UvA-DARE (Digital Academic Repository)

Stakeholder Corporate Governance: The Combined Effects of Bank Competition and Employment Protection

Claessens, S.; Ueda, K.

DOI

[10.2139/ssrn.2444152](https://doi.org/10.2139/ssrn.2444152)

Publication date

2014

Document Version

Submitted manuscript

[Link to publication](#)

Citation for published version (APA):

Claessens, S., & Ueda, K. (2014). *Stakeholder Corporate Governance: The Combined Effects of Bank Competition and Employment Protection*. International Monetary Fund.
<https://doi.org/10.2139/ssrn.2444152>

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

Stakeholder Corporate Governance: The Combined Effects of Bank Competition and Employment Protection

Stijn Claessens and Kenichi Ueda*

May, 2014

Abstract

Between the early-1970s and the mid-1990s, the U.S. banking sector was deregulated and U.S. workers gained more statutory basic protections. The effects of these two reforms on productive activity have largely been studied separately in the finance and labor literatures. Yet they only have separable impacts under classical production theories, abstracting from frictions and the roles of various stakeholders in corporate governance (e.g., related to bargaining between workers, creditors, and shareholders). Jointly estimating effects, we confirm that bank branch deregulation benefits industries highly dependent on external finance. Employment protection promotes knowledge-intensive industries, consistent with labor search theories with firm-specific investment, but not with neo-classical theories and many empirical studies. Importantly, we find interactions between the two reforms to matter for real economic activity, suggesting stakeholder corporate governance to be important.

JEL Classification Numbers: G34, G38, J08, J83

Keywords: financial liberalization, employment protection, corporate governance

* International Monetary Fund, 700 19th Street, NW, Washington, DC. The views expressed in this paper are those of the authors and should not be attributed to the International Monetary Fund, its Executive Board or its management. We would like to acknowledge helpful comments by Franklin Allen, Florencio Lopez-de-Silanes, Martin Schindler, Hajime Takizawa, and Thierry Tresselt. We benefited from comments by seminar participants at the IMF and the University of Amsterdam and at the conferences: A Review of Comparative Governance Systems, The Role of Financial Institutions in Corporate Governance, Erice, Italy; Frontiers in Corporate Finance and Governance, Banff, Canada; and the Far East and South Asia Meeting of the Econometric Society at the University of Tokyo. We would also like to thank Liliya Repa and Mattia Landoni for their excellent research assistance.

I. INTRODUCTION

Between the early-1970s and the mid-1990s, the U.S. banking sector was deregulated. Over the same period, U.S. workers gained more statutory albeit still basic protections. The effects of these two reforms on productive activity have largely been studied separately in the finance and labor literatures. Indeed, in a classical theory of production, the two reforms—changes in financial frictions and in labor market frictions—have separable impacts on outputs and can thus empirically be studied independently. Separation is not warranted, however, in the presence of product- and financial-market frictions and under stakeholder corporate governance, when interactions between and bargaining among workers, creditors, and shareholders affects productive activity. To analyze these interactions of these two reforms, we study their combined effect using value added data at both the state and state-industry level, and indexes of state level financial and employment protection reforms.

At the state level, we confirm previous results that financial deregulation leads to higher output growth and that stronger employment protection has ambiguous effects. At the state-industry level, findings are also consistent with previous studies on the benefits of increased financial competition, with lower monopolistic powers of banks leading to higher overall output growth. Results differ, however, somewhat from previous findings for basic employment protection as we find that, while greater employment protection leads to less growth, it does not so for more knowledge-intensive industries. For industries with low-skilled workers, protecting workers more leads to inefficiencies and hinders growth, as predicted in typical neo-classical or simple labor models, and often found in the empirical literature. For high-skilled industries, however, employment protection appears to promote growth, more consistent with, for example, labor search models with firm-specific investment.

Moreover, we find some interactions effects between bank branch deregulation and employment protection. Theoretically, in the presence of a firm-specific investment channel, workers may have more incentives to invest in firm-specific skills when their jobs are safer. Since jobs can become safer *after* financial deregulation, e.g., if better liquidity provision increases the survival

probability of firms or if more bank competition means banks have less power to determine workers' compensations and employment in distressed firms. Indeed, our regression results confirm this indirect effect of financial deregulation for industries that both depend on more external finance and more knowledgeable workers, supportive of a stakeholder view of corporate governance.

Our paper fits in the broader literature on the impacts of financial deregulation in the U.S. Between the early 1970s and the mid-1990s, banks' monopolistic power in the U.S. was reduced gradually on a state-by-state basis by deregulation facilitating competition. Jayaratne and Strahan (1996) show that states that deregulated their banking sector experienced faster economic growth. They argue that greater efficiency in bank lending most likely caused the gains as they find no evidence for increases in lending.¹ Acharya, Imbs and Sturgess (2011) also find efficiency effects as they report that the industry-composition converges to an "efficient frontier" after bank branch deregulation.²

Contemporaneously with financial deregulation, employment protection changed at the US state level. Historically, employers in the U.S. could freely fire workers, but from the early 1970s on states gradually restricted such practices by establishing exceptions for wrongful discharges (Autor, Donohue and Schwab, 2006). Early work found large negative effects (Dertouzos and Karoly, 1992, 1993) of these protections on the number of people employed. More recent work, however, finds no effects on employment (Miles, 2000) or a negative, albeit small effect on employment and little effect on wages (Autor, Donohue III, and Schwab, 2006). In subsequent work, Autor, Kerr, and Kugler (2007) find the wrongful discharge protection to negatively affect

¹ In a subsequent study, Stiroh and Strahan (2003) show that one efficiency channel may be a competitive shake-out: efficient banks drove out inefficient ones. Also, Black and Strahan (2001) show that the female share in managerial position increased after deregulation, suggesting that bank employers and employees might have enjoyed rents, which dissipated after deregulation.

² Abiad, Oomes and Ueda (2008), in a cross-country study, find improvements in within-industry efficiency in capital allocation after (more broadly-defined) financial deregulation.

firm-level productivity by reducing employment flows and firm entry rates.³ None of these studies, however, takes into account the contemporaneous changes in the relative bargaining powers of other stakeholders.

Besides changes in banks' and workers' powers, changes in shareholder protection can impact firm performance through affecting the availability of external financing and improving governance. Although well documented in cross-country studies, the effects of shareholder protection have been hard to detect within a U.S. context. This is in part because most securities laws are federal and there is little state variation in equity rights.⁴ Moreover, largely listed, and thus typically large, firms are subject to these shareholder rules, with these firms also to list on national stock exchanges, and thus subject themselves to the rules of the respective exchanges and not (just) state rules. They also often establish their headquarters in states with laws most conducive to shareholders' interests. All together this makes firms' state headquarter addresses and local laws less relevant for state- or state-industry level value added, and we therefore do not include differences in state-level shareholder protection in our regressions.⁵

Since reforms happen at the state-level, we focus on their overall consequences, i.e., their impact on aggregate state-level or state-industry-level growth. By focusing on aggregate effects, we can be less concerned about reverse causality. This might be a problem for studies at the individual firm level where performance can drive firm level changes in worker protection, i.e., better performing firms provide greater protection to their employees (Bae, Kang, and Wang, 2011). We nevertheless conduct robustness tests that allow for reverse causality and find similar results. Studying financial and employment protection reforms using U.S. state- and state-industry-level

³ Also, see Besley and Burgess (2004) who find that state-level pro-worker amendments in the relevant law lead to lower state outputs in India.

⁴ Some papers find a decrease in market values for firms in jurisdictions that enact anti-takeover statutes (Karpoff and Malatesta, 1989, 1995; Szewczyk and Tsetsekos, 1992). Also, Bebchuk and Cohen (2003) find that states that offer stronger anti-takeover protections are substantially more successful in both retaining in-state firms and attracting out-of-state incorporations. But, again, these papers do not study the overall economic impact or take into account the bargaining powers of other stakeholders.

⁵ Data for state level shareholder protection is also only available from 1986 on. In the working paper version, we did include a shareholders protection measure based on Bebchuk and Cohen (2003) in our regression analyses, but we did not find any significant effects.

data also overcomes some of the problems prevalent in cross-country studies where results can be driven by country characteristics and other factors hard to control for. Nevertheless, our findings are robust to using additional institutional measures as well as using various output measures, sample periods, and econometric specifications.

