

# Family Firms, Labor Market Regulation, and Financial Distress<sup>#</sup>

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Studying a large sample of publicly listed firms across OECD countries, we document that family firms (FF) exhibit a lower propensity for financial distress in countries with stringent labor market regulation (LMR). Furthermore, we show that this comes for the cost of losing the growth and performance advantage, which FF enjoy in less-regulated labor markets suggesting that FF trade-off growth/return versus risk. Overall, our results support the notion that family firms react more conservatively to more stringent local regulation, prioritizing financial sustainability over growth.

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## 1 Introduction

Do family firms outperform non-family firms? While there is extensive research studying the performance of family firms (FF), results provide rather mixed evidence (e.g., López-de-Silanes and Waxin, 2014). One way to look at these mixed results is to acknowledge that performance might be measured in various ways. While research often focusses on the (financial) performance of the mean firm, family owners might be predominantly interested in the survival of the legacy. We argue that FF trade-off risk versus return/growth and thus will focus more on survival of the legacy in more risky environments.

Using employment protection legislation to instrument risky environments we document that with increasing labor market regulation (LMR) FF give up their performance and growth advantage for lower propensity of financial distress. Our results support the notion that FF react more conservatively to more stringent local regulation, prioritizing financial sustainability over growth. Moreover, we complement the findings of Bennedsen et al. (2019) who document that FF enjoy a performance premium only in less regulated labor markets.

The literature has examined how local regulation may constrain macroeconomic growth. We contribute to this perspective by analyzing the firm-level effects of business regulation on corporate resilience, with a particular focus on how LMR influences the propensity of financial distress for FF. To measure the strictness of LMR, we exploit cross-country variation in the labor market regulation measure by the Fraser Institute. The index captures business costs associated with regulated wages, hiring and firing regulations, and civil conscription.

The dataset consists of 16,889 publicly listed firms across 30 OECD countries over a seven-year period. We define FF based on time-varying global data on direct and indirect shareholdings, identifying a firm as family-owned if a family holds at least 25% of the control rights, in line with the criteria outlined by Franks et al. (2012). Using financial data, we construct well-established measures of financial distress and model the interaction effect between LMR and family ownership on the likelihood of financial distress.

We summarize our contributions as follows. First, we find that, on average, FF are less likely to end in financial distress in countries with high levels of LMR. Second, we document that in these highly regulated labor environments, FF exhibit lower growth and operational efficiency relative to their non-family counterparts. Taken together, these findings support the notion that family firms prioritize financial stability over growth and profitability in the face of stringent LMR.

As with other quasi-experimental approaches in cross-country settings, our results should be interpreted with caution regarding causal inference. First, we address endogeneity concerns arising from systematic differences between family and non-family firms across countries by employing propensity score matching. Second, we estimate linear probability models with country-year fixed effects to account for unobserved, time-varying country-level confounders in our sample, such as macroeconomic fluctuations. Third, we implement Cox proportional hazards models focused on the timing of first financial distress events. This approach reduces the influence of recurrent distress episodes and captures how the hazard of distress evolves over time. Together, these strategies enhance the credibility of our findings, but we remain cautious in drawing strong causal conclusions. Furthermore, we test the robustness of our findings by employing alternative measures of LMR and we test our results against other types of blockholders beyond family owners.

We also contribute to the emerging literature on the heterogeneous effects of regulation on FF performance by highlighting the risk–return trade-off. Chen et al. (2014) show that regulation reduces FF growth, while Bennedsen et al. (2019) document that LMR reduces FF profitability. More broadly, we contribute to the extensive literature on the interaction between law and corporate governance.

The remainder of the paper is structured as follows. Section 2 outlines the hypothesis and empirical strategy. Section 3 describes the sample, key variables, and summary statistics. Section 4 presents the empirical analysis on the role of LMR for financial distress propensity of FF. Section 5 concludes.

## 2 Hypothesis development and empirical methodology

LMR introduces firm-level business risk by constraining the flexibility of labor cost structures. In more stringently regulated labor markets, firms incur higher adjustment costs when responding to demand shocks. This rigidity increases operating leverage, thereby tightening financial constraints (Lev, 1974; Mandelker & Rhee, 1984; Wu et al., 2024). Facing labor cost stickiness and downside risk, firms may rationally avoid high-risk, high-return investment opportunities and pursue corporate resilience instead.

FF are expected to prioritize risk mitigation over performance. First, the pursuit of socioemotional wealth — non-financial goals such as family legacy, reputation, and identity — can lead FF to emphasize continuity and control over risk-taking (Berrone et al., 2012; Gómez-Mejía et al., 2007; Reina et al., 2023). Intergenerational succession motives further reinforce a long-term survival orientation (Le Breton-Miller & Miller, 2006). Second, from a financial perspective, family owners often hold underdiversified equity stakes, which increases their sensitivity to firm-specific risk (Shleifer & Vishny, 1986). Third, FFs generally tend to adopt more risk averse behavior (Anderson et al., 2012). Empirically, Fütterer et al. (2025) show that European FF increase cash holdings in face of high LMR. From a financing perspective, Schmid (2013) finds that German FF adopt more conservative financial policies than their non-family counterparts.

Accordingly, when faced with increased operating leverage resulting from more stringent LMR, FF are expected to respond more conservatively than non-FF. Consistent with the literature, we hypothesize that FF are less likely to end in financial distress in institutional environments characterized by higher levels of LMR.

Our study analyzes the differential effect of LMR on FF and non-FF by examining the interaction between these two factors, following the approach of Bennedsen et al. (2019). To this end, we employ logit models to estimate the likelihood of financial distress in the spirit of Kane et al. (2005). The estimation equation is specified as follows:

$$FDO_{i,t} = \alpha_{i,t} + \beta_1 FF_{i,t} + \beta_2 LMR_{c,t-1} + \beta_3 FF_{i,t} \times LMR_{c,t-1} + \gamma X'_{i,t-1} + \phi_c + \psi_s + \omega_t + \epsilon_{i,t} ,$$

where the binary variable for financial distress onset,  $FDO_{i,t}$ , takes the value 1 if firm  $i$  is financially distressed in year  $t$  but was not distressed in year  $t-1$ , and 0 if the firm is not in financial distress in either year (Kane et al., 2005). The binary variable  $FF_{i,t}$  equals 1 if at least 25% of control rights in firm  $i$  in year  $t$  are held by a global ultimate owner identified as a family, and equals 0 if there is no family owner (Franks et al., 2012). The variable  $LMR_{c,t-1}$  captures labor market regulation in country  $c$  lagged by one year. The control vector  $X'_{i,t-1}$  includes covariates for firm  $i$  in year  $t-1$ . Fixed effects for country, Fama-French (12) sector, and year are denoted by  $\phi_c$ ,  $\psi_s$ , and  $\omega_t$ , respectively.

There are several limitations to our empirical strategy. First, reverse causality may arise from differences between FF and non-FF across countries, potentially driving the observed results. Although we address this concern by employing propensity score matching, we acknowledge that selection bias makes causal inference difficult. Second, to address the incidental parameters problem and to mitigate the influence of unobserved heterogeneity that may vary across both countries and over time, we estimate linear probability models that include fixed effects at the country-year level. Third, to account for potential bias from recurrent financial distress events, we estimate Cox proportional hazards models using only the first observed distress event for each firm in the sample period. Fourth, we test the robustness of our main explanatory variables to alternative specifications. Finally, our sample is limited to publicly listed firms, which — while allowing for international, cross-country comparisons — reduces the representation of smaller, privately held family firms. We acknowledge that our analysis focuses on publicly traded firms, which may not fully reflect the dynamics present across the broader population of firms.

### 3 Data

This section presents the data used to empirically examine the impact of LMR on the financial distress propensity of FF. We describe the sample construction and outline the key variables employed in the analysis.

### **3.1 Sample construction**

We obtain financial and ownership data for OECD countries from the OSIRIS database. The sample is restricted to observations with available information on global ultimate ownership, as well as the data required to construct financial distress indicators and firm-level control variables. We exclude observations in which the country code derived from BvD ID numbers does not match the ISO country code from OSIRIS. Furthermore, we drop observations with missing currency information and remove all firm-years with negative values in total assets, number of employees, sales, or property, plant, and equipment. We further limit the sample to countries covered by Djankov et al. (2008) and exclude those with fewer than 20 firms. To ensure comparability in accounting standards and regulatory environments, we exclude observations from financial sectors (SIC 6000–6999), utilities (SIC 4900–4999), and non-classifiable establishments (SIC 9995–9999). We also exclude observations that cannot be mapped to Fama-French industry classifications. We drop observations with sales below USD 1 million, and those with total assets below USD 2 million. The final dataset comprises 16,889 unique observations across 30 OECD countries. The most represented countries are Japan (3,320 firms), the United States (3,126 firms), and South Korea (1,959 firms).

