms. One case would be that of a country subject to the structural reforms conditionality of IMF programs. We do not have data on the exact conditions imposed by each IMF program in each country. However, we can measure the likelihood that IMF involvement implied commitment to all-encompassing reforms (as opposed to

<sup>19</sup> The implications of this related mechanism in terms of the decision to expand trade or not are quite interesting and merit further research. They are nevertheless out of our scope. Since we only have countries that did liberalize, we simply need to worry about this reason being correlated with our explanatory variable.

<sup>20</sup> A different way of controlling for this possibility is to add the initial relative strength of promoters as a control in the benchmark regression. Again, we do not observe any significant impact on the main coefficient (not reported).

just trade-related ones) with the ratio of funds disbursed to GDP in the period preceding trade liberalization. The variable enters positively (although not significantly) in the regression (Column 4). The coefficient on the strengthening variable remains unchanged, suggesting that even if the extent of IMF intervention can partly explain the extent of reforms, this is not what the political variable is picking up.

A major crisis can be thought of as an event that triggers conflict between powerful groups that would otherwise coexist while extracting rents out of weaker groups (Tornell (1998)). The existence of a crisis prior to trade liberalization can be correlated with the strengthening of promoters if the industries in this group tend to be more affected and therefore to see a larger recovery in their margins once the crisis is over. In Columns 5 and 6 we add indicators for the existence of, respectively, economic crisis (GDP growth below  $-5\%$ ) and political crisis (government crisis or revolution, from Arthur S. Banks Cross-National Time Series Data Archive) in the 5 years prior to trade liberalization. Interestingly, the likelihood that financial development follows trade liberalization seems to be lower, not higher, if a crisis supposedly motivated the reforms (both coefficients are negative and of relevant economic magnitude). The mechanism is independent of the one we propose though.

We conduct a number of additional robustness tests that are not reported. First, we form groups of industries based on whether the response of their PCM to GDP per capita, to the economy size, to country physical capital abundance and industry capital intensity, and to country level openness to trade was above or below the median level; measure their strengthening around trade liberalization dates in a similar way as above; and include them as additional regressors in our benchmark specification. The idea is to determine whether our measure of strengthening of promoters is driven by other variables that are likely to change around trade liberalization. We also play with the size of the windows used to measure the change in PCMs and the change in financial development, exclude industries (tobacco and oil) for which the country-specific PCM might not be a very good measure of rents because of country-industry-specific tax rate variation, and exclude industries located two deciles around the median of the sensitivity of PCM to financial development to keep just the industries that clearly belong to one or the other group. None of these affect the result in a material way.

In Column 8 we report coefficients and standard errors for the benchmark regression (in Column 1, Table IV) obtained by performing a parametric bootstrapping on the sensitivities of the different industry's PCM to financial development. This procedure addresses the problem of "generated regressors" that can bias the OLS-based inference. The bootstrapping procedure takes explicitly into account the imprecision of the estimated sensitivities and should therefore produce correct standard errors in our baseline regression. Also, by bootstrapping on the estimated sensitivities and looking at the empirical distribution of the coefficient we can rule out the possibility that our noisy classification generates a significant relationship in our benchmark specification purely by chance. The mean coefficient obtained from the bootstrapping procedure is very

similar to the benchmark coefficient (although somewhat smaller), and most importantly, is still significant at the 1% level.<sup>21</sup>

We also define promoters and opponents based on margins and financial development data across countries during the 1960s, with the idea of this identification not using data for the same period when most of the trade liberalizations occur (the 1980s and 1990s). This allows us to examine the margin's financial development relationship in a period when the world as a whole was quite closed to international trade, and therefore the relative prices within countries were supposedly more dependent on local factors. The rank correlation between the 1960s and the benchmark measures turns out to be quite high (0.68), and the results unchanged (see Column 9). We experiment with other periods for the measurement of the margins elasticity to financial development and come to the conclusion that the results are not very sensitive to this issue.<sup>22</sup>