The rest of the paper is organized as follows. In Section II, we review related literature. We explain the data we use in Section III. In Section IV, we discuss the empirical methodology and report the main results. Section V provides various robustness checks. The last Section concludes.

II. RELATED LITERATURE

Financial deregulation can be expected to increase overall economic activity if, because of banks' monopoly power or low banking system efficiencies, capital was being allocated inefficiently or entrepreneurship discouraged by denying access to financing to new profitable firms.⁶ Deregulation could also benefit other stakeholders if banks charged high interest rates and extracted rents, even when they allocated resources efficiently.⁷ Empirical evidence is mostly supportive of the benefits of financial deregulation, using evidence for both the U.S. as well as other countries (Jayaratne and Strahan (1996), Bekaert, Harvey, and Lundblad (2005), and Townsend and Ueda (2010)).

Most classical theories typically predict negative effects of greater labor protection.⁸ With greater employment protection, employers can be expected to be less willing to hire workers, thereby decreasing overall employment and lowering output (e.g., Hopenhayn and Rogerson, 1993, and Bertola, 1994). Stronger worker protection may also lead to rent-seeking behaviors by workers

⁶ Besides the beneficial effects of reducing inefficiencies or weeding out corrupt lending practices often associated with protected financial systems, greater competition may reduce excessive risk taking (Boyd and De Nicolo, 2005) and promote (implicit) investment coordination among firms (Ueda, 2006).

⁷ Theoretically, financial repression (e.g., interest controls, entry barriers) could lead banks to expand lending given stronger monopoly rights and thereby enhance overall output in a second-best world (Hellmann, et al., 1996).

⁸ See a standard macro-labor textbook, e.g., Pissarides (2000). A specific study is Blanchard and Portugal (2001).

and can even destroy firm value, for example, when workers oppose the placement of substitute new machines—Parente and Prescott (2000) provide an example for India. Cross-country empirical studies for OECD countries (e.g., Scarpetta and Tressel (2004) using industry level and Cingano, et al. (2010) using firm level data) support this view of inefficient employment protection. And Botero et al. (2004) shows that heavier regulation of labor is associated with lower labor force participation and higher unemployment. Other cross-country evidence also generally finds negative effects.

Predictions of the effects of employment protection in richer labor search models, however, are more nuanced. Given a need to invest in firm-specific skills, especially for knowledge-intensive industries, greater employment protection can help maximize firm value (Murphy, 1986, Saint-Paul, 1996, and Takizawa, 2003). Moreover, by taking into account the dead-weight losses associated with unemployment (e.g., loss of skills when unemployed), some protection can be socially optimal—and could induce higher aggregate growth—since it makes firms internalize such costs (Blanchard and Tirole, 2008).

Besides the direct beneficial effects of financial deregulation and employment protection, many theoretical models recognize the importance of analyzing the roles and effects of various stakeholders' claims jointly. These analyses (e.g., Allen 2005, Allen, Carletti and Marquez, 2007; see also Tirole, 2006) argue that in a second-best world, with information asymmetries, agency issues, incomplete contracting, and other deviations from perfect factor markets, a proper configuration of various stakeholders' rights can lead to overall firm value maximization. Conversely, these theories suggest that firm performance varies with the legal rights and relative bargaining powers of multiple stakeholders. A particular implication of the incomplete-contract theory (e.g., Hart, 1995) is that, with greater (relative) bargaining powers, workers will have more incentives to invest in firm-specific skills.¹¹ Such positive effects may also appear at the macro level (e.g., Caballero and Hammour, 1998, and Gervais, Livshits, and Meh, 2008).

¹¹ There is also a related corporate finance literature that considers the joint effects of financial and labor conditions. Garmaise (2008), for example, finds that financially constrained small firms have greater difficulty in hiring new
(continued...)

Empirically, the law and finance literature has mainly focused on creditors' and minority shareholders' rights and largely considered these individual stakeholders rights one-by-one. An extensive literature has investigated the role of creditors' and shareholders' rights using aggregate data or data on individual firm behavior and characteristics (La Porta, Lopez-de-Silanes, Shleifer and Vishny, 1997 and 1998; Djankov, McLiesh and Shleifer, 2007; De Nicolo, Laeven and Ueda, 2008; Acharya, Amihud and Litov, 2011). Studies generally document positive effects of stronger rights, consistent with the value of securing claims, protecting investors against abuse by insiders (management or controlling shareholders), and overcoming principal agent problems. But none considered or controlled for workers' rights at the same time.

Only a few papers have investigated empirically how variations in multiple stakeholders' powers affect economic performance across countries or firms. Using country-level analysis, Fonseca and Uterzo (2007) investigate the effects of labor regulation and barriers to entrepreneurship in the presence of credit market frictions. They show that stricter employment protection laws and more barriers to entry negatively affect firms that are more dependent on external financing. Taking a country perspective as well, but from a political economy point of view, Pagano and Volpin (2005) explain the observed negative correlation between shareholder protection and employment protection across OECD countries as the outcome of a combination of incumbent workers and inside owners/managers erecting barriers against minority shareholders.¹²

employees, and therefore provide greater de facto employment protection, thereby inducing more firm-specific investment. Perversely, Cronqvist, et al. (2009) find that entrenched CEOs pay more to employees to enjoy greater private benefits (e.g., less CEO efforts in wage bargaining and improved relations with employees).

¹² Some papers have analyzed the joint effects of creditor and labor rights using firm-level data. Atanassov and Kim (2009) investigate cross-country differences in firm-level restructuring and find that the firm's reaction to financial distress—asset sales or layoffs—depends on both the degree of investor protection and employment protection. The specific effect of stronger employment protection depends on the degree of investor protection but in all cases economic outcomes appear inefficient.¹² Moreover, such firm-level studies has a difficulty in documenting economy- or industry-wide effects such as large effects in extensive margin—increased levels of entrepreneurship and business closures after U.S. banking deregulation—documented by Kerr and Nanda (2009).

III. DATA

We explain in detail next the sources and characteristics of the data. First, we identify the regulatory and legal changes regarding banking sector competition and employment protection at the U.S. state level. For this, we use indexes commonly used in the literature. Second, to evaluate the economic impact of these reforms, we collect data on growth in state-level and state-industry-level value added. Third, to help with identification, we consider industry-specific characteristics. In particular, we focus on the natural tendency of firms to depend in varying degrees on external finance and high skilled labor. Since these tendencies can be represented by several measures, we use existing indexes for some but also construct new measures based on firm-level data.

A. Bank Branch Deregulation

Jayaratne and Strahan (1996) describe the history of bank branch deregulation in the U.S. Before deregulation, unit banking was the rule: banks could not open any branch and could operate from headquarters' location only. Starting in the early 1970s (except for some states), banks were allowed to operate multiple branches within each state (intrastate banking), first through mergers and acquisitions of other banks, and then by establishing new branches (*de novo* branching). This deregulation took place at different times in each state, with large variations. Finally, in 1994, the federal government permitted banks to operate branches in different states (interstate banking). The degree of banks' monopoly power is conversely negatively associated with the degree of deregulation.¹³

The data we use on bank branch deregulation comes from Jayaratne and Strahan (1996). Specifically, the financial deregulation index we use defines deregulation in one of two ways: $FinLib = M\&A$, which is a dummy equal to 0 when bank branch through M&A is restricted, and 1 if deregulated; or $FinLib = de\ novo$ which is a dummy equal to 0 when bank branch is

¹³ See Strahan (2003) for a review on the economic effects by U.S. banking deregulation.

restricted 0, and 1 if deregulated. For robustness, we investigate the effects of both measures, but perhaps since M&A bank deregulation always precedes *de novo* deregulation, we find most impact from M&A bank deregulation and only report those results.