### **3.2 Family firms**

We apply the FF definition used by Franks et al. (2012), classifying a firm as FF if an individual or family ultimately controls more than 25% of the control rights, either directly or through a chain of ownership entities. Franks et al. (2012) provides a detailed explanation of how the global ultimate ownership variable is constructed. Our data on global ultimate ownership is collected on an annual basis from OSIRIS, allowing for the benefit that our FF indicator captures year-to-year variation in ownership status, enhancing the reliability of our results. To reduce measurement error in the FF indicator, we smooth the variable such that for year  $t = 0$ , the value from  $t - 1$  or  $t + 1$  is used if the value at  $t = 0$  deviates from both.

In Table 1, we use the 25% threshold to classify observations into three categories:

(1) ultimately controlled by a family (column 4), (2) ultimately controlled by a non-family entity (column 5), and (3) widely held (column 6). In our sample, the median observation is widely held, with 56% of observations having no ultimate controlling blockholder. Family-controlled observations account for 22% of the sample, while 22% are controlled by non-family entities. These proportions closely align with the findings of Lins et al. (2013). We also observe substantial variation in ownership structures across countries. The highest shares of family-controlled firms are observed in continental European economies such as Greece, Italy, and France, but also in Mexico. Conversely, the lowest shares of FF are found in Anglo-Saxon economies such as Ireland, New Zealand, Canada, and Australia.

[Table 1]

### **3.3 Labor market regulation and country-level control variables**

The Fraser Institute publishes an annual index of LMR as part of its Economic Freedom of the World report, which assesses the extent to which national policies and institutions support individual economic freedom. The LMR measure is based on data collected from internationally established sources such as the World Bank, the Economist Intelligence Unit, and the World Economic Forum. It captures the extent to which a country's labor market is regulated and is designed to reflect the degree of flexibility or rigidity faced by employers in hiring, managing, and dismissing workers. The index is calculated as the average of its seven subcomponents: (1) hiring regulations and minimum wage, (2) hiring and firing regulations, (3) centralized collective bargaining, (4) hours regulations, (5) mandated costs of worker dismissal, (6) degree of conscription enforcement, and (7) ease of hiring foreign labor. The LMR index ranges from 0 to 10, with higher values indicating more flexible, market-oriented labor regulations, and lower values reflecting more stringent policies. We reverse the index by subtracting it from 10, such that higher values now correspond to stricter LMR. Column 7 of Table 1 presents country-level averages of LMR. The most highly regulated labor markets in our sample are South Korea, Israel, and Turkey, while the United

States, New Zealand, and the UK exhibit the most flexible labor market institutions.

Following Bennedsen et al. (2019), we include a set of country-level covariates to control for institutional heterogeneity. Given the potential interplay between investor protection and blockholders, we include two legal indices: the Anti-Self-Dealing Index, which measures protections for minority shareholders against expropriation by controlling owners, and the revised Antidirector Rights Index, which reflects the strength of shareholder rights that a country codifies (Djankov et al., 2008). Additionally, we control for economic development using the logarithm of GDP per capita, sourced from the World Bank. Panel A of Table 2 shows the summary statistics of the institutional variables. The average country in our sample has an LMR index of 3.17 with a standard deviation of 1.13, comparable in range to the values observed in the sample used by Bennedsen et al. (2019). Furthermore, we examined that the country covariates exhibit only weak correlation with our LMR measure and we detected no influential outliers among these variables that might bias our results.

[Table 2]

### **3.4 Financial distress onset and firm-level control variables**

Following Kane et al. (2005), we define financial distress onset (FDO) as a binary variable equal to 1 if a firm becomes financially distressed in year  $t$  but was not distressed in year  $t-1$ , and 0 if the firm is not in financial distress in either year. This definition ensures that we only measure firms that enter the stage of financial distress from being healthy in the previous year. We operationalize financial distress using two well-established measures from the finance literature. The first measure is the Altman  $Z''$ -Score (AZS), adjusted to reduce industry sensitivity and to make it applicable to international settings (Altman et al., 2017). The AZS is calculated as follows:

$$Z'' = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4 ,$$

where  $X_1$  is working capital over total assets,  $X_2$  is retained earnings over total assets,  $X_3$  is earnings before interest and tax (EBIT) over total assets, and  $X_4$  is book value of equity over total liabilities. A firm is entering financial distress if its AZS falls below 1.10 in a given year (Altman et al., 2017). The second measure of FDO is identified when a firm's interest coverage ratio (ICR) falls below 1 for two consecutive years, or falls below 0.8 in any single year (Asquith et al., 1994). Panel B of Table 2 presents summary statistics for the firm-level characteristics. On average, financially healthy firms exhibit a probability of entering financial distress below 10% across the two measures for FDO. Specifically, the incidence is 7% based on AZS and 7% based on ICR. Note that the underlying base number differs slightly between the two measures.

We incorporate firm-level control variables that have been established in the literature on financial distress determinants (Kane et al., 2005). Firm size is the natural logarithm of market capitalization. Profitability is return on assets (ROA), defined as earnings before interest, tax, depreciation and amortization (EBITDA) over total assets. Long term leverage is long-term liabilities over total assets. Liquidity is the cash ratio, calculated as cash and cash equivalents over total assets. The average firm in our sample has log market capitalization of 12.17, ROA of 5%, a long-term leverage ratio of 22%, and a cash ratio of 16%. As expected in a cross-country panel spanning economic cycles, the standard deviations of these variables are relatively large with particularly high dispersion in profitability.

## **4 Family firms, labor market regulation, and financial distress**

### **4.1 Univariate analysis**

This subsection presents a univariate analysis of the relationship between LMR and the financial distress propensity of FF. Figure 1 offers initial insights by comparing the annual average FDO based on the AZS for FF and non-FF in high-LMR countries. Each year, we split the sample countries into low- and high-LMR groups based on the median value of the one-year lagged LMR index. While both groups exhibit a broadly similar time-series pattern centered around the 10% mark with peaks around 2019 to 2020, FF consistently display

a lower likelihood of financial distress relative to their non-family counterparts throughout the sample period.

[Figure 1]

Table 3 extends the univariate analysis by comparing the mean incidence of financial distress across countries with weak versus strong LMR, separately for FF and non-FF. Panel A reports results based on the AZS. In aggregate, firms operating in high-LMR countries exhibit a 2.37 percentage points higher probability of financial distress, a pattern that is not robust to our multivariate analysis presented below.

Column 1 indicates that, on average, FF experience a 0.17 percentage point lower probability of financial distress relative to non-FF. The double-split by firm type and LMR intensity reveals that this risk differential is primarily driven by FF in high-LMR environments. Specifically, FF are 3.17 percentage points less likely to enter financial distress than their non-family counterparts. In contrast, in low-LMR countries, family firms are actually 2.83 percentage points more likely to face financial distress. All differences reported are statistically significant.

Panel B confirms the analysis using the ICR based FDO measure. The results confirm that FF in high-LMR countries are less prone to financial distress, with risk reductions of 1.03 percentage points relative to non-FF. While the magnitude of this difference is smaller than the difference observed using AZS, we exhibit a consistent directional pattern across both distress measures. Importantly, these effects are more stable in the split samples than the general difference between FF and non-FF. Taken together, these findings support the notion that FF prioritize resilience in environments characterized by elevated LMR.

[Table 3]

Figure 2 illustrates the cross-country relationship between LMR and the differential FDO of FF versus non-FF. The figure plots the difference in financial distress probabilities

between the two firm types against the level of LMR, revealing a clear negative relationship. The fitted regression line indicates that FF are associated with a lower likelihood of experiencing financial distress in countries with more stringent LMR.

In contrast, in countries with more flexible labor markets — such as the US, New Zealand, the UK, Ireland, Japan, and Denmark — the distress probability for FF exceeds that of non-FF. Notably, many of these countries have been identified by Bennedsen et al. (2019) as contexts where FF exhibit performance advantages, suggesting a preference for return over resilience in these settings. Conversely, in countries such as Greece, Norway, France, and Sweden, FF show a lower likelihood of financial distress, consistent with the idea that they prioritize resilience in environments characterized by higher LMR. While this graph presents unweighted country-level means, we confirm that the observed pattern holds when weighting by the number of observations in each country.

In conclusion, the analysis in this subsection demonstrates that the difference in financial distress probability between FF and non-FF is most pronounced in countries with strict LMR. This finding supports the notion that FF, when faced with elevated LMR, prioritize financial sustainability over short-term returns. It aligns with the view that socio-emotional wealth and long-term continuity considerations shape family firms' strategic responses to regulatory environments. Thus far, our analysis has focused on univariate relationships. In the following subsection, we validate these patterns through multivariate regression analysis.

[Figure 2]

## **4.2 Main results**

In this subsection, we present our main findings from the multivariate analysis, controlling for firm-, industry-, and country-level covariates. We begin by estimating logit models of FDO using two alternative measures: AZS and ICR. Our key independent variables are LMR, FF, and the interaction of LMR and FF. To enhance interpretability, we mean-center

the LMR variable by subtracting the cross-country average, allowing the FF coefficient to be interpreted as the effect for the average firm.