By looking at the difference between those industries with high and low sensitivities to financial development we are implicitly taking the estimated sensitivities into account, but in a discrete rather than continuous way. Although it would be possible to rely on the point estimates as measures of the degree of opposition of an industry to financial development instead of classifying the industries into two groups, we do not follow this route because it requires the specific numerical differences in coefficients across industries to have explanatory power. Given the lack of precision of individual estimates and the lack of significance of many one-to-one comparisons, we believe it is preferable instead to focus on the broad, statistically significant differences across groups of industries. We nevertheless check the results using the continuous measure of strengthening in Column 10. The coefficient on the continuous variable has the correct sign and similar magnitude as the one obtained with the discrete classification. However, as expected, the lack of precision of the measure built using the noisy values of the coefficients translates into lack of statistical significance. Moreover, when included together with our measure of strengthening (Column 11) the coefficient is still not statistically significant and turns negative, which indicates that the positive coefficient obtained in Column 10 is largely due to the correlation between this variable and the broad differences between groups captured in our preferred measure of strengthening.

<sup>21</sup> The bootstrapping procedure is performed as follows. At each point in the iteration we use the information reported in Table I to draw a new value for the sensitivity of each industry to financial development from a normal distribution with mean and standard deviation equal to those reported in the table. We then use these new sensitivities to reclassify industries among promoters and opponents, measure the impact of trade liberalization on the strengthening of promoters, and re-estimate the benchmark. The procedure is repeated 1,000 times.

<sup>22</sup> We are unable to measure the markups-financial development elasticities excluding the countries that liberalized or otherwise reformed because only 20 out of 108 countries for which data on trade liberalization are available had not liberalized as of 2000. For several of these countries data on financial development or margins are not available.

### B.5. The 1973 Oil Shock Event

Trade liberalization is not the only shock that can change the politics of financial development. In order to validate our results, we replicate the procedure using the 1973 oil shock. The main advantage of using the oil shock is the fact that this shock is more exogenous than trade liberalization. The disadvantages are that (i) (because of data availability) our sample drops from 41 to 29 countries, and that (ii) since the oil shock affects all countries at the same time, we cannot include time fixed effects. In Table VI we replicate our Table IV benchmark results. To account for large differences in the importance of oil across economies, we add to the specification a dummy variable that captures whether the country is in North Africa or the Middle East, and a variable that measures the share of oil in total exports. Furthermore, given in some countries the oil industry may be subject to different political processes (precisely because of oil's importance), we present the results both including all industries and leaving the oil-related industries aside.

The coefficient on *Strengthening of promoters* enters positively and significantly as expected, suggesting that our previous results are not entirely related to the particular shock considered, but rather can be generalized to other changes in the political balance between promoters and opponents of financial development. Again, the result is generally robust to the inclusion of several variables meant to capture changes in the demand of external finance, and is also robust to using the sensitivities of average firm size to financial development as the variable to classify industries as promoters and opponents (not reported).

### B.6. Competing Explanations

The political economy mechanism we propose here is not the only mechanism that can trigger financial sector reform. We consider a couple of alternatives in Table VII.

The first alternative is related to variation across industries in their dependence on external funds as in Rajan and Zingales (1998). Financial underdevelopment may constrain the growth of highly dependent industries. Countries with important financially dependent sectors that see their margins decline with trade liberalization may be more likely to encourage financial sector development. The opposite result is also possible since, by changing the relative desirability of investing across sectors, trade liberalization can have an effect on the aggregate demand for external funds. If margins increase more in sectors with higher demand for external funds it would not be surprising to find that the stock of credit increases due to pure demand and not for political economy considerations. Interestingly, these alternative channels are not mediated by the strength of the different sectors in a political economy game, and hence are quite distinct to the one we propose.<sup>23</sup>

<sup>23</sup> We thank the referee for suggesting this channel.