B. Employment Protection

Autor, Donohue and Schwab (2006) document how, using initial precedent-setting case law, states adopted *de facto* wrongful discharge protection for employees.¹⁴ They classify these employment protection laws into three categories: public policy, good faith, and implied contract. Under the public policy exemption, employers cannot fire employees just because they follow public policy, such as performing jury duty, filing worker's compensation, reporting employer's wrongdoing, and so forth. Under the good faith exemption, employers cannot fire workers for "bad cause," primarily applied to "bad timing" cases, such as firing just before a salary due or pension threshold date. The implied contract exemption is somewhat vague: without clearly stating in the employment contract that a company can fire a worker at will, workers should be kept employed according to their length of service, history of promotion, general company policy, industry practice, and so forth.

These "rights" can be considered as basic labor standards, except perhaps for the implicit contract exemption. The premise is also that, while some labor rights can be secured contractually, in the presence of inefficiencies in enforcing privately-negotiated contracts, it can be beneficial to secure some rights by law or court. For example, good faith laws prevent firms from firing workers just before their pay day. Without such a law, fearing it could happen workers may demand premiums, leading to failure in labor markets, hurting especially those newly created firms that cannot pre-commit credibly to good practices. A basic employment protection can avoid such inefficiencies. An important other channel could be when there are firm- or sector-specific human capital investment needs. Protecting workers from firing without

¹⁴ Since these are precedent or case-based actions, they may not necessarily take effect in a uniform manner across the whole state immediately. While the dating consequently cannot be done unambiguously, many papers have used the same dates we use. Obviously, imprecision in dating biases our analyses towards finding no results. Note that there are some reversals where earlier recognized doctrines were overturned by the courts, which we account for.

good reason can promote workers to acquire more specialized skills and thereby enhance firm performance in those industries that demand greater firm-specific investments.

For our empirical analyses, we create four employment protection indexes, depending on which, if any, of the three protections is adopted. If a protection is recognized by the specified state court, the following binary variables have a value of 1 and otherwise 0: *WorkRight* = *public policy*; *good faith*; *implied contract*; or *earliest* (i.e., any of the three is introduced).

C. Patterns of the Legal Changes

We start our sample in 1972, when bank deregulation data starts, and end it in 1993, before interstate branch deregulation starts. Altogether we have 1056 state-year, balanced panel observations covering periods of both financial deregulation and employment protection reforms. Figure 1a depicts the number of states that have allowed M&A or *de novo* branches. Figure 1b depicts the number of states that have adopted the three forms of employment protection.

These figures show the accelerating trends of financial deregulation and greater employment protection between the 1970s and the 1990s. Changes did not occur at the same time, though, in each state. Figures 2a and 2b depict the number of years between financial deregulation and changes in employment protection at the individual state level. It makes clear that policy changes occurred in some states at quite different points in time as the number of years in between financial deregulation and changes in employment protection varies from minus 20 to plus 20.

Table 1a provides some further indication of the (lack of) overlaps in stakeholders' protection by showing the raw correlations between the various indexes. It shows that there is a strong correlation between the two financial deregulation indexes (*M&A* and *de novo*), with a correlation of 0.78. Similarly, there is some correlation among the three employment protection indexes, with the highest between contract and public policy, 0.53. Still, the other two correlations among the employment protection indexes are quite low, 0.29 and 0.14. Importantly, most correlations between financial deregulation and employment protection indexes are low,

between 0.16 and 0.32, reflecting the substantial variation when reforms were adopted at the state level. Table 1b provides the mean and standard deviation for each of the reforms indexes.

D. State and State-Industry Growth

We use the growth in state-level GDP and in state-industry level GDP to measure the effects of changes in the financial deregulation and employment protection measures. An aggregate value added measure has some advantages compared to firm-level profitability or valuation measures for a number of reasons. For one, it includes more of the general equilibrium effects of reforms: for example, reforms may facilitate the entry and growth of new productive firms but accelerate the decline of unproductive firms (Kerr and Nanda, 2009). As a consequence, although industrial value added may expand, we may observe little effects or an actual decline in the average profitability of existing firms. Another effect can be that existing firms expand and new firms enter after bank branch deregulation as the cost of capital declines or competition increases. This may mean that the marginal return to capital of individual firms drops, their profitability worsens, and possibly their valuation declines. At the same time, however, overall industry or state-level value added may increase, especially if there is entry of new firms.

The output growth data come from the U.S. Bureau of Economic Analysis (BEA). Data cover the value-added produced in each state and each state-industry combination. The industry breakdown is at the 2-digit SIC level with 63 industries at most per state, based on U.S. SIC (rev. 2). We include all industries, including except financial services, but also analyze separately non-financial industries. We use real growth rates, adjusted for national price (CPI) changes. We use national prices for several reasons. For one, we want to be comparable with what Jayaratne and Strahan (1996) do. Second, state-specific price indexes are available only from 1978 and using those would thus make our sample more restricted and miss some important reforms. Third, reforms can affect the prices of non-tradable goods (e.g., land rents) because of productivity gains. Such state-specific price changes should be considered as gains from reforms as well (see also Johnson et al. (2009) regarding PPP adjustments in cross-country growth studies).

Data are available for all 50 U.S. states and the District of Colombia, but following a convention in the literature, Delaware and South Dakota are dropped, as they allowed much more open financial systems early on in attempts to serve as specialized financial centers. Altogether we have some 1,000 state level observations and 50,000 state-industry level observations. Table 1b shows that the average growth in value added is 2.4 percent, with a large variation though.

E. Industry Characteristics

To identify the channels by which judicial changes may affect firm performance, while avoiding potential simultaneity biases, we use the methodology of Rajan-Zingales (1998). Precisely, we create variables that measure the *natural* characteristics of each industry in the U.S. using data from a different period. Specifically, we use firm level data to create industry-specific measures for external finance dependency and knowledge dependency. The industry-level tendency of external finance is defined in the Rajan and Zingales (1998) way as the ratio of investment minus internal cash-flows from operations to capital investments. The industry's knowledge dependency is defined as the average use of intangible assets to fixed assets. This measure is, like external finance dependency, constructed by taking the period mean of the median values for all firms in a specific industry for each of the years 1991-2006.¹⁵ To check the robustness of our results to knowledge-intensity measure, we create two additional industry measures, the sales-to-fixed-asset ratio, similarly constructed from firm level data, and the average fraction of college graduates in the workforce.¹⁷

¹⁵ The balance sheet variables are originally from the Worldscope firm level database, commercially provided by Thomson Reuters. While the values of external finance dependency are not exactly the same as Rajan and Zingales (1998)—they use a different period and Compustat data, the industry ranking is virtually the same. We use the 1991-2006 period, since by 1991 the financial markets and labor reforms had largely been completed and the firm-level dependency on external financing and knowledge can be expected to be near a steady state (i.e., “natural” tendency).

¹⁷ This measure is the average of two distant years, 1940 and 2005, from Buera and Kaboski (2012). However, using 2005 data alone provides similar regression results. The industry classifications are different from and often more detailed than those of U.S. SIC (rev. 2). When there is an exact overlap with the SIC industry classification, we take the data as is. Otherwise we aggregate, using as weights the income share in the more detailed industry classifications for the period 1994-2000. We construct other variables similarly whenever necessary.

The correlations among these industry-level characteristics are generally as expected (Table 1c). The two knowledge dependence ratios, sales-to-fixed-asset ratio and intangible-to-fixed-asset ratio, are highly correlated, 0.71, suggesting that these two variables capture similar industry characteristics. The correlation between the external finance dependence and intangible-to-fixed-asset ratio is a negative 0.44, that is, more external financial dependent firms use more fixed assets to produce their output. Similarly, the external finance dependence and sales-to-fixed-asset ratios have a negative correlation of 0.52. Average schooling has a correlation of 0.53 with the intangible asset ratio and 0.37 with the sales-to-fixed-asset ratio, but an insignificant correlation with external financing dependence, suggesting that it captures a different characteristic of industries from the other two. Table 1b reports the mean and standard deviation of each variable.

IV. EMPIRICAL METHODOLOGY AND REGRESSIONS RESULTS

We start with state-level regressions, for which we find, consistent with the existing literature, a large positive effect of bank branch deregulation and ambiguous effects of changes in employment protection. We then investigate the effects of legal changes at the state-industry level. We find that bank branch deregulation is beneficial for overall growth, while we find an industry-specific effect of employment protection, especially for knowledge-intensive industries. Moreover, we find industry-specific interaction effects for the two institutional changes, in particular for industries with greater external finance dependence and knowledge use.