Column 1 of Table 4 shows that the direct effect of LMR is positive and significant at the 10% level. We will see that LMR's coefficient is quite unstable across our tests. However, this observation does not seem to impact the interaction coefficient, which is of our main interest. The most influential predictors of FDO are firm size, profitability, and leverage. The signs of these coefficients align with our expectations. The coefficient on firm size diverges somewhat from what Kane et al. (2005) find, however, we argue that larger size contributes to greater financial resilience. Introducing the FF indicator in column 2 does not materially change these results.

Our primary focus lies on the interaction between FF and LMR, which is introduced in column 3. We find that FF in high-LMR countries are significantly less likely to experience financial distress. The interaction term is statistically significant at the 1% level. Specifically, being a FF, a one-unit increase in the LMR corresponds to a reduction of 0.12 in the log-odds of financial distress probability, in comparison to non-FF.

In column 4, we incorporate not only year fixed effects and industry fixed effects but introduce country fixed effects to account for time-invariant heterogeneity across countries. The Antidirector and Anti-self-dealing measures are constant over time and are therefore fully absorbed by the country fixed effects. The inclusion of country fixed effects slightly attenuates the magnitude of the interaction's coefficient but does not diminish the statistical significance. Notably, LMR's coefficient turns negative, suggesting that the isolated impact of LMR is unreliable. However, as we demonstrate, this does not affect the robustness of the interaction term. Finally, columns 5 and 6 confirm the significance of the interaction effect using ICR as an alternative measure for financial distress.

In sum, our multivariate analysis confirms that the lower financial distress propensity of FF relative to non-FF is pronounced in countries with stringent labor market regulation, even after controlling for firm- and country-level covariates, as well as industry, country, and year fixed effects.

[Table 4]

### 4.3 Endogeneity

In this subsection, we address endogeneity concerns. First, we employ propensity score matching to address selection bias and improve comparability between family and non-family firms, thereby reducing concerns about confounding in the relationship between ownership structure and financial distress onset. Second, we estimate linear probability models with country-year fixed effects to control for unobserved time-varying country-level factors, such as macroeconomic fluctuations. Third, we focus on the timing of first distress events using Cox proportional hazards models, thereby reducing bias from firms that recover after experiencing financial distress during the sample period.

#### 4.3.1 Propensity score matching

Cross-country studies inherently involve heterogeneity in firm characteristics across countries. To address concerns that differences in covariates between FF and non-FF systematically correlate with ownership status, we employ propensity score matching. Following Bannedsen et al. (2019), for each treated observation (FF), we identify the most similar control (non-FF) based on industry affiliation and firm-level characteristics such as size, profitability, leverage, and liquidity — matching within country and year.

Columns 1 and 2 of Table 5 present the results from logit regressions estimated on the matched sample. Consistent with our main findings, the interaction term between FF and LMR remains statistically significant and economically meaningful. FF are associated with a lower likelihood of financial distress in countries with higher levels of LMR. The magnitude of the coefficient is comparable to that in our baseline results: a one-unit increase in LMR reduces the probability of financial distress for FF by 0.14 log-odds.

[Table 5]

### 4.3.2 Linear probability model

To account for economic cycles covered by our sample period, we address concerns of time-varying country-level confounders and include country-year fixed effects. Thereby, we analyze variation across firms within the same macro-institutional context. Given the high-dimensional fixed effects structure, we estimate linear probability models to avoid the incidental parameters problem inherent in non-linear estimation approaches like logit models. Since both LMR and the log of GDP per capita vary at the country-year level, their main effects are absorbed by the country-year fixed effects. Column 4 of Table 5 confirms our main result again: FF are less likely to enter financial distress in high-LMR countries. A one-unit increase in LMR is associated with a statistically significant 1 percentage point reduction in the probability of distress for FF.

### 4.3.3 Cox proportional hazards model

To address concerns about unobserved heterogeneity stemming from firms that recover from financial distress, we estimate a Cox proportional hazards model as a robustness check. To complement the results from our logit models, the Cox model exploits variation in the timing of distress events, capturing how the hazard rate evolves over time. By modeling time-to-first-event, rather than recurring outcomes, this approach focusses on the initial FDO and disregards recurrent FDO.

First, we assess the Proportional Hazards Assumption by inspecting Kaplan–Meier survival estimates (Kaplan & Meier, 1958). The Kaplan–Meier estimator provides a non-parametric estimate of the survival function and is defined as:

$$S(t) = \prod_{t_i < t} \left(1 - \frac{d_i}{n_i}\right),$$

where  $t_i$  denotes the duration at point in time  $i$ ,  $d_i$  is the number of financial distress onsets at  $t_i$ , and  $n_i$  is the number of firms at risk shortly before  $t_i$ . The Kaplan–Meier survival function  $S(t)$  estimates the probability that a firm remains financially healthy up to time  $t$ , conditional on having survived until the beginning of the interval. We estimate survival

probabilities separately for FF and non-FF in high-LMR countries to explore heterogeneity in financial distress timing.

Figure 3 compares the Kaplan–Meier survival curves for FF and non-FF in high-LMR settings. The results indicate that FF exhibit a consistently higher probability of remaining financially healthy over time. After five years, the difference in survival probabilities between the two groups reaches approximately 1.5 percentage points. Notably, the non-FF at the 95th percentile becomes financially distressed after three years, whereas the FF at the 95th percentile becomes financially distressed after five years. A log-rank test confirms that the difference in survival distributions is statistically significant.

[Figure 3]

To estimate the Cox proportional hazards model, we define a firm’s survival time as the number of years from its entry into the sample until the first recorded instance of financial distress or censoring. The Cox model specifies the hazard function  $h(t, X_{i,t})$ —the instantaneous risk of distress at time  $t$ , conditional on survival up to that point—as:

$$h_{i,t} = h_0(t) \exp(\beta_1 FF_{i,t} + \beta_2 LMR_{c,t-1} + \beta_3 FF_{i,t} \times LMR_{c,t-1} + \gamma X'_{i,t-1}),$$

where  $h_{i,t}$  is the hazard rate, specifically the probability of firm  $i$  to become financially distressed at time  $t$  conditional on not having become financially distressed prior to  $t$ , and  $h_0(t)$  is the baseline hazard rate. As in our main specification, the binary variable  $FF_{i,t}$  equals 1 if at least 25% of control rights in firm  $i$  in year  $t$  are held by a global ultimate owner identified as a family, and equals 0 if there is no family owner. The variable  $LMR_{c,t-1}$  captures labor market regulation in country  $c$  lagged by one year. The control vector  $X'_{i,t-1}$  includes covariates for firm  $i$  in year  $t-1$ . All controls are the same as in our main specification reported in Table 4.

Results from the Cox proportional hazards model are shown in columns 5 and 6 of Table 5. Consistent with our main findings, FF exhibit a significantly lower hazard rate of

financial distress than non-FF in high-LMR countries. For family firms, a one-unit increase in LMR is associated with an approximate 6% reduction in the hazard rate.

#### **4.4 Trade-off between risk and return**

The literature provides evidence that FF tend to respond more adversely to regulatory business risks than non FF. Chen et al. (2014) show that increasing regulation hampers the growth of FF. Bennedsen et al. (2019) find that LMR diminishes FF profitability. Lins et al. (2013) also identify underperformance of FF in risk settings of the global financial crisis, attributing it to investment cutting. Additionally, Gnoth et al. (2025) find that abnormal labor cost stickiness in FF leads to lower profitability and lower non-labor investments.

In the following analysis, we examine whether similar performance differences emerge in the presence of stronger LMR. A negative correlation between FF performance and LMR would support the view that the increased resilience of FF in high-LMR environments comes at the cost of reduced growth potential. This result would suggest that FF prioritize financial sustainability over performance as a means of insuring against labor regulation risk.

In Table 6, we examine whether firm performance is associated with LMR an FF status. The control variables are the same used in our main specification in table 4, and we include fixed effects for country, industry, year, and firm. As our first performance metric, we use Tobin's q — a forward-looking measure of firm growth valued by market participants (columns 1 to 3). Consistent with the notion that FF forgo performance advantages in response to labor market risk, we find that firm growth is significantly lower for FF in high LMR countries. Specifically, a one-unit increase in LMR is associated with a 2.09 percentage points reduction in Tobin's q for FF relative to non-FF.

In columns 4 to 6, we explore the underlying mechanism behind this growth reduction by examining operational efficiency, measured as value added over invested capital. Consistent with the idea that FF reduce investments in risky environments to ensure long-term survival, we find that FF in high LMR countries are significantly less efficient in generating value from their invested capital. A one-unit increase in LMR is associated with

a 2.17 percentage point decrease in the efficiency measure for FF relative to non-FF.

Overall, our findings indicate that FF exhibit lower firm growth and operational efficiency than non-FF in countries with stringent LMR. This evidence supports the notion that the reduced financial distress propensity of FF in high LMR countries is partly driven by a strategic trade-off — sacrificing growth potential to enhance long-term corporate resilience.

[Table 6]

## **4.5 Robustness: Alternative measures of labor market regulation and different blockholders**

In this subsection, we present robustness checks to support the validity of our main findings. First, we demonstrate that our results are robust to the use of alternative measures of LMR. Second, we show that our conclusions remain materially unchanged when FDO is explained using specifications that include additional blockholder variables alongside the FF indicator.