Table VII  
Competing Explanations

The dependent variable is, for each country, the change in private credit to GDP between the period  $t - 5$  to  $t - 1$  and the period  $t + 5$  to  $t + 10$ , where  $t$  corresponds to 1973. Strengthening of promoters is the difference between the average (value added weighted) change in the price-cost margin of the promoters and opponents groups. Promoters (opponents) are those industries that score higher than median in the measure of the effect of financial development on margins. The change in the price-cost margin for each group is computed as the difference in the margin between the period  $t - 5$  to  $t - 1$  and  $t$  to  $t + 5$ . *Strengthening of high external finance dependence industries* is constructed in a way analogous to strengthening of promoters but using a dummy variable for high external finance dependence instead of the promoters indicator. *External dependence-weighted changes in PCMs* are based on the continuous variable in Rajan and Zingales (1998). *Change in size of promoters* was computed as the pre-post trade liberalization change in the share of value added of each industry using the  $t - 5$  to  $t - 1$ , and  $t + 1$  to  $t + 5$  averages and the promoters/opponents discrete classification. *Change in share of industry weighted by sensitivity of margins to financial development* is analogous but uses the continuous version of the sensitivity of margins to financial development. Errors (in parentheses below each coefficient) are robust to heteroskedasticity and allow for clustering by year of trade liberalization. Liberalization year fixed effects are included but not reported. \*, \*\*, \*\*\* denotes significance at the 10%, 5%, and 1% level, respectively.

|                                                             | (1)               | (2)                 | (3)               | (4)                 | (5)               | (6)                | (7)               | (8)                |
|-------------------------------------------------------------|-------------------|---------------------|-------------------|---------------------|-------------------|--------------------|-------------------|--------------------|
| Initial private credit to GDP                               | -0.067<br>(0.241) | -0.102<br>(0.167)   | -0.093<br>(0.208) | -0.980<br>(0.165)   | -0.071<br>(0.227) | -0.090<br>(0.176)  | -0.081<br>(0.224) | -0.052<br>(0.163)  |
| Strengthening of promoters                                  |                   | 4.526***<br>(1.334) |                   | 3.895***<br>(1.428) |                   | 3.808**<br>(1.542) |                   | 4.478**<br>(1.696) |
| Strengthening of high external finance dependent industries | 1.903<br>(1.897)  | -0.886<br>(1.308)   |                   |                     |                   |                    |                   |                    |
| External finance dependence-weighted change in PCMs         |                   |                     | -5.678<br>(8.489) | -1.573<br>(7.077)   |                   |                    |                   |                    |
| Change in size of promoters                                 |                   |                     |                   |                     | 0.409<br>(0.508)  | 0.121<br>(0.472)   |                   |                    |

(continued)

Table VII—Continued

|                                                                                         | (1)                       | (2)                       | (3)                       | (4)                       | (5)                       | (6)                       | (7)                       | (8)                       |
|-----------------------------------------------------------------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Change in share of industry weighted by sensitivity of margins to financial development |                           |                           |                           |                           |                           |                           |                           |                           |
| Constant                                                                                | 0.449***<br>(0.069)<br>41 | 0.379***<br>(0.062)<br>41 | 0.485***<br>(0.055)<br>41 | 0.363***<br>(0.062)<br>41 | 0.484***<br>(0.047)<br>41 | 0.365***<br>(0.055)<br>41 | 0.516***<br>(0.022)<br>41 | 0.356***<br>(0.057)<br>41 |
| Observations                                                                            | 0.43                      | 0.55                      | 0.43                      | 0.54                      | 0.44                      | 0.55                      | 0.40                      | 0.55                      |
| R <sup>2</sup>                                                                          |                           |                           |                           |                           |                           |                           |                           |                           |

The concern here is that our measure of the effect of financial development on industry rents may be strongly correlated with dependence on external finance. Either a negative (as in the first hypothesis) or positive (as in the second hypothesis) correlation may be driving our results, leading us to wrongly assign the effect to the strengthening of promoters. However, the correlation between external finance dependence and the effect of financial development on margins is 0.105, not significantly different from zero ( $p$ -value 51%). In Columns 1 through 4 we test whether countries with important financially dependent sectors that see their margins decline with trade liberalization see their level of financial development increase or decrease. We do this by regressing the postliberalization change in financial development on *Strengthening of high external finance dependence industries* (Columns 1 and 2) and *External dependence-weighted changes in PCMs* (Columns 3 and 4). The former is constructed in a way analogous to strengthening of promoters but using a dummy variable for high external finance dependence instead of the promoters indicator derived from Table I. The latter is based on the continuous variable in Rajan and Zingales (1998). Consistent with the first alternative hypothesis (the political economy hypothesis) the level of financial development tends to decrease when dependent industries strengthen, albeit not significantly so. When this new measure is added to the benchmark specification, the variable enters insignificantly and does not affect the estimates for the coefficient on the *Strengthening of promoters*.<sup>24</sup>