A. State-Level Regressions

We start with state-level regressions, as they are comparable to Jayaratne and Strahan (1996) and Autor, Donohue III and Schwab (2006). We provide only the basic results of these regressions, however, since they largely confirm existing findings, and quickly go to the state-industry level regressions which shed more light on the role of multiple stakeholders in corporate governance.

The state-level regressions use state- and year-fixed effects to control for state-specific factors, including initial levels of GDP per capita that may affect state-specific growth trend and nation-

wide business cycles. We report robust *t-statistics* corrected for clustering at the state level. The exact specification is then:

$$g_{s,t} = \alpha_s + \alpha_t + \beta FinLib_{s,t-1} + \gamma WorkRight_{s,t-1} + \varepsilon_{s,t}. \quad (1)$$

The first column of Table 2a shows the regression results with only the financial deregulation variable. The statistically significant positive effect of financial deregulation on state-wide growth is consistent with the hypothesis that curtailing local monopolistic power of banks leads to more efficient intermediation. Using the M&A deregulation dummy, the effect of bank branch deregulation is about a 1.6 percent increase in state level growth rates, somewhat larger than Jayaratne and Strahan (1996). This larger effect may be because we use state fixed effects. If we run the regression without state fixed effects, the coefficient is about 1.06 percent (regression results omitted), which is almost identical to that found by Jayaratne and Strahan (1996). The effect is always lower for *de novo* branch deregulation (not reported), again in line with Jayaratne and Strahan (1996), perhaps reflecting that *de novo* branch deregulation always came after M&A deregulation, though highly correlated with it.

Columns 2, 5, and 8 show the effects of the three types of wrongful discharge protection measures. The three measures are not significant. Using the earliest of the three as an employment protection index, column 11, does not show significant results either.

When we include both bank branch deregulation and wrongful discharge protection indexes, the effects of financial deregulation become somewhat stronger (columns 3, 6, 9 and 12). Given the correlation between the two institutional changes, controlling for the degree of employment protection apparently produces stronger estimates for the effect of financial deregulation. The effects of employment protection do not change much.

The results for employment protection are in line with Miles (2000) who finds little effect on unemployment rates, but somewhat different from Autor, Donohue III and Schwab (2006) who

find uniform negative effects on unemployment. One reason for this difference may be omitted variable biases in other studies: while we control for contemporaneous, correlated changes in financial sector deregulation, previous labor studies do not. Moreover, GDP and unemployment can differ. For example, while unemployment may increase due to greater employment protection, a rise in firm-specific human capital investment could offset the negative effects of higher unemployment in terms of overall GDP.

Since the financial sector itself was very much affected by its deregulation, with much consolidation but also expansion following reforms, our results may be biased by including the financial services industry in the data. Nevertheless, when we use non-financial sector state GDP growth as our dependent variable (Table 2b), all key regression results hold.¹⁸ The effect of financial deregulation actually becomes stronger, while the effect of employment protection stays insignificant.

B. Indirect Effects

There can be interactions between financial deregulation and changes in *de facto* job security. A change in banks' monopolistic powers, for example, can indirectly make firing or corporate bankruptcy less likely. Jobs are likely to become safer if better external financing provision enhances the survival probability of firms in case of temporary liquidity problems. Or if more competitive banks have less bargaining power over workers, e.g., to determine their compensations and firing in case of (near) bankruptcy, jobs may be more secure.¹⁹ On the other hand, it could be that jobs were safer before financial deregulation if less competitive banks kept inefficient firms afloat (e.g., Zombie firms). In this case, with more inefficient firms, overall return on firm-specific investment would be lower and aggregate value added not grows as fast.

¹⁸ To derive non-financial sector state level GDP we use the state-industry output data and subtract financial sector output from state level GDP.

¹⁹ For example, less powerful creditors may extend loans or agree to reschedule repayments so that workers can keep their wage or job (Perotti and Spier, 1993). Since these contingencies cannot be written in labor contracts in a very precise way, it is the ex post bargaining power of the various stakeholders that determines the final outcome. Since stakeholders realize this possibility ex ante, the relative strengths of ex post bargaining powers influence their decisions, including their willingness to make firm-specific human capital investment.

To investigate how financial deregulation affects the impact of employment protection on value added growth, we next include the interaction term between the bank branch deregulation and employment protection indexes for all industries in the state-level regressions:

$$g_{s,t} = \alpha_s + \alpha_t + \beta FinLib_{s,t-1} + \gamma WorkRight_{s,t-1} + \delta FinLib_{s,t-1} * WorkRight_{s,t-1} + \varepsilon_{s,t}. \quad (2)$$

Table 2a and 2b (columns 4, 7, 10, and 13) show the results for these regressions, using all industries and only non-financial industries respectively. There are few significant effects for the simple cross term coefficient δ at the state level. While this does not suggest interactions, such effects can be industry specific, which we explore next.

C. State-Industry Level Benchmark Regressions

Using state-level regressions, we are not likely to detect the channels through which financial deregulation and changes in employment protection affect output growth. This can be better done using state-industry level regressions. We again use our two benchmark characteristics for each industry, dependence on external finance and intensity of knowledge use, and interact these characteristics with our financial deregulation and employment protection indexes. We include state-industry fixed effects $\alpha_{s,j}$ to capture any state-specific industry growth trends. And we include state-year fixed effects $\alpha_{s,t}$ to control for other factors, such as state specific business cycles and other policy changes. This use of dummies also means we only need to include the interaction terms because the effects from financial deregulation or employment protection are already absorbed in the state-year fixed effects. The full specification is then:

$$g_{j,s,t} = \alpha_{s,j} + \alpha_{s,t} + \beta FinLib_{s,t-1} * ExtFinDep_j + \gamma WorkRight_{s,t-1} * KnowledgeDep_j + \varepsilon_{j,s,t}. \quad (3)$$

where *ExtFinDep* denotes the industry's dependency on external finance and *KnowledgeDep* the industry's knowledge dependency, defined as the use of intangible assets relative to fixed assets.

Since the earliest of the three different reforms is often the public policy based protection, which thus signals further coming employment protection, we use this index for our investigations (regressions with the other employment protection measures show similar results). We use only the non-financial sectors in the state-industry level regressions and we report robust *t-statistics* corrected for clustering at the state level.

The effects from financial deregulation do not vary with industry's external financing when deregulation is the only regressor other than fixed effects (Table 3, columns 1). However, it becomes significant when the interaction term between external finance dependence and knowledge dependency are also included as regressors (Table 3, column 3). The last result is consistent with findings in the literature, but the first result suggests that there are interactions between the two institutional changes that need to be controlled for to properly assess impacts.

The coefficients on the interaction terms between the employment protection index and knowledge dependency are positive and statistically significant with or without controlling for financial deregulation (Table 3, columns 2 and 3). We thus find evidence that increased employment protection adds to growth in value added through an industry-specific, knowledge intensity related channel. Although greater employment protection has little effect on overall economic activity, as suggested by the state-level regressions, it helps those industries that are more knowledge dependent.

With financial deregulation, the relative bargaining power of workers can become stronger, in particular in those industries that rely more on external financing. It may also become stronger in those industries that depend more on workers' knowledge. To investigate these two channels, we add a triple interaction term between the financial deregulation index, employment protection index, and industries' knowledge use. We add as well the triple interaction term between the financial deregulation and employment protection indexes and the industries' external financing dependence. The regression specification becomes then:

$$\begin{aligned}
g_{j,s,t} = & \alpha_{s,j} + \alpha_{s,t} + \beta FinLib_{s,t-1} * ExtFinDep_j \\
& + \gamma WorkRight_{s,t-1} * KnowledgeDep_j \\
& + \delta_1 FinLib_{s,t-1} * WorkRight_{s,t-1} \\
& + \delta_2 FinLib_{s,t-1} * WorkRight_{s,t-1} * ExtFinDep_j \\
& + \delta_3 FinLib_{s,t-1} * WorkRight_{s,t-1} * KnowledgeDep_j + \varepsilon_{j,s,t}.
\end{aligned} \tag{4}$$

Table 3 (columns 4) reports the regressions with these triple interaction terms. Both triple interaction terms are significantly positive, albeit only at 10 percent significance level for the knowledge intensity channel, suggestive evidence of the presence of relative bargaining power. As for the double interaction terms, compared to column 3 little change is found for employment protection interacted with knowledge dependency. However, financial deregulation interacted with external finance dependency becomes now insignificant. This suggests that the positive effects of financial deregulation for external financially dependent industries may arise primarily through the relative bargaining power channel, supporting of a stakeholders' view of corporate governance.