### **4.5.1 Alternative measures of labor market regulation**

Our LMR measure is derived from data compiled by the Fraser Institute, which sources information from institutions with international scope such as the World Bank, the Economist Intelligence Unit, and the World Economic Forum. This broad foundation allows for meaningful cross-country comparisons, making it well suited to the objectives of this study. To validate the robustness of our main findings, we replace the Fraser Institute's LMR index with the most recent version (2019) of the OECD Employment Protection Legislation (EPL) measure.

The EPL is based on data collected by the International Labour Organization (ILO), with contributions from national officials and legal experts. It captures employment protection by evaluating the procedural and regulatory conditions surrounding dismissals. The EPL index comprises three subcomponents: (1) regulations on individual dismissals of workers

with regular contracts (weighted 5/12), (2) regulations on temporary contracts (5/12), and (3) additional costs associated with collective dismissals (2/12). The measure ranges from 0 (most flexible) to 6 (most stringent).

In Table 7, we replicate our baseline results from Table 4, columns 4 and 6, using the OECD EPL index and its subcomponents. Panel A presents results using AZS-based FDO as the dependent variable and Panel B uses ICR-based FDO. Due to differences in scaling of the labor regulation measures, the estimated coefficients are not readily comparable to those in our main specification, though direction and significance are informative. Across both FDO measures, we find a significantly negative interaction between FF and overall EPL, as well as with the temporary and regular contract subcomponents. Only the interaction with the collective dismissal subcomponent is statistically insignificant. This aligns with Bennedsen et al. (2019), who report similarly weak or even different effects for this component on firm performance.

Overall, these results confirm the robustness of our main findings. They even show that the reduced financial distress propensity of FF in high-LMR environments is found only in regulatory dimensions previously shown to be associated with firm performance decline. This provides further support for the view that FF prioritize risk mitigation over performance when facing elevated LMR.

[Table 7]

#### **4.5.2 Different blockholders**

We test the robustness of the interaction effect between FF and LMR on FDO by incorporating alternative forms of block ownership. Using OSIRIS data on global ultimate owners, we define binary ownership indicators analogous to our FF definition. Specifically, we identify firm control by (1) a financial firm (including: bank; financial company; hedge fund; insurance company; mutual and pension fund, nominee, trust or trustee; private equity firm; venture capital), (2) a state (including: public authority, state, or government), (3)

a widely held parent firm (including: corporate), and (4) other owner, capturing any global ultimate owner not classified under the previous categories. All ownership variables equal one if the respective blockholder holds at least 25% of the firm's control rights.

Table 8 replicates the baseline results from Table 4, columns 4 and 6, while sequentially adding the alternative blockholder indicators and their interactions with LMR. Across all specifications, we continue to find that FF are significantly less likely to enter financial distress in countries with high LMR. Importantly, the magnitude of the FF×LMR interaction term remains stable and statistically significant. Among the alternative ownership types, only firms controlled by widely held corporate parents show a comparably negative association with distress probability in high LMR settings. This finding aligns with Beaver et al. (2023), who show that business groups proactively manage intra-group credit risk—reallocating resources within the corporate structure to mitigate the risk of costly internal insolvencies. Yet, this observation does not affect the interpretation of our core findings.

In sum, we demonstrate that our main results are robust to alternative LMR measures and the inclusion of other blockholder types. The latter robustness check in particular alleviates concerns that our findings may be an artefact of general block ownership rather than a distinctive feature of family control.

[Table 8]

## 5 Conclusion

This paper contributes to the literature on family firms and corporate resilience by examining how labor market regulation shapes the financial distress propensity of family-controlled firms. While previous research has produced mixed results on the performance of firms under family control, our findings suggest that family firms exhibit nuanced behavior and are willing to sacrifice growth and efficiency to insure against regulatory risk, preserving continuity across generations. Specifically, we find that in countries with stricter labor

market regulation, family firms are significantly less likely to end in financial distress than non-family firms and that this finding probably results from their preference for long-term survival over growth.

While our cross-country sample provides a valuable comparative perspective and leverages international variation in labor market regulation, it necessarily focusses on publicly listed firms to ensure comparability. Future research could examine whether the risk-return trade-off we find for family firms also holds for privately held family firms. Single-country studies with access to more granular firm-level data may be well positioned to complement our results and research on how these more opaque firms manage regulatory risk.

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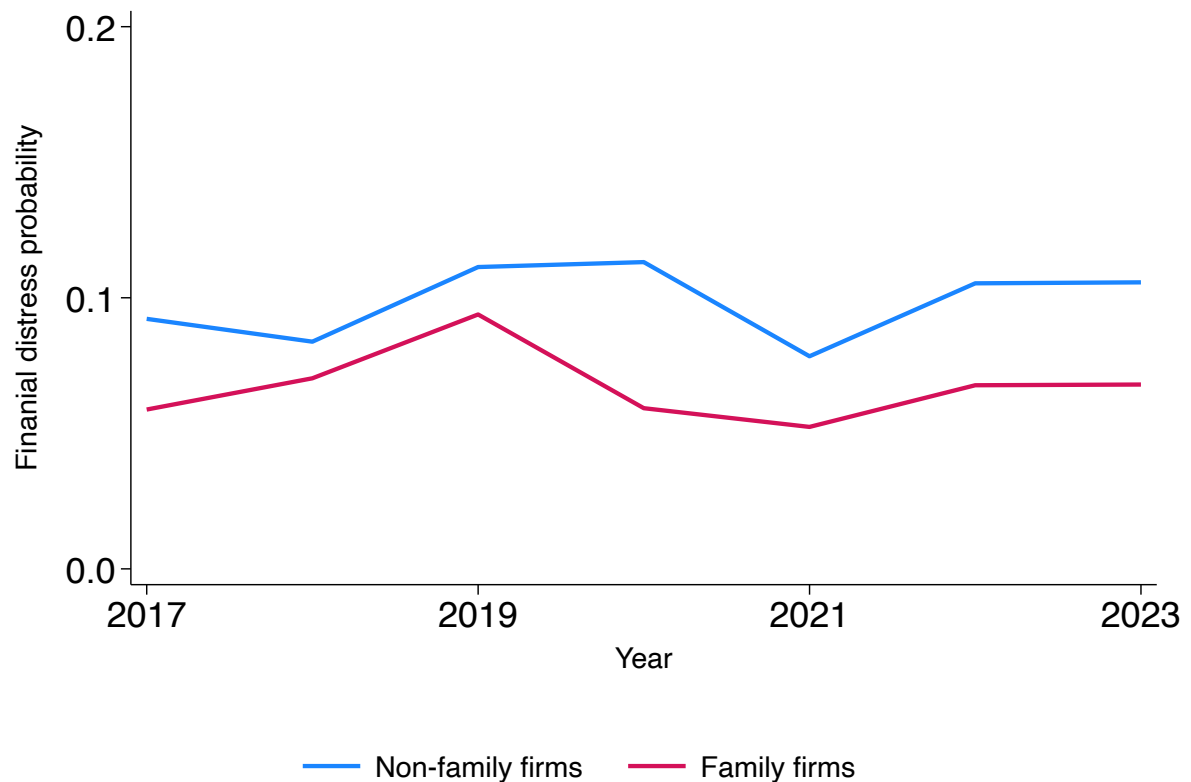
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## Figures

**Figure 1:**

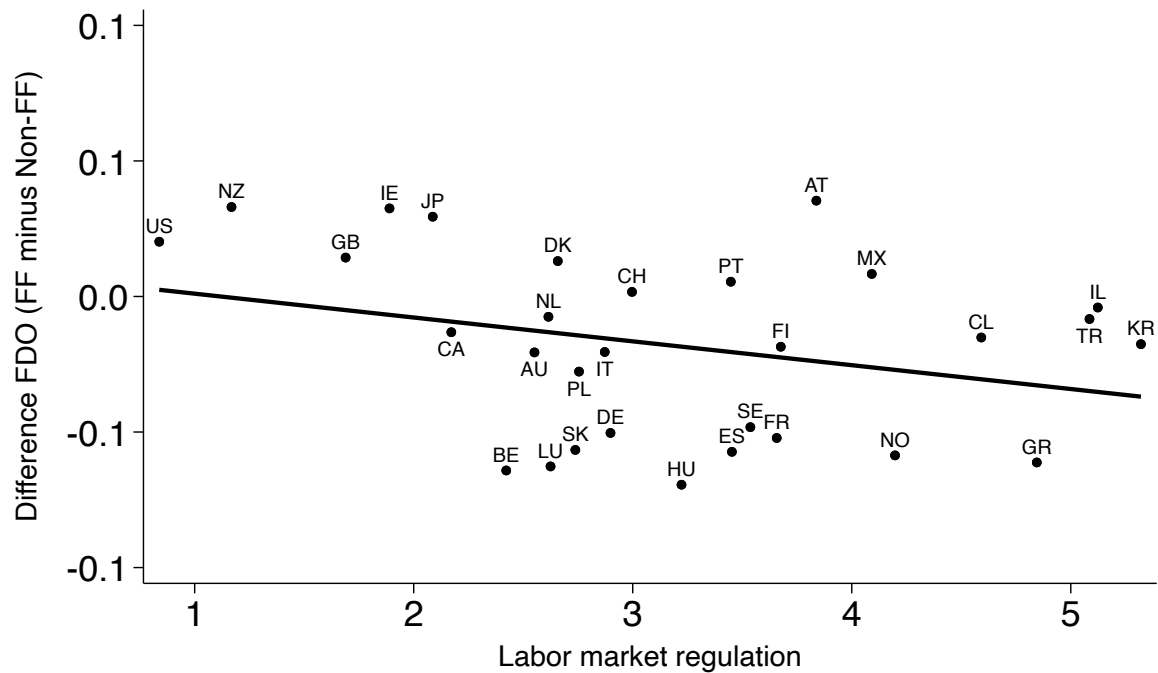
Financial distress probability of family firms and non-family firms in countries with high labor market regulation