At a very general level, what differentiates our story from nonpolitical economy ones is that in the latter financial sector development would just be a function of incentives, and not also of the rents of the different players. The incentive for a country to reform and develop its financial system is likely related to the importance or relative size of the groups that benefit significantly from such reform. Trade liberalization may change the importance of these groups and trigger financial reform through a channel distinct from the one analyzed in this paper. To test the competing hypotheses we build two measures of the change in the aggregate incentives to develop the financial system, and add them to our benchmark specification. The first measure is *Change in size of promoters*, which corresponds to the change in the share of manufacturing value added of promoters relative to opponents around trade liberalization. The second measure is *Change in share of industry weighted by sensitivity of margins to financial development*. This measure is the sum, across the 28 manufacturing sectors, of the product of each industry's  $\eta$  (see Table I) and the change in its share of manufacturing value-added around trade liberalization. For both measures, the changes in shares are computed in the 5-year window immediately around liberalization. The results, reported in Columns 5 to 8, show that neither measure of the incentives to develop the financial system, whether alone or in addition to *Strengthening of promoters*, is ever significant.

<sup>24</sup> Similar results obtain when the impact of trade liberalization on external finance dependent industries is measured as the difference in the change in margins of the group of industries that score higher and lower than the median in Rajan and Zingales's (1998) index of external finance dependence.

As an additional way of disentangling these two hypotheses, we also estimate the parameters of the levels version of our benchmark specification using country-year panel data:

$$FD_{c,t} = \alpha_c + \alpha_t + \gamma \ln(PCGDP_{c,t}) + \beta \times [Strength\ of\ promoters]_{c,t-1} + \lambda \times [Size\ of\ promoters]_{c,t-1} + \varepsilon_{c,t}, \quad (8)$$

where  $FD$  is the level of private credit to GDP in country  $i$  at time  $t$ ,  $PCGDP$  is the level of per capita GDP, and  $\alpha_c$  and  $\alpha_t$  are country and time fixed effects, respectively. *Strength of promoters* is measured at time  $t-1$  assuming that the political economy mechanism takes some time to influence financial development, and to partially address the endogeneity issue. For *Size of promoters*, we experiment with two different measures built using our discrete and continuous separation between promoter and opponent industries in a similar fashion as in the previous paragraph. *Relative size of promoters* is the difference in the share in value added of Promoters and Opponents, and *Share of industry weighted by sensitivity of margins to financial development* is the product of the share of an industry in value added and our continuous estimates of the sensitivity of margins to financial development (Table I). The results of this estimation, reported in Table VIII, show that the lagged value of the strength of promoters is positively and significantly related to the level of financial development. When the relative size of promoters is used as the explanatory variable, either in its discrete or its continuous version the coefficient is never significant. Furthermore, the strength of promoters is still positive and significant when both variables are added to the specification. With all the caveats of this type of estimation, we believe that finding the expected correlation between the strength of promoters and financial development in this setting is encouraging and provides additional confirmation of our main results.

These two pieces of evidence favor the political economy hypothesis. Incentives or the aggregate benefit of developing the financial system alone do not seem to be sufficient to generate financial development, rather, rents in particular hands appear to be necessary to grease the wheels of the political machine.