Robustness Checks

We next use two sectoral alternative measures to confirm that greater employment protection increases value added growth in knowledge-intensive industries. The first one is the sales-to-fixed-asset ratio, the reciprocal of conventional capital intensity, calculated at the industry level (Table 3, columns 5 – 7). The second is the industry-specific average fraction of college graduates (Table 3, columns 8 – 10). The results with the first are similar or somewhat stronger, while the results for the second measure in case of the triple interaction terms are somewhat weaker, likely as the proxy is poorer.²²

²² This variable is the average of two distant years, 1940 and 2005. Using the 2005 measure, rather than the average, does not change the results much.

Interstate branching is officially permitted across all states after 1994, which is why we used data only until 1993. However, some states are reported to have allowed interstate banking, especially at the borders, already before 1993. We therefore also run the benchmark regression using data up to only 1990. This does not show any qualitative difference of the effects of financial deregulation and employment protection reforms on value added growth (reports omitted).

V. REVERSE CAUSALITY AND ENDOGENOUS POLICY CHANGES

Our results could be due to reverse causality when differences in growth prospects in industries with varying external financing dependence or knowledge intensity drive changes in financial deregulation or employment protection. For example, firms may exercise more political pressure towards financial deregulation in states where they have more to gain. Or lobbying for employment protection may be more intense in states where knowledge-based industries have more opportunities to prosper. If this were the case, our regression results would have an upward bias and the wrong interpretation may follow.

One simple, but very rough check for this is to conduct the state-industry level regressions excluding some states. We already excluded the states Delaware and South Dakota as they had more liberal financial systems, maybe exactly because they had greater growth opportunities in financial services. We next also exclude the states Massachusetts and California that arguably had the most knowledge-intensity industry growth over the sample period and may therefore have adopted greater employment protection. The regression results without these last two states are virtually the same (reports omitted).²⁶

²⁶ Another potential source of bias may be spillovers. We have largely focused on within-state and time-series variations, including by using standard errors clustered at the state-level. Doing so, however, we risk ignoring cross-state variations that can arise from growth and policy spillovers. Growth spillovers may arise if other (say, neighboring) states adopt policies which leads to higher growth in the state itself, even though it did not yet adopt any policy changes. Policy spillover may arise if due to political pressures or learning effects, states mimic changes in neighboring or other states. However, both may lead to downward bias in our regression results, especially if people predicted the future policy changes and started to change behavior in anticipation.

To control more generally for possible bias due to reverse causality and for various other types of economic and policy spillovers that may create endogeneity, we employ the dynamic panel estimation technique of Blundell and Bond (1998) with autoregressive order one or two terms in the difference equations.²⁷ Note that, using the first difference model means we cannot include state-year and state-industry fixed effects and therefore need to re-introduce the financial deregulation and changes in the employment protection as stand-alone regressors.²⁸

Table 4 shows that the key results broadly hold. When using intangible to fixed assets as the knowledge variable, the triple interaction term for knowledge dependence becomes insignificant but the term for the external finance dependence remains significant (column 2 and 3). When using sales to fixed capital ratio, both triple interaction terms remain significant (column 5 and 6). Moreover, when using the college graduate share, the triple interaction term for external finance dependence becomes significant (column 8 and 9), unlike the result in Table 3.²⁹

Minimum wage

Changes in minimum wage may alter the effects of changes in employment protection. A high minimum wage may reduce employment, especially in low-skill industries (Partridge and Partridge, 1999). On the other hand, a minimum wage could be seen as another factor to strengthen workers' bargaining power. Minimum wages vary across U.S. states and over time. Also, the federal minimum wage can be a state's effective minimum wage if the federal minimum wage is higher or if the state does not have a minimum wage. The federal minimum wage varies also over time. We obtain from the U.S. Department of Labor each state's minimum

²⁷ Given the large samples we have, we report two step estimation results with GMM standard errors, which take into account cross-state correlations.

²⁸ Following Blundell and Bond (1998), we also use the level equation similar to (4) as additional information in the GMM estimation. We include year dummies as exogenous instruments.

²⁹ The *m1* tests (for the first-order serial correlation) are met for all specifications while *m2* tests (for the second-order serial correlation) are not met at 5 percent level for AR(1) specifications when using the intangible to fixed asset as the knowledge variable (column 1 and 2) but *m2* test for AR(2) specification is good (column 3) as well as for all other specifications. The results, however, needs to be interpreted with a caution as the Sargan tests generally reject the null that the over-identifying restrictions are valid (i.e., the "goodness of fit" is low).

wage for all years and replace the state minimum wage by the federal minimum wage when the federal minimum wage is higher or when there is no state minimum wage. We then add this minimum wage for each state and each year, deflated by the national CPI, as an additional control variable in the panel GMM estimation. We find no significant effects from this minimum wage variable on value added growth. And, most importantly, we find that all our other coefficients remain virtually the same (reports omitted). Consequently, our main results are not biased by the presence of minimum wages. Note that the minimum wage variable, a state-industry level variable, can be added only to the panel GMM specification but not to the previous specification using the state-industry fixed effects.

VI. CONCLUSIONS

We clarify the important, growth-enhancing roles of bank branch deregulation and employment protection, using concurrent institutional changes in both financial and labor markets in the U.S. over the period 1972 to 1993. In terms of state-level aggregate impact, we confirm previous studies that have been conducted separately in the banking and labor literatures. Specifically, we find that while financial deregulation is beneficial for average state-level growth and also for state-industry level, the overall effect of employment protection on state-level output is insignificant. These regression results are consistent with previous studies.

However, unlike previous results, we find that employment protection sometimes promotes growth at the state-industry level, particularly for industries that are more knowledge-intensive. It may surprise to find positive effects of public sector induced higher bargaining power for workers for the U.S., a market-based economy with good institutions and near complete contracting environment and where market failures may be considered limited. Still, our results seem consistent with the history of the U.S., which has transformed itself over the sample period to a more knowledge-based economy, with higher specialization and more firm-specific human capital accumulation accompanied over the same period by improved labor standards.

Theories with firm-specific investment also imply that financial frictions should matter more when it affects job security indirectly. More competitive banks are likely to provide more liquidity to distressed firms and to exert less power to appropriate resources from them, thus helping with job security. Our estimates on the interaction terms confirm this indirect effect of financial deregulation for external-finance-dependent and knowledge-intensive industries.

Our results also speak to a broader corporate governance debate in countries other than the U.S. In particular, basic labor standards likely create a better alignment of bargaining powers among workers, creditors, and shareholders, and should thus be especially important for emerging markets, also given the typical dominance of banks in financial intermediation.³² We surmise though that the relationship between employment protection and economic outcomes may be nonlinear. This is because the stakeholders view, prevalent in developed countries other than the U.S., such as continental Europe and Japan, where both banks and labor play a large role in firm monitoring and governance, appears to be associated with many negative outcomes according to the labor literature. As such, it may be that basic employment protection or “labor standards” as adopted in the U.S. may be beneficial, while the broader labor protection as practiced in continental Europe may not. This is not more than a conjecture, however, and as such, we see a fruitful research area to find out the circumstances under which stakeholder governance pays off.

³² For a general review of the general literature on the role of institutions on development, see Acemoglu, Johnson and Robinson (2005) and of the law and finance literature specifically, see Levine (2005). Also see Johnson and others (2000), Mitton (2002), Joh (2003) for shareholder protection. However, our paper is novel by conducting a focused empirical study on economic impacts of the relative bargaining power between creditors and workers due to institutional changes.