*Notes:* The figure graphs the means of financial distress onset (FDO) in countries with high labor market regulation (LMR) across years, split by family control. Each year, the set of sample countries is split into low LMR countries and high LMR countries based on the median of the 1-year-lagged LMR index from the Fraser Institute. Financial distress probability is calculated year by year as the mean of financial distress onset (FDO) among family firms (FF) and the mean of FDO among non-FF. FDO is 1 if a firm is financially distressed in year  $t$  but is not financially distressed in year  $t-1$ , and is 0 if the firm is not in financial distress in both years. Financial distress is indicated by an Altman Z"-score (AZS) of less than 1.10. The FF indicator is 1 if a family holds at least 25% of control rights in the chain of entities, and 0 if there is no family ownership.

**Figure 2:**

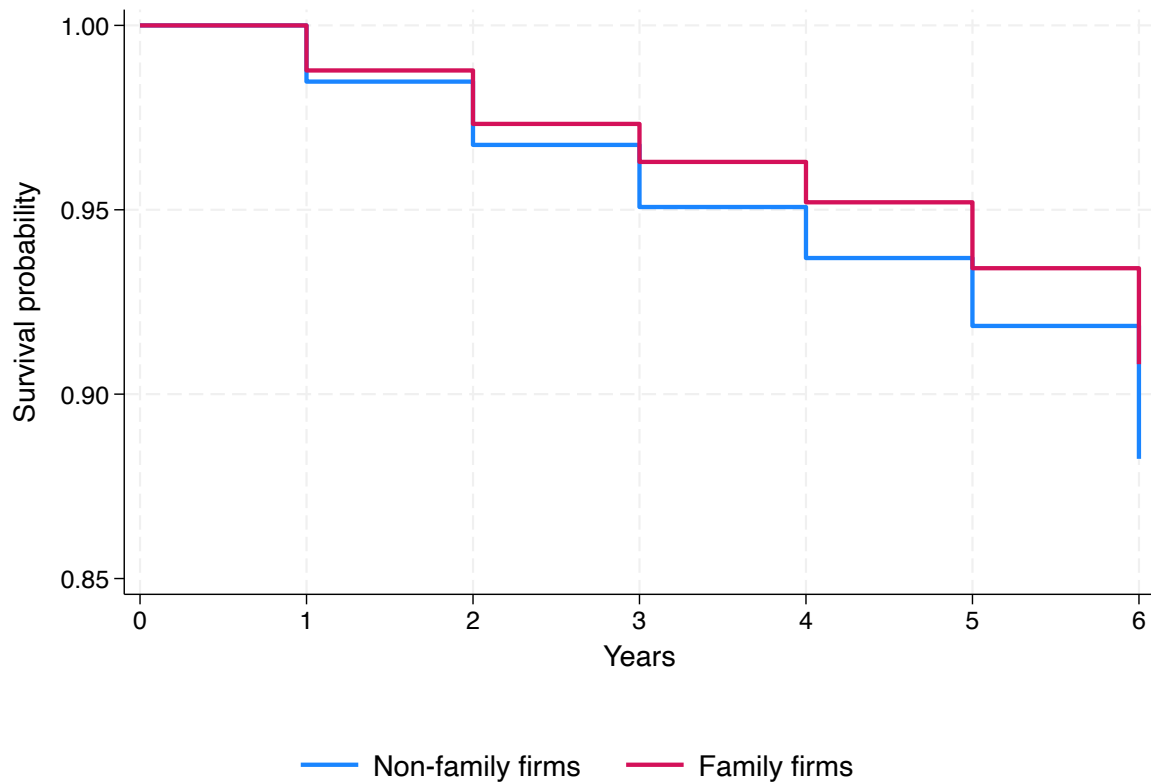
Financial distress probability difference across labor market jurisdictions



*Notes:* The figure shows the relation between the financial distress probability of family firms (FF) vs non-FF and labor market regulation (LMR). Each dot represents a country in the sample. LMR is calculated as the country-level average of the 1-year-lagged LMR index from the Fraser Institute. The difference in financial distress probability is calculated country by country as the mean of financial distress onset (FDO) of FF minus the mean of FDO of non-FF. FDO is 1 if a firm is financially distressed in year  $t$  but is not financially distressed in year  $t-1$ , and is 0 if the firm is not in financial distress in both years. Financial distress is indicated by an Altman  $Z''$ -score (AZS) of less than 1.10. The FF indicator is 1 if a family holds at least 25% of control rights in the chain of entities, and 0 if there is no family ownership.

**Figure 3:**

Kaplan-Meier survival estimates in countries with high labor market regulation



*Notes:* The figure shows Kaplan-Meier estimates of survival probabilities in countries with high labor market regulation (LMR) for family firms (FF) and non-FF. Each year, the set of sample countries is split into low LMR countries and high LMR countries based on the median of the 1-year-lagged LMR index from the Fraser Institute. The event variable is the first financial distress onset (FDO) of a firm in the sample period. FDO is 1 if a firm is financially distressed in year  $t$  but is not financially distressed in year  $t-1$ , and is 0 if the firm is not in financial distress in both years. Financial distress is indicated by an Altman  $Z''$ -score (AZS) of less than 1.10. The FF indicator is 1 if a family holds at least 25% of control rights in the chain of entities, and 0 if there is no family ownership.

## Tables

**Table 1:**  
Country-level sample composition and institutional characteristics

| Country      | Number        |               | Ownership proportion |             |             | Means of country-level covariates |                                |               |                  |
|--------------|---------------|---------------|----------------------|-------------|-------------|-----------------------------------|--------------------------------|---------------|------------------|
|              | Firms         | Firm-years    | Family               | Non-family  | Widely held | LMR <sub>t-1</sub>                | log(GDP/capita) <sub>t-1</sub> | Anti-director | Antiself-dealing |
| AT           | 47            | 247           | 0.31                 | 0.51        | 0.18        | 3.84                              | 10.85                          | 2.50          | 0.21             |
| AU           | 1,342         | 5,332         | 0.14                 | 0.27        | 0.59        | 2.55                              | 10.97                          | 4.00          | 0.76             |
| BE           | 85            | 430           | 0.28                 | 0.45        | 0.27        | 2.42                              | 10.79                          | 3.00          | 0.54             |
| CA           | 1,543         | 5,637         | 0.13                 | 0.15        | 0.72        | 2.17                              | 10.80                          | 4.00          | 0.64             |
| CH           | 172           | 930           | 0.31                 | 0.22        | 0.47        | 3.00                              | 11.40                          | 3.00          | 0.27             |
| CL           | 98            | 554           | 0.31                 | 0.45        | 0.25        | 4.59                              | 9.63                           | 4.00          | 0.62             |
| DE           | 451           | 2,437         | 0.41                 | 0.31        | 0.28        | 2.90                              | 10.81                          | 3.50          | 0.28             |
| DK           | 122           | 463           | 0.36                 | 0.42        | 0.21        | 2.66                              | 11.06                          | 4.00          | 0.46             |
| ES           | 141           | 698           | 0.32                 | 0.28        | 0.40        | 3.45                              | 10.31                          | 5.00          | 0.37             |
| FI           | 153           | 827           | 0.15                 | 0.21        | 0.64        | 3.68                              | 10.82                          | 3.50          | 0.46             |
| FR           | 548           | 2,604         | 0.49                 | 0.24        | 0.26        | 3.66                              | 10.63                          | 3.50          | 0.38             |
| GB           | 1,003         | 4,716         | 0.16                 | 0.11        | 0.73        | 1.69                              | 10.70                          | 5.00          | 0.95             |
| GR           | 137           | 732           | 0.55                 | 0.23        | 0.22        | 4.84                              | 9.90                           | 2.00          | 0.22             |
| HU           | 27            | 116           | 0.41                 | 0.32        | 0.24        | 3.22                              | 9.73                           | 2.00          | 0.18             |
| IE           | 65            | 310           | 0.05                 | 0.13        | 0.83        | 1.89                              | 11.38                          | 5.00          | 0.79             |
| IL           | 291           | 1,408         | 0.38                 | 0.35        | 0.26        | 5.12                              | 10.75                          | 4.00          | 0.72             |
| IT           | 308           | 1,416         | 0.51                 | 0.34        | 0.15        | 2.87                              | 10.46                          | 2.00          | 0.42             |
| JP           | 3,320         | 18,648        | 0.10                 | 0.23        | 0.67        | 2.09                              | 10.60                          | 4.50          | 0.50             |
| KR           | 1,959         | 10,233        | 0.35                 | 0.20        | 0.45        | 5.32                              | 10.41                          | 4.50          | 0.47             |
| LU           | 53            | 255           | 0.30                 | 0.40        | 0.30        | 2.62                              | 11.70                          | 2.00          | 0.28             |
| MX           | 93            | 528           | 0.53                 | 0.25        | 0.22        | 4.09                              | 9.24                           | 3.00          | 0.17             |
| NL           | 136           | 636           | 0.26                 | 0.24        | 0.50        | 2.62                              | 10.92                          | 2.50          | 0.20             |
| NO           | 154           | 611           | 0.23                 | 0.32        | 0.44        | 4.20                              | 11.34                          | 3.50          | 0.42             |
| NZ           | 104           | 541           | 0.11                 | 0.40        | 0.49        | 1.17                              | 10.72                          | 4.00          | 0.95             |
| PL           | 479           | 2,355         | 0.46                 | 0.32        | 0.22        | 2.75                              | 9.70                           | 2.00          | 0.29             |
| PT           | 34            | 190           | 0.27                 | 0.62        | 0.12        | 3.45                              | 10.07                          | 2.50          | 0.44             |
| SE           | 587           | 2,719         | 0.21                 | 0.27        | 0.52        | 3.54                              | 10.93                          | 3.50          | 0.33             |
| SK           | 26            | 94            | 0.20                 | 0.53        | 0.27        | 2.74                              | 9.91                           | 3.00          | 0.29             |
| TR           | 285           | 1,377         | 0.41                 | 0.42        | 0.17        | 5.09                              | 9.23                           | 3.00          | 0.43             |
| US           | 3,126         | 13,368        | 0.15                 | 0.09        | 0.76        | 0.84                              | 11.12                          | 3.00          | 0.65             |
| <b>Total</b> | <b>16,889</b> | <b>80,412</b> | <b>0.22</b>          | <b>0.22</b> | <b>0.56</b> |                                   |                                |               |                  |