### III. Conclusion

This paper shows that the trade liberalization-induced strengthening of promoters vis-à-vis opponents of financial development is a good predictor of subsequent changes in financial sector depth. From a policy standpoint the results are important in two ways. First, although deep institutional explanations play a role, to an important extent countries have the level of financial development they choose. Policy convergence to best-practice standards is not likely to happen automatically unless the political economy conditions for such a change are present. Identifying and co-opting potential opponents might be necessary to ensure the political sustainability of reforms. Second, policies that on average have a liberalizing effect on markets are not by themselves enough to guarantee

**Table VIII**  
**Levels Panel Regressions**

The dependent variable is, for each country and year, the level of private credit as a fraction of GDP. *GDP per capita* is the contemporaneous level of GDP per capita in constant U.S. dollars. *Strength of promoters (lagged)* is the lagged value of the (share weighted) difference in PCM between those industries classified as promoters and those classified as opponents. Promoters (opponents) are those industries that score higher than median in the measure of the effect of financial development on margins. *Relative Size of Promoters* is the difference in the share in value added of promoters and opponents. For *Share of industry weighted by sensitivity of margins to financial development* we use the continuous version of the sensitivity of margins to financial development. Errors (in parentheses below each coefficient) are robust to heteroskedasticity. Country and year fixed effects are included but not reported. \*, \*\*, \*\*\* denotes significance at the 10%, 5%, and 1% level, respectively.

|                                                                                                          | (1)                  | (2)                  | (3)                  | (4)                  | (5)                  |
|----------------------------------------------------------------------------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| ln(GDP per capita)                                                                                       | 0.329***<br>(0.020)  | 0.329***<br>(0.025)  | 0.334***<br>(0.025)  | 0.324***<br>(0.025)  | 0.327***<br>(0.025)  |
| Strength of<br>promoters <sub>t-1</sub>                                                                  | 0.285*<br>(0.160)    |                      | 0.369**<br>(0.171)   |                      | 0.297*<br>(0.166)    |
| Relative size<br>of promoters <sub>t-1</sub>                                                             |                      | -0.026<br>(0.043)    | 0.016<br>(0.048)     |                      |                      |
| Share of industry<br>weighted by<br>sensitivity of<br>margins to financial<br>development <sub>t-1</sub> |                      |                      |                      | 14.280<br>(9.561)    | 7.742<br>(10.180)    |
| Constant                                                                                                 | -2.116***<br>(0.204) | -2.151***<br>(0.212) | -2.183***<br>(0.214) | -2.110***<br>(0.209) | -2.133***<br>(0.210) |
| Observations                                                                                             | 844                  | 844                  | 844                  | 844                  | 844                  |
| R <sup>2</sup>                                                                                           | 0.86                 | 0.87                 | 0.87                 | 0.87                 | 0.87                 |

their extension to the financial system. They can even worsen the situation. In this sense, understanding the interrelation between reforms and their timing seems of first-order importance.

## REFERENCES

- Acemoglu, Daron, and Simon Johnson, 2003, Unbundling institutions, Working paper 9934 NBER.
- Beck, Thorsten, Ross Levine, and Norman Loayza, 2000, Finance and the sources of growth, *Journal of Financial Economics* 58, 261–300.
- Boycko, Maxim, Andrei Shleifer, and Robert Vishny, 1995, *Privatizing Russia* (MIT Press, Cambridge, MA).
- Braun, Matias, 2002, Financial contractibility and assets hardness, Working paper, University of California, Los Angeles.
- Braun, Matias, and Borja Larrain, 2005, Finance and the business cycle: International, inter-industry evidence, *Journal of Finance* 60, 1097–1128.
- Cetorelli, Nicola, 2001, Does bank concentration lead to concentration in the industrial sector? Federal Reserve Bank of Chicago working paper 2001-01.
- Cetorelli, Nicola, 2003, Real effects of bank concentration and competition in Europe, Working paper, Federal Reserve Bank of Chicago.