References

- Abiad, Abdul, Nienke Oomes and Kenichi Ueda, 2008. The Quality Effect: Does Financial Liberalization Improve the Allocation of Capital? *Journal of Development Economics* Vol. 87, 270-282.
- Acemoglu, Daron, Simon Johnson and James Robinson, 2005, Institutions As A Fundamental Cause Of Long-Run Growth, in Philippe Aghion and Steven Durlauf, eds. *Handbook of Economic Growth*. The Netherlands: Elsevier Science. 2005.
- Acharya, Viral V., Jean Imbs and Jason Sturgess, 2011, Finance and Efficiency: Do Bank Regulations Matter? *Review of Finance*, Vol. 15, No. 1, 135-172.
- Acharya, Viral V., Amihud, Yakov and Litov, Lubomir P., 2011, Creditor Rights and Corporate Risk-Taking, *Journal of Financial Economics*, Vol. 102, No. 1, 150-166..
- Allen, Franklin, 2005, Corporate Governance in Emerging Economies, *Oxford Review of Economic Policy*, Vol. 21, No. 2, 164-177.
- Allen, Franklin, Elena Carletti and Robert Marquez, 2007, Stakeholder Capitalism, Corporate Governance and Firm Value, *mimeo*, Wharton School, University of Pennsylvania.
- Atanassov, Julian, and E. Han Kim, 2009, Labor Laws and Corporate Governance: Evidence from Restructuring Decisions around the World, *Journal of Finance*, Vol. 64, No. 1, 341-374.
- Autor, David H., John J. Donohue, III and Stewart J. Schwab, 2006, The Costs of Wrongful-Discharge Laws, *Review of Economics and Statistics*, Vol. 88, No. 2, 211-231.
- Autor, David H., William R. Kerr and Adriana D. Kugler, 2007, Do Employment Protections Reduce Productivity? Evidence from U.S. States, *Economic Journal*, Vol. 117, 189-219.
- Bebchuk, Lucian Arye and Cohen, Alma, 2003. Firms' Decisions Where to Incorporate. *Journal of Law and Economics*, Vol. 46, 383-425
- Bekaert, Geert, Campbell Harvey, and Christian Lundblad, 2005, Does Financial Liberalization Spur Growth? *Journal of Financial Economics*, Vol. 77, pp. 3–55.
- Bertola, Giuseppe, 1994, Flexibility, Investment, and Growth, *Journal of Monetary Economics*, Vol. 34, 215-238.
- Besley, Timothy, and Robin Burgess, 2004, Can Labor Regulation Hinder Economic Performance? Evidence from India, *Quarterly Journal of Economics*, Vol. 119, No. 1, pp. 91-134.

- Black, Sandra E. and Philip E. Strahan, 2001, The Division of Spoils: Rent-Sharing and Discrimination in a Regulated Industry, *American Economic Review*, Vol. 91, No. 4, 814-831.
- Blanchard, Olivier J., and Pedro Portugal, 2001, What Hides Behind an Unemployment Rate: Comparing Portuguese and U.S. Labor Markets, *American Economic Review*, Vol. 91, 187-207.
- Blanchard, Olivier J., and Jean Tirole, 2008, The Joint Design of Unemployment Insurance and Employment Protection: A First Pass, *Journal of European Economic Association*, Vol. 6, No. 1, 45-77.
- Blundell, Richard and Stephen Bond, 1998, Initial Conditions and Moment Restrictions in Dynamic Panel Data Models, *Journal of Econometrics*, Vol. 87, 115-143.
- Botero, Juan, Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silanes and Andrei Shleifer, 2004, The Regulation of Labor, *Quarterly Journal of Economics*, Vol. 119:4, 1339-1382.
- Boyd, John H., and Gianni De Nicro, 2005, The Theory of Bank Risk Taking and Competition Revisited, *Journal of Finance*, Vol. 60, No. 3, 1329-1343.
- Buera, Francisco J., and Joseph P. Kaboski, 2012, The Rise of the Service Economy, *American Economic Review*, Vol. 102, No. 6, 2540-2569.
- Caballero, Ricardo J. and Mohamad L. Hammour, 1998, The Macroeconomics of Specificity, *Journal of Political Economy*, Vol. 106, No. 4, 724-767.
- Cingano, Federico, Marco Leonardi, Julian Messina, and Giovanni Pica, 2010, The Effects of Employment Protection Legislation and Financial Market Imperfections on Investment: Evidence from a Firm-Level Panel of EU Countries, *Economic Policy*, 61, 117-163.
- Coase, Ronald H. 1937. The Nature of the Firm. *Economica* 4:16, 386-405
- Cronqvist, Henrik, Fredrik Heyman, Mattias Nilsson, Helena Svaleryd, and Jonas Vlachos, 2009. Do Entrenched Managers Pay Their Workers More? *Journal of Finance*, Vol. 64, No. 1, 309-339.
- De Nicro, Luc Laeven and Kenichi Ueda, 2008, Corporate Governance Quality: Trends and Real Effects, *Journal of Financial Intermediation*, Vol. 17, 198-228.
- Dertouzos, James N. and Lynn A. Karoly, 1992, *Labor-Market Responses to Employer Liability* (Santa Monica: Rand).

- , 1993, Employment Effects of Worker Protection: Evidence from the United States, in Christoph F. Buechtemann (ed.), *Employment Security and Labor Market Behavior: Interdisciplinary Approaches and International Evidence* (Ithaca: ILR Press).
- Demyanyk, Yulia, Charlotte Ostergaard and Bent E. Sorensen, 2007, U.S. Banking Liberalization, Small Businesses, and Interstate Insurance of Personal Income, *Journal of Finance*, Vol. 62, No. 6, 2763-2801.
- Djankov, Simeon, Caralee McLiesh and Andrei Shleifer, 2007. Private Credit in 129 Countries, *Journal of Financial Economics*, Vol. 84, No. 2, 299-329.
- Fonseca, Raquel and Natalia Utrero, 2007, Employment Protection Laws, Barriers to Entrepreneurship, Financial Markets, and Firm Size, mimeo, RAND corporation.
- Garmaise, Mark J., 2008, Production in Entrepreneurial Firms: The Effects of Financial Constraints on Labor and Capital, *The Review of Financial Studies*, Vol. 21, Issue 2, 543-577.
- Gervais, Martin, Igor Livshits, and Césaire Meh, 2008, Uncertainty and the Specificity of Human Capital, *Journal of Economic Theory*, Vol. 143, pp. 469–498.
- Hart, Oliver. 1995. *Firms, Contracts, and Financial Structure*. Oxford: Oxford U. Press.
- Hellmann, Thomas, Kevin Murdock, and Joseph Stiglitz, 1996, Financial Restraint, Chapter 6, *The Role of Government in East Asian Economic Development*, edited by Masahiko Aoki, Hyung-Ki Kim, and Masahiro Okuno-Fujiwara (New York: Oxford University Press).
- Hirsch, Barry T., and David A. MacPherson, 2003, Union Membership and Coverage Database from the Current Population Survey: Note, *Industrial and Labor Relations Review*, Vol. 56, No. 2, 349-54.
- Hopenhayn, Hugo, and Richard Rogerson, 1993, Job Turnover and Policy Evaluation: A General Equilibrium Analysis, *Journal of Political Economy*, Vol. 101, No. 5, 915-938.
- Jayaratne, Jith and Philip E. Strahan, 1996, The Finance-Growth Nexus: Evidence from Bank Branch Liberalization, *Quarterly Journal of Economics*, Vol. 111, No. 3, 639-70.
- Joh, Sung Wook, 2003, Corporate Governance and Firm Profitability: Evidence from Korea before the Economic Crisis, *Journal of Financial Economics*, Vol. 68, No. 2, 287-322.
- Johnson, Simon, Peter Boone, Alasdair Breach and Eric Friedman, 2000, Corporate Governance in the Asian Financial Crisis, *Journal of Financial Economics*, Vol. 58, No. 1-2, 141-186.