*Notes:* The table shows the panel composition by country, the proportion of ownership by country, and the averages of country-level variables. Column 2 and 3 report the number of firms and firm-year observations for each country. Columns 4, 5, and 6 report the proportion of firm-year observations with a family owner, a non-family owner, and a widely held shareholder base, respectively. The ownership proportion is defined as the number of firm-years controlled by a type of owner divided by the total number of firm-years. The ownership indicator is 1 if 25% of control rights are held by an OSIRIS global ultimate owner. Columns 7, 8, 9, and 10 show the averages over the sample period of the institutional variables 1-year-lagged labor market regulation (LMR) index from the Fraser Institute, 1-year-lagged log of GDP per capita from the World Bank, and Antidirector index and revised Anti-self-dealing index from Djankov et al. (2008), respectively.

**Table 2:**  
Summary statistics of country- and firm-level variables

|                                         | Mean  | SD   | 25th  | 50th  | 75th  | N      |
|-----------------------------------------|-------|------|-------|-------|-------|--------|
| <i>Panel A: Country-level variables</i> |       |      |       |       |       |        |
| $LMR_{t-1}$                             | 3.17  | 1.13 | 2.54  | 2.90  | 3.83  | 210    |
| $\log(GDP)_{t-1}$                       | 10.55 | 0.61 | 10.09 | 10.71 | 10.93 | 210    |
| Antidirector                            | 3.37  | 0.92 | 2.50  | 3.50  | 4.00  | 210    |
| Antiselfdealing                         | 0.46  | 0.22 | 0.28  | 0.42  | 0.62  | 210    |
| <i>Panel B: Firm-level variables</i>    |       |      |       |       |       |        |
| $FDO_t^{AZS}$                           | 0.07  | 0.26 | 0.00  | 0.00  | 0.00  | 57,886 |
| $FDO_t^{ICR}$                           | 0.07  | 0.25 | 0.00  | 0.00  | 0.00  | 61,115 |
| $FF_t$                                  | 0.22  | 0.42 | 0.00  | 0.00  | 0.00  | 80,412 |
| $\log(\text{Market cap})_{t-1}$         | 12.17 | 2.22 | 10.62 | 11.92 | 13.63 | 80,412 |
| $ROA_{t-1}$                             | 0.05  | 0.18 | 0.02  | 0.08  | 0.13  | 80,412 |
| LT Leverage ratio $_{t-1}$              | 0.22  | 0.20 | 0.07  | 0.17  | 0.32  | 80,412 |
| Cash ratio $_{t-1}$                     | 0.16  | 0.16 | 0.05  | 0.11  | 0.22  | 80,412 |

*Notes:* The table provides summary statistics. It reports the distribution and the number of observations (N) of the main variables. Mean and SD show mean values and standard deviations. 25th, 50th, and 75th percentiles are reported. Panel A reports country-level summary statistics. LMR is the labor market regulation index from the Fraser Institute, which ranges from 0 to 10, where 0 denotes weak regulation and 10 denotes stringent regulation. Log of GDP per capita is retrieved from the World Bank, the Antidirector index and the revised Anti-self-dealing index are retrieved from Djankov et al. (2008). Panel B reports firm level variables.  $FDO_{i,t}$  is financial distress onset, set at 1 if a firm is financially distressed in year t but is not financially distressed in year t-1 and 0 if the firm is not in financial distress in both years. Two methods are used to classify financial distress for a firm: (1) Altman Z"-score (AZS) below 1.10 in any given year (Altman et al., 2017), (2) interest coverage ratio (ICR) below 1 for two consecutive years or an ICR below 0.8 in any given year (DeAngelo & DeAngelo, 1990). The family firm (FF) indicator is 1 if a family holds at least 25% of control rights in the chain of entities, and 0 if there is no family ownership. Return on assets ROA is EBITDA over total assets, long-term leverage ratio is long-term liabilities over total assets, and cash ratio is cash and cash equivalents over total assets. All non-binary firm-level variables are winsorized at the 1st and 99th percentiles.

**Table 3:**

Univariate analysis of financial distress probability split by ownership and strictness of labor market regulation

|                                        | All firms | Low LMR  | High LMR | Difference in means |
|----------------------------------------|-----------|----------|----------|---------------------|
| <i>Panel A: FDO<sup>AZS</sup> in %</i> |           |          |          |                     |
| All firms                              | 7.46      | 6.38     | 8.75     | -2.37***            |
| Non-family firms                       | 7.50      | 6.05     | 9.88     | -3.83***            |
| Family firms                           | 7.32      | 8.88     | 6.72     | 2.17***             |
| Difference in means                    | 0.17***   | -2.83*** | 3.17***  |                     |
| <i>Panel B: FDO<sup>ICR</sup> in %</i> |           |          |          |                     |
| All firms                              | 6.55      | 4.88     | 8.56     | -3.68***            |
| Non-family firms                       | 6.13      | 4.46     | 8.94     | -4.48***            |
| Family firms                           | 7.97      | 8.15     | 7.90     | 0.25                |
| Difference in means                    | -1.85**   | -3.69**  | 1.03**   |                     |

*Notes:* The table compares the means of financial distress onset (FDO) of family firms (FF) and non-FF in countries with low and high labor market regulation (LMR), respectively. Each year, the set of sample countries is split into low LMR countries and high LMR countries based on the median of the 1-year-lagged LMR index from the Fraser Institute. FDO is 1 if a firm is financially distressed in year  $t$  but is not financially distressed in year  $t-1$ , and is 0 if the firm is not in financial distress in both years. In panel A financial distress is indicated by Altman Z"-score (AZS) below 1.10 in any given year (Altman et al., 2017), in panel B financial distress is indicated by interest coverage ratio (ICR) below 1 for two consecutive years or ICR below 0.8 in any given year (DeAngelo & DeAngelo, 1990). The FF indicator is 1 if a family holds at least 25% of control rights in the chain of entities, and 0 if there is no family ownership. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table 4:**  
Family firms, labor market regulation, and financial distress onset