- Cetorelli, Nicola, and Philip Strahan, 2003, Finance as a barrier to entry: Bank competition and industry structure in local U.S. markets, Working paper 2004-04, Federal Reserve Bank of Chicago.
- Chevalier, Judith, 1995, Capital structure and product market competition: Empirical evidence from the supermarket industry, *American Economic Review* 85, 415–435.
- Clarke, Roger, Stephen Davies, and Michael Waterson, 1984, The profitability-concentration relation: Market power or efficiency? *Journal of Industrial Economics* 32, 435–450.
- Collins, Norman, and Lee Preston, 1969, Price-cost margins and industry structure, *Review of Economics and Statistics* 51, 271–286.
- Domowitz, Ian, R. Gleen Hubbard, and Bruce Petersen, 1986, Business cycles and the relationship between concentration and price-cost margins, *Rand Journal of Economics* 17, 1–17.
- Easterly, William, and Ross Levine, 2001, It's not factor accumulation: Stylized facts and growth models, *The World Bank Economic Review* 15, 177–219.
- Encaoua, David, and Alexis Jacquemin, 1980, Degree of monopoly, indices of concentration and threat of entry, *International Economic Review* 21, 87–105.
- Goldsmith, Raymond, 1969, *Financial Structure and Development* (Yale University Press, New Haven, CT).
- Guiso, Luigi, Paola Sapienza, and Luigi Zingales, 2004, The role of social capital in financial development, *The American Economic Review* 94, 3, 526.
- Hausmann, Ricardo, and Dani Rodrik, 2002, Economic development as self-discovery, *Journal of Development Economics* 72, 603–633.
- Jayarathne, Jith, and Philip E. Strahan, 1996, The finance-growth nexus: Evidence from bank branch deregulation, *Quarterly Journal of Economics* 111, 639–670.
- King, Robert G., Ross Levine, 1993, Finance and growth: Schumpeter might be right, *Quarterly Journal of Economics* 58, 717–737.
- Kroszner, Randall, 1998, The political economy of banking and financial regulatory reform in emerging markets, *Research in Financial Services* 10, 33–51.
- Kroszner, Randall, and Philip Strahan, 1999, What drives deregulation? Economics and politics of the relaxation of bank branching restrictions, *Quarterly Journal of Economics* 114, 1437–1467.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny, 1997, Legal determinants of external finance, *Journal of Finance* 52, 1131–1150.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny, 1998, Law and finance, *Journal of Political Economy* 106, 1113–1155.
- Pagano, Marco, and Paolo F. Volpin, 2005a, The political economy of corporate governance, *American Economic Review* 95, 1005–1030.
- Pagano, Marco, and Paolo Volpin, 2005b, Managers, workers, and corporate control, *Journal of Finance* 60, 841–868.
- Perotti, Enrico C., and Ernst-Ludwig von Thadden, 2006, The political economy of corporate control and labor rents, *Journal of Political Economy* 114, 145–174.
- Perotti, Enrico C., and Paolo F. Volpin, 2004, The political economy of entry: Lobbying and financial development, Working paper AFA 2005 Philadelphia Meetings.
- Phillips, Gordon, 1995, Increased debt and industry product markets: An empirical analysis, *Journal of Financial Economics* 37, 189–238.
- Raddatz, Claudio, 2006, Liquidity needs and vulnerability to financial underdevelopment, *Journal of Financial Economics* 80, 677–722.
- Rajan, Raghuram, and Luigi Zingales, 1998, Financial dependence and growth, *American Economic Review* 88, 559–586.
- Rajan, Raghuram, and Luigi Zingales, 2003, The great reversals: The politics of financial development in the twentieth century, *Journal of Financial Economics* 69, 5–50.
- Roe, Mark, 2003, *Political Determinants of Corporate Governance* (Oxford University Press, Oxford, UK).
- Roland, Gerard, and Thierry Verdier, 1994, Privatization in Eastern Europe: Irreversibility and critical mass effects, *Journal of Public Economics* 54, 161–183.
- Sachs, Jeffrey D., and Andrew M. Warner, 1995, Economic reform and the process of global integration, *Brookings Papers on Economic Activity* 1–118.

- Stigler, George, 1971, The theory of economic regulation, *Rand Journal of Economics* 2, 3–21.
- Stulz, Rene, and Rohan Williamson, 2003, Culture, openness, and finance, *Journal of Financial Economics* 70, 313–349.
- Tornell, Aaron, 1998, Reform from within, Working paper 6497 NBER.
- UNIDO (United Nations Industrial Development Organization), 2002, *Industrial Statistics Database* (UNIDO, New York) CD-ROM.
- Wacziarg, Romain, and Karen Horn Welch, 2003, Trade liberalization and growth: New evidence, Working paper 10152 NBER.