- Johnson, Simon, William Larson, Chris Papageorgiou, and Arvind Subramanian, 2009, Is Newer Better? The Penn World Table Revisions and the Cross-Country Growth Literature, manuscript, Peterson Institute of International Economics.
- Karpoff, J. and Malatesta, P., 1989, The Wealth Effects of Second-Generation State Takeover Legislation. *Journal of Financial Economics*, Vol. 25, 291–322
- , 1995. State Takeover Legislation and Share Values: The Wealth Effects of Pennsylvania's Act 36. *Journal of Corporate Finance*, Vol. 1, 367–382.
- Kim, E. Han and Paige Ouimet, 2007. Employee Capitalism or Corporate Socialism? Broad-Based Employee Stock Ownership, *Working Paper*, Ross School of Business, University of Michigan.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer and Robert Vishny, 1997, Legal Determinants of External Finance, *Journal of Finance*, Vol. 52, No. 3, 1131-1150.
- , 1998, Law and Finance, *Journal of Political Economy*, Vol. 106, No. 6, 1113-1155.
- Levine, Ross, 2005, Finance and Growth: Theory and Evidence, in Philippe Aghion and Steven Durlauf, eds. *Handbook of Economic Growth*. The Netherlands: Elsevier Science.
- Miles, Thomas J., 2000, Common Law Exceptions to Employment at Will and U.S. Labor Markets, *Journal of Law, Economics, and Organizations*, Vol. 16, No. 1, 74-101.
- Mitton, Todd, 2002, A Cross-Firm Analysis of the Impact of Corporate Governance on the East Asian Financial Crisis, *Journal of Financial Economics*, Vol. 64, No. 2, 215-241.
- Mortensen, Dale T. and Christopher A. Pissarides, 1999, Job Reallocation, Employment Fluctuations and Unemployment, *Handbook of Macroeconomics*, Vol. 1, Chapter 18, 1171-1228.
- Murphy, Kevin M., 1986, *Specialization and Human Capital*, Ph.D. dissertation, University of Chicago.
- Pagano, Marco and Paolo F. Volpin, 2005, The Political Economy of Corporate Governance, *American Economic Review*, Vol. 95, No. 4, 1005-1005.
- Parente, Stephen L. and Edward C. Prescott, 2000, *Barriers to Riches* (Cambridge: MIT Press).
- Partridge, Mark D., and Jamie S. Partridge, 1999, Do Minimum Wage Hikes Reduce Employment? State-Level Evidence from the Low-Wage Retail Sector, *Journal of Labor Research*, Vol. XX, No. 3, 393-413.

- Perotti, Enrico C., and Kathryn E. Spier, 1993, Capital Structure as a Bargaining Tool: The Role of Leverage in Contract Renegotiation, *American Economic Review*, Vol. 83, No. 5 (Dec., 1993), pp. 1131-1141.
- Pissarides, Christopher A., 2000, *Equilibrium Unemployment Theory* (Cambridge: MIT Press).
- Rajan, Raghuram and Luigi Zingales, 1998, Financial Dependence and Growth, *American Economic Review*, Vol. 88, No. 3, 559–86.
- Saint-Paul, Gilles, 1996, *Dual Labor Markets: A Macroeconomic Perspective*, Cambridge: The MIT Press.
- Scarpetta, Stefano, and Thierry Tresselt, 2004, Boosting Productivity via Innovation and Adoption of New Technologies: Any Role for Labor Market Institutions? *World Bank Policy Research Working Paper* 3273.
- Stiroh, Kevin J. and Philip E. Strahan, 2003, Competitive Dynamics of Liberalization: Evidence from U.S. Banking, *Journal of Money, Credit, and Banking*, Vol. 35, No. 5, 801-828.
- Strahan, Philip E., 2003, The Real Effects of U.S. Banking Deregulation, *Federal Reserve Bank of St. Louis Review*, Vol. 85, pp. 111-128.
- Szewczyk, Samuel H., and George P. Tsetsekos, 1992. State Intervention in the Market for Corporate Control: The Case of Pennsylvania Senate Bill 1310, *Journal of Financial Economics*, Vol. 31, 3–23.
- Takizawa, Hajime, 2003, Job-Specific Investment and the Cost of Dismissal Restrictions—The Case of Portugal, *IMF Working Paper* 03/75 (Washington: IMF).
- Tirole, 2006, *The Theory of Corporate Finance*. Princeton: Princeton University Press.
- Townsend, Robert M. and Kenichi Ueda, 2010, Welfare Gains from Financial Liberalization, *International Economic Review*, Vol. 51, No. 3, 553-597.
- Ueda, Kenichi, 2006, Banks as Coordinators of Economic Growth, *IMF Working Paper*, No. 06/264.
- Wald, John K. and Michael S. Long, 2007, The Effect of State Laws on Capital Structure, *Journal of Financial Economics*, Vol. 83, 297-319.

Figure 1a. Adoption of Financial Liberalization
(number of states deregulated)

Figure 1b. Adoption of Employment Protection
(number of states with employment protection)

Figure 2a: The Pattern of Financial Deregulation and Adoption of Employment Protection

Notes:

n is dummy indicating the year branch restrictions were lifted via de novo branching

p is public policy index

g is good faith index

c is implied contract index

z is combination of p, g and c

Figure 2b: The Pattern of Financial Deregulation and Adoption of Employment Protection

Notes:

m is dummy indicating the year M&A branch restrictions were lifted

p is public policy index

g is good faith index

c is implied contract index

z is combination of p, g and c

Table 1a. Correlations among State-Level Institutional Changes

	Financial Liberalization		Employment Protection			
	M&A	de novo	Public Policy	Good Faith	Contract	Earliest
M&A	1 <i>1078</i>					
de novo	0.7828* <i>1078</i>	1 <i>1078</i>				
Public Policy	0.2510* <i>1056</i>	0.1573* <i>1056</i>	1 <i>1056</i>			
Good Faith	0.1642* <i>1056</i>	0.1590* <i>1056</i>	0.2916* <i>1056</i>	1 <i>1056</i>		
Contract	0.3243* <i>1056</i>	0.2298* <i>1056</i>	0.5304* <i>1056</i>	0.1411* <i>1056</i>	1 <i>1056</i>	
Earliest	0.2764* <i>1056</i>	0.1721* <i>1056</i>	0.8160* <i>1056</i>	0.2907* <i>1056</i>	0.7599* <i>1056</i>	1 <i>1056</i>

Note: Italics numbers show the observation numbers. Asterisk (*) denotes significance level at 5 %.

Table 1b. Averages and Standard Deviations of Main Variables

	Value Added Growth		Financial Liberalization		Employment Protection				External Finance	Knowledge Proxy		
	state-level	state-industry	M&A	de novo	Public Policy	Good Faith	Contract	Earliest	RZ index	Sales / Fixed Capital	Intangible / Fixed Capital	Schooling Average
mean	2.45	2.37	0.51	0.39	0.45	0.10	0.42	0.56	-0.49	6.00	0.62	0.29
std.dev.	4.31	19.17	0.32	0.22	0.38	0.10	0.39	0.41	1.99	5.66	0.60	0.12

Table 1c. Correlations among Industry-Level Characteristics

	External Finance Dependence	Sales to Fixed Assets	Intangible Assets to Fixed Assets	Ave. Fraction of College Grad in 1940 and 2005
Ext. Fin. Dep.	1.0000 59			
Sales/ Fixed Assets	-0.5236* 59	1.0000 59		
Intangible/ Fixed Assets	-0.4360* 59	0.7079* 59	1.0000 59	
Average Schooling	-0.1039 49	0.3718* 49	0.5279* 49	1.0000 49

Note: Italics numbers show the observation numbers. Asterisk (*) denotes significance level at 5 %.

Table 2a. State Level Regressions—Gross State Product

The dependent variable is the real growth rate of the gross state product, deflated by national CPI index, over the period 1972 to 1993. FinLib is M&A based bank branch deregulation in each state. It is a binary variable, taking the value of one if deregulated. WorkRight is the exception for wrongful discharges based on either public policy, good faith, the implied contract, or the earliest of them in each state. It is a binary variable, taking the value of one if established. State level fixed effects as well as year dummies are included, but not reported. The t-statistics based on robust standard errors are reported: * denotes significant at 10%; ** at 5%; and *** at 1%.