|                                         | $FDO_t^{AZS}$        | $FDO_t^{AZS}$        | $FDO_t^{AZS}$        | $FDO_t^{AZS}$        | $FDO_t^{ICR}$        | $FDO_t^{ICR}$        |
|-----------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| LMR <sub>t-1</sub>                      | 0.18*<br>(1.94)      | 0.19**<br>(2.07)     | 0.22**<br>(2.28)     | -0.36***<br>(-3.20)  | 0.37***<br>(2.84)    | -0.03<br>(-0.12)     |
| FF <sub>t</sub>                         |                      | -0.12<br>(-1.35)     | -0.12<br>(-1.39)     | -0.14*<br>(-1.74)    | -0.03<br>(-0.29)     | -0.07<br>(-0.93)     |
| FF <sub>t</sub> =1 × LMR <sub>t-1</sub> |                      |                      | -0.12***<br>(-2.66)  | -0.10***<br>(-2.65)  | -0.10**<br>(-2.09)   | -0.07**<br>(-2.35)   |
| log(Market cap) <sub>t-1</sub>          | -0.18***<br>(-14.05) | -0.19***<br>(-15.14) | -0.18***<br>(-14.83) | -0.18***<br>(-18.39) | -0.31***<br>(-11.94) | -0.34***<br>(-15.10) |
| ROA <sub>t-1</sub>                      | -5.19***<br>(-6.06)  | -5.16***<br>(-5.99)  | -5.18***<br>(-6.02)  | -4.94***<br>(-5.81)  | -8.75***<br>(-5.83)  | -8.76***<br>(-6.25)  |
| LT Leverage ratio <sub>t-1</sub>        | 3.10***<br>(7.32)    | 3.11***<br>(7.32)    | 3.12***<br>(7.46)    | 3.24***<br>(7.24)    | 0.14<br>(0.52)       | 0.14<br>(0.52)       |
| Cash ratio <sub>t-1</sub>               | -0.06<br>(-0.28)     | -0.06<br>(-0.26)     | -0.07<br>(-0.32)     | 0.15<br>(0.62)       | 1.62***<br>(5.45)    | 2.22***<br>(7.77)    |
| log(GDP) <sub>t-1</sub>                 | 0.32**<br>(1.98)     | 0.32**<br>(1.97)     | 0.31*<br>(1.96)      | 0.35<br>(0.61)       | 0.46**<br>(2.29)     | 0.98<br>(1.36)       |
| Antidirector                            | -0.34***<br>(-2.59)  | -0.35***<br>(-2.73)  | -0.35***<br>(-2.73)  |                      | -0.37**<br>(-2.02)   |                      |
| Antiselfdealing                         | 1.42**<br>(2.03)     | 1.42**<br>(2.02)     | 1.45**<br>(2.08)     |                      | 2.41***<br>(2.83)    |                      |
| Country FEs                             |                      |                      |                      | •                    |                      | •                    |
| Industry FEs                            | •                    | •                    | •                    | •                    | •                    | •                    |
| Year FEs                                | •                    | •                    | •                    | •                    | •                    | •                    |
| No                                      | 57,886               | 57,886               | 57,886               | 57,886               | 61,115               | 61,115               |
| $R^2_{pseudo}$                          | 0.12                 | 0.12                 | 0.12                 | 0.14                 | 0.12                 | 0.14                 |

*Notes:* The table provides results from logit regressions where the dependent variable is financial distress onset (FDO) and the key explanatory variables are labor market regulation (LMR), family firm (FF) and the interaction of both. LMR is the labor market regulation index from the Fraser Institute, which ranges from 0 to 10, where 0 denotes weak regulation and 10 denotes stringent regulation. LMR is mean-centered by subtracting the cross-country average.  $FDO_{i,t}$  is financial distress onset, set at 1 if a firm is financially distressed in year  $t$  but is not financially distressed in year  $t-1$  and 0 if the firm is not in financial distress in both years. Two methods are used to classify financial distress for a firm: (1) Altman Z"-score (AZS) below 1.10 in any given year (Altman et al., 2017), (2) interest coverage ratio (ICR) below 1 for two consecutive years or an ICR below 0.8 in any given year (DeAngelo & DeAngelo, 1990). The FF indicator is 1 if a family holds at least 25% of control rights in the chain of entities, and 0 if there is no family ownership. Return on assets ROA is EBITDA over total assets, long-term leverage ratio is long-term liabilities over total assets, and cash ratio is cash and cash equivalents over total assets. Log of GDP per capita is retrieved from the World Bank, the Antidirector index and the revised Anti-self-dealing index are retrieved from Djankov et al. (2008). Where indicated, fixed effects include year fixed effects, country fixed effects, and industry fixed effects based on Fama-French 12 industries.  $t$ -statistics are in parentheses. Standard errors are clustered at the country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table 5:** Endogeneity: Alternative estimation approaches

|                                         | Matched sample      |                     | Linear probability model |                      | Cox proportional hazards model |                     |
|-----------------------------------------|---------------------|---------------------|--------------------------|----------------------|--------------------------------|---------------------|
|                                         | $FDO_t^{AZS}$       | $FDO_t^{AZS}$       | $FDO_t^{AZS}$            | $FDO_t^{AZS}$        | $Hazard_t^{AZS}$               | $Hazard_t^{AZS}$    |
| LMR <sub>t-1</sub>                      | -0.20<br>(-0.55)    | -0.13<br>(-0.35)    |                          |                      | 0.14<br>(1.60)                 | 0.16*<br>(1.71)     |
| FF <sub>t</sub>                         | -0.12<br>(-0.95)    | -0.10<br>(-1.14)    | -0.01<br>(-1.48)         | -0.01<br>(-1.48)     | -0.13**<br>(-1.98)             | -0.14**<br>(-2.30)  |
| FF <sub>t</sub> =1 × LMR <sub>t-1</sub> |                     | -0.14***<br>(-4.83) |                          | -0.01**<br>(-2.29)   |                                | -0.06***<br>(-2.62) |
| log(Market cap) <sub>t-1</sub>          | -0.18***<br>(-8.51) | -0.18***<br>(-8.42) | -0.01***<br>(-4.01)      | -0.01***<br>(-3.95)  | -0.10***<br>(-7.86)            | -0.10***<br>(-7.75) |
| ROA <sub>t-1</sub>                      | -6.53***<br>(-6.87) | -6.51***<br>(-6.88) | -0.47***<br>(-10.05)     | -0.47***<br>(-10.13) | -2.40***<br>(-8.50)            | -2.37***<br>(-8.41) |
| LT Leverage ratio <sub>t-1</sub>        | 3.43***<br>(6.36)   | 3.45***<br>(6.63)   | 0.22***<br>(8.36)        | 0.22***<br>(8.45)    | 1.89***<br>(4.59)              | 1.88***<br>(4.56)   |
| Cash ratio <sub>t-1</sub>               | -0.50<br>(-1.37)    | -0.54<br>(-1.47)    | 0.07***<br>(5.43)        | 0.07***<br>(5.14)    | 0.25<br>(1.16)                 | 0.25<br>(1.12)      |
| log(GDP) <sub>t-1</sub>                 | 0.45<br>(0.49)      | 0.45<br>(0.49)      |                          |                      | -0.02<br>(-0.06)               | -0.02<br>(-0.06)    |
| Antidirector                            |                     |                     |                          |                      | -0.32***<br>(-3.05)            | -0.32***<br>(-3.03) |
| Antiselfdealing                         |                     |                     |                          |                      | 1.67***<br>(2.95)              | 1.68***<br>(2.98)   |
| Country FEs                             | •                   | •                   | •                        | •                    |                                |                     |
| Industry FEs                            | •                   | •                   | •                        | •                    |                                |                     |
| Year FEs                                | •                   | •                   | •                        | •                    |                                |                     |
| Country-Year FEs                        | •                   | •                   | •                        | •                    |                                |                     |
| No                                      | 17,962              | 17,962              | 57,886                   | 57,886               | 11,437                         | 11,437              |
| $R^2_{pseudo}$                          | 0.12                | 0.12                | 0.09                     | 0.09                 | 0.02                           | 0.02                |

The table reports logit regression results for propensity score matched samples (columns 1 to 2), OLS regression results (columns 3 to 4), and Cox proportional hazards regression results (columns 5 to 6). For the results in columns 1 and 2 family firms (FF) are matched to non-FF within countries and years using all firm control variables and Fama-French (12) industry affiliation (nearest neighbor, with replacement, caliper restricted to 0.001). Columns 3 and 4 show the results from linear probability models where country-year fixed effects are included. Column 5 and 6 show the results from regressions of the hazard rate where the event variable is the first financial distress onset (FDO) of a firm in the sample period. Other variables and fixed effects are the same as those used in Table 4. *t*-statistics are in parentheses. Standard errors are clustered at the country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table 6:** Trade-off analysis of firm growth and efficiency