		Public Policy			Good Faith			Contract			Earliest		
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
FinLib	1.621 [2.700]***		1.785 [2.890]***	1.397 [1.670]*		1.690 [2.809]***	1.561 [2.730]***		1.575 [2.934]***	1.669 [1.660]*		1.708 [2.836]***	1.265 [1.120]
WorkRight		0.816 [1.243]	0.950 [1.459]	0.562 [0.700]	-0.691 [-0.984]	-0.643 [-0.916]	-1.575 [-1.020]	-1.637 [-0.889]	-1.347 [-0.767]	-0.669 [-0.830]	-0.174 [-0.267]	-0.011 [-0.017]	-0.33922 [-0.510]
FinLib*WorkRight				0.842 [1.000]			0.324 [0.150]			0.050 [0.040]			0.800 [0.600]
N	1029	1008	1008	1008	1008	1008	1008	1008	1008	1008	1008	1008	1008
N Groups	48	48	48	48	48	48	48	48	48	48	48	48	48
R-squared	0.375	0.370	0.380	0.382	0.369	0.379	0.380	0.372	0.380	0.379	0.368	0.377	0.378

Table 2b. State Level Regressions—Non-Financial Sector Gross State Product

The dependent variable is the real growth rate of the non-financial sector gross state product, deflated by national CPI index, over the period 1972 to 1993. FinLib is M&A based bank branch deregulation in each state. It is a binary variable, taking the value of one if deregulated. WorkRight is the exception for wrongful discharges based on either public policy, good faith, the implied contract, or the earliest of them in each state. It is a binary variable, taking the value of one if established. State level fixed effects as well as year dummies are included, but not reported. The t-statistics based on robust standard errors are reported: * denotes significant at 10%; ** at 5%; and *** at 1%.

		Public Policy			Good Faith			Contract		Earliest			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
FinLib	2.089 [3.333]***		2.137 [3.358]***	1.492 [1.690]*		2.078 [3.220]***	1.909 [2.910]***		2.045 [3.060]***	1.525 [1.730]*		2.096 [3.214]***	0.853 [0.880]
WorkRight		0.344 [0.419]	0.504 [0.637]	-0.141 [-0.150]	-0.715 [-0.957]	-0.656 [-0.874]	-2.738 [-1.400]	-0.902 [-0.626]	-0.525 [-0.373]	-1.336 [-1.380]	-0.214 [-0.324]	-0.014 [-0.021]	-0.935 [-1.190]
FinLib*WorkRight				1.400 [1.140]			3.137 [1.390]			1.303 [1.020]			2.245 [1.750]*
N	1029	1008	1008	1008	1008	1008	1008	1008	1008	1008	1008	1008	1008
N Groups	48	48	48	48	48	48	48	48	48	48	48	48	48
R-squared	0.256	0.254	0.264	0.267	0.255	0.265	0.268	0.255	0.264	0.267	0.254	0.264	0.270

Table 3. State-Industry Level Regressions

The dependent variable is the real growth rate of the gross state-industry product, deflated by national CPI index, over the period 1972 to 1993 (outliers are removed based on three standard deviations). FinLib is M&A based bank branch deregulation in each state. It is a binary variable, taking the value of one if deregulated. ExtFinDep is the industry level tendency of external finance defined in Rajan-Zingales (1998), calculated as the mean of median of each year from 1991 to 2006 using the Worldscope database. WorkRight is a binary variable, taking the value of one in each state, after the earliest of the three exceptions for wrongful discharges is established. Knowledge is the industry average use of intangible assets relative to fixed assets or sales to fixed asset ratio. State-year and state-industry fixed effects are included, but not reported. The reported t-statistics are based on robust standard errors corrected for clustering at the state level: * denotes significant at 10%; ** at 5%; and *** at 1%.

	<i>Knowledge proxy:</i>	<i>Intangible / Fixed Assets</i>			<i>Sales / Fixed Assets</i>			<i>Share of College Graduates</i>		
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
FinLib*ExtFinDep	0.042 [0.685]		0.123 [1.979]**	-0.012 [-0.118]		0.123 [1.908]*	-0.007 [-0.066]		0.026 [0.433]	0.006 [0.066]
WorkRight*Knowledge		1.417 [6.509]***	1.490 [6.696]***	1.333 [5.216]***	0.106 [5.279]***	0.116 [5.415]***	0.090 [3.791]***	4.233 [4.442]***	4.262 [4.439]***	4.504 [3.459]***
FinLib*WorkRight*ExtFinDep				0.200 [2.194]**			0.246 [2.362]**			0.022 [0.255]
FinLib*WorkRight*Knowledge				0.443 [1.794]*			0.078 [2.450]**			-0.344 [-0.257]
N	50067	49204	49204	49204	49204	49204	49204	42484	42484	42484
R-squared	0.175	0.176	0.176	0.176	0.176	0.176	0.176	0.177	0.177	0.177

Table 4. State-Industry Level Regressions (Panel GMM)

The dependent variable is the real growth rate of the gross state-industry product, deflated by national CPI index, over the period 1972 to 1993 (outliers are removed based on three standard deviations). FinLib is M&A based bank branch deregulation in each state. It is a binary variable, taking the value of one if deregulated. ExtFinDep is the industry level tendency of external finance defined in Rajan-Zingales (1998), calculated as the mean of median of each year from 1991 to 2006 using the Worldscope database. WorkRight is the exception for wrongful discharges based on the earliest of public policy, good faith, or the implied contract in each state. It is a binary variable, taking the value of one if established. Knowledge is the sales to fixed capital ratio, the average over time for each industry, and measures the industry level reliance on Knowledge rather than physical capital in production. Estimation is based on Blundell and Bond (1998) with AR(1) or AR(2) terms in difference equations. The year dummies are included, but not reported. The t-statistics based on two-step GMM standard errors are reported: * denotes significant at 10%; ** at 5%; and *** at 1%.

	<i>Knowledge proxy:</i>			<i>Intangible / Fixed Assets</i>			<i>Sales / Fixed Capital</i>			<i>Share of College Graduates</i>		
				<i>AR(1)</i>	<i>AR(1)</i>	<i>AR(2)</i>	<i>AR(1)</i>	<i>AR(1)</i>	<i>AR(2)</i>	<i>AR(1)</i>	<i>AR(1)</i>	<i>AR(2)</i>
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[7]	[8]	[9]
FinLib	1.053 [8.145]***	0.843 [4.171]***	0.784 [3.631]***	1.039 [7.951]***	0.904 [4.450]***	0.779 [3.611]***	0.819 [6.302]***	0.705 [3.323]***	0.655 [2.913]***			
FinLib*ExtFinDep	0.074 [1.835]*	-0.096 [-1.586]	-0.071 [-1.167]	0.051 [1.306]	-0.103 [-1.674]*	-0.072 [-1.167]	-0.001 [-0.020]	-0.138 [-2.254]**	-0.113 [-1.813]*			
WorkRight	-0.533 [-2.964]***	-0.605 [-2.592]***	-0.875 [-3.636]***	-0.013 [-0.074]	0.130 [0.575]	-0.265 [-1.140]	-3.326 [-13.507]***	-3.486 [-9.629]***	-3.840 [-10.354]***			
WorkRight*Knowledge	1.868 [13.520]***	1.726 [8.431]***	1.757 [8.586]***	0.110 [7.536]***	0.081 [3.945]***	0.082 [3.991]***	13.324 [22.291]***	13.843 [14.293]***	14.326 [14.542]***			
WorkRight*FinLib		-0.093 [-0.280]	0.103 [0.302]		-0.263 [-0.811]	-0.120 [-0.362]		0.347 [0.721]	0.808 [1.654]*			
FinLib*WorkRight*ExtFinDep		0.278 [3.707]***	0.250 [3.307]***		0.312 [3.899]***	0.266 [3.305]***		0.198 [2.685]***	0.182 [2.446]**			
FinLib*WorkRight*Knowledge		0.452 [1.628]	0.219 [0.785]		0.090 [3.031]***	0.068 [2.271]**		-0.632 [-0.501]	-1.790 [-1.411]			
N	45958	45958	42967	45958	45958	42967	39705	39705	37133			
N Groups	2428	2428	2417	2428	2428	2417	2096	2096	2086			
Sargan (p-value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
m1 (p-value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
m2 (p-value)	0.047	0.029	0.070	0.053	0.052	0.071	0.077	0.076	0.067			