|                                         | <i>Tobin's q</i>     | <i>Tobin's q</i>     | <i>Tobin's q</i>     | <i>Value added</i><br><i>Invested capital</i> | <i>Value added</i><br><i>Invested capital</i> | <i>Value added</i><br><i>Invested capital</i> |
|-----------------------------------------|----------------------|----------------------|----------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| LMR <sub>t-1</sub>                      | -6.21<br>(-0.29)     | -6.23<br>(-0.29)     | -5.67<br>(-0.26)     | -8.24***<br>(-3.97)                           | -8.27***<br>(-4.01)                           | -7.68***<br>(-3.67)                           |
| FF <sub>t</sub>                         |                      | 4.36*<br>(1.93)      | 4.24*<br>(1.90)      |                                               | 2.32*<br>(1.73)                               | 2.13*<br>(1.85)                               |
| FF <sub>t</sub> =1 × LMR <sub>t-1</sub> |                      |                      | -2.09**<br>(-2.31)   |                                               |                                               | -2.17**<br>(-2.47)                            |
| log(Market cap) <sub>t-1</sub>          | 9.17***<br>(4.52)    | 9.18***<br>(4.53)    | 9.19***<br>(4.53)    | -2.37***<br>(-3.64)                           | -2.36***<br>(-3.64)                           | -2.36***<br>(-3.65)                           |
| ROA <sub>t-1</sub>                      | 2.65<br>(0.20)       | 2.56<br>(0.19)       | 2.50<br>(0.19)       | 28.99***<br>(6.74)                            | 28.91***<br>(6.69)                            | 28.88***<br>(6.66)                            |
| LT Leverage ratio <sub>t-1</sub>        | -30.51***<br>(-6.77) | -30.51***<br>(-6.76) | -30.51***<br>(-6.75) | 4.42<br>(0.95)                                | 4.45<br>(0.96)                                | 4.39<br>(0.95)                                |
| Cash ratio <sub>t-1</sub>               | 66.16***<br>(7.46)   | 66.20***<br>(7.47)   | 66.21***<br>(7.48)   | 5.62<br>(1.45)                                | 5.62<br>(1.45)                                | 5.63<br>(1.46)                                |
| log(GDP) <sub>t-1</sub>                 | -66.13***<br>(-3.70) | -65.92***<br>(-3.68) | -65.83***<br>(-3.68) | 5.66<br>(0.62)                                | 5.67<br>(0.63)                                | 5.74<br>(0.64)                                |
| Country FEs                             | •                    | •                    | •                    | •                                             | •                                             | •                                             |
| Industry FEs                            | •                    | •                    | •                    | •                                             | •                                             | •                                             |
| Year FEs                                | •                    | •                    | •                    | •                                             | •                                             | •                                             |
| Firm FEs                                | •                    | •                    | •                    | •                                             | •                                             | •                                             |
| No                                      | 77,736               | 77,736               | 77,736               | 29,588                                        | 29,588                                        | 29,588                                        |
| R <sup>2</sup>                          | 0.79                 | 0.79                 | 0.79                 | 0.72                                          | 0.72                                          | 0.72                                          |

The table reports OLS regression results of Tobin's *q* in percent (columns 1 to 3) and value added over invested capital in percent (columns 4 to 6). Value added is EBIT plus personnel expenses. Invested capital is non-current assets plus net working capital. Other variables are the same as those used in Table 4. Fixed effects include year fixed effects, country fixed effects, Fama-French (47) industry fixed effects, and firm fixed effects. *t*-statistics are in parentheses. Standard errors are clustered at the country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table 7:**  
Robustness: Alternative measures of labor market regulation

|                                   | $FDO_t$             | $FDO_t$             | $FDO_t$             | $FDO_t$          |
|-----------------------------------|---------------------|---------------------|---------------------|------------------|
| Panel A: $FDO^{AZS}$              |                     |                     |                     |                  |
| $FF_t$                            | -0.21***<br>(-2.92) | -0.20***<br>(-2.68) | -0.20***<br>(-2.88) | -0.15<br>(-1.42) |
| $FF_t=1 \times EPL$               | -0.28***<br>(-4.21) |                     |                     |                  |
| $FF_t=1 \times \text{Temporary}$  |                     | -0.18***<br>(-4.69) |                     |                  |
| $FF_t=1 \times \text{Regular}$    |                     |                     | -0.27***<br>(-3.65) |                  |
| $FF_t=1 \times \text{Collective}$ |                     |                     |                     | -0.04<br>(-0.31) |
| No<br>$R^2_{pseudo}$              | 57,886<br>0.14      | 57,886<br>0.14      | 57,886<br>0.14      | 57,886<br>0.14   |
| Panel B: $FDO^{ICR}$              |                     |                     |                     |                  |
| $FF_t$                            | -0.13**<br>(-1.98)  | -0.12*<br>(-1.81)   | -0.12*<br>(-1.86)   | -0.09<br>(-0.91) |
| $FF_t=1 \times EPL$               | -0.18***<br>(-3.07) |                     |                     |                  |
| $FF_t=1 \times \text{Temporary}$  |                     | -0.12***<br>(-3.14) |                     |                  |
| $FF_t=1 \times \text{Regular}$    |                     |                     | -0.17**<br>(-2.39)  |                  |
| $FF_t=1 \times \text{Collective}$ |                     |                     |                     | 0.01<br>(0.11)   |
| No<br>$R^2_{pseudo}$              | 61,115<br>0.14      | 61,115<br>0.14      | 61,115<br>0.14      | 61,115<br>0.14   |
| Control variables                 | •                   | •                   | •                   | •                |
| Country FEs                       | •                   | •                   | •                   | •                |
| Industry FEs                      | •                   | •                   | •                   | •                |
| Year FEs                          | •                   | •                   | •                   | •                |

Notes: The table reports results from logit regressions. Panel A reports the results for financial distress onset (FDO) based on the Altman Z"-Score (AZS) and panel B reports the results for FDO based on the interest coverage ratio (ICR). Key explanatory variables are employment protection legislation (EPL), family firm (FF) and the interaction of both. EPL is based on OECD data from 2019 and is measured from 0 to 6, where 0 denotes weak labor market protection and 6 denotes stringent labor market protection. The EPL submeasures capture the strictness of labor market regulation in terms of temporary contracts, regular contracts, and collective dismissals, respectively. Other variables and fixed effects are the same as those used in Table 4.  $t$ -statistics are in parantheses. Standard errors are clustered at the country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table 8:**  
Robustness: Different blockholders

|                                                     | $FDO_t^{AZS}$       | $FDO_t^{AZS}$       | $FDO_t^{AZS}$       | $FDO_t^{AZS}$       | $FDO_t^{AZS}$       | $FDO_t^{ICR}$       |
|-----------------------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| $LMR_{t-1}$                                         | -0.36***<br>(-3.23) | -0.36***<br>(-3.19) | -0.32***<br>(-2.91) | -0.36***<br>(-3.11) | -0.31***<br>(-2.81) | 0.01<br>(0.03)      |
| $FF_t$                                              | -0.13*<br>(-1.65)   | -0.14*<br>(-1.69)   | -0.16*<br>(-1.81)   | -0.14*<br>(-1.71)   | -0.13<br>(-1.60)    | -0.09<br>(-1.11)    |
| $FF_t=1 \times LMR_{t-1}$                           | -0.10***<br>(-2.81) | -0.10***<br>(-2.64) | -0.13***<br>(-3.22) | -0.10***<br>(-2.69) | -0.12***<br>(-3.54) | -0.09***<br>(-3.11) |
| Financial firm <sub>t</sub>                         | 0.16*<br>(1.67)     |                     |                     |                     | 0.16*<br>(1.66)     | 0.07<br>(0.81)      |
| Financial firm <sub>t</sub> =1 $\times$ $LMR_{t-1}$ | 0.06<br>(0.71)      |                     |                     |                     | 0.04<br>(0.44)      | 0.06<br>(0.91)      |
| State <sub>t</sub>                                  |                     | 0.22*<br>(1.72)     |                     |                     | 0.24*<br>(1.83)     | 0.36*<br>(1.65)     |
| State <sub>t</sub> =1 $\times$ $LMR_{t-1}$          |                     | 0.12<br>(1.35)      |                     |                     | 0.09<br>(1.03)      | 0.10<br>(0.82)      |
| Parent firm <sub>t</sub>                            |                     |                     | 0.01<br>(0.17)      |                     | 0.03<br>(0.59)      | -0.07<br>(-1.19)    |
| Parent firm <sub>t</sub> =1 $\times$ $LMR_{t-1}$    |                     |                     | -0.15***<br>(-5.59) |                     | -0.15***<br>(-5.09) | -0.09***<br>(-2.97) |
| Other owner <sub>t</sub>                            |                     |                     |                     | 0.07<br>(0.52)      | 0.09<br>(0.65)      | -0.12<br>(-0.81)    |
| Other owner <sub>t</sub> =1 $\times$ $LMR_{t-1}$    |                     |                     |                     | -0.06<br>(-0.71)    | -0.08<br>(-0.93)    | -0.09<br>(-1.04)    |
| Control variables                                   | •                   | •                   | •                   | •                   | •                   | •                   |
| Country FEs                                         | •                   | •                   | •                   | •                   | •                   | •                   |
| Industry FEs                                        | •                   | •                   | •                   | •                   | •                   | •                   |
| Year FEs                                            | •                   | •                   | •                   | •                   | •                   | •                   |
| No                                                  | 57,886              | 57,886              | 57,886              | 57,886              | 57,886              | 61,115              |
| $R^2_{pseudo}$                                      | 0.14                | 0.14                | 0.14                | 0.14                | 0.14                | 0.14                |

Notes: The table reports results from logit regressions. Ownership is based on the global ultimate owner indicator from the OSIRIS database. Ownership indicators define control by family (defined as one or more named individuals or families), control by a financial firm (defined as bank; financial company; hedge fund; insurance company; mutual and pension fund, nominee, trust or trustee; private equity firm; venture capital), control by state (defined as public authority, state, or government), control by a widely held parent firm (defined as corporate), and control by another global ultimate owner, referring to any global ultimate owner not captured by the previous categories. Owner variables are 1 if at least 25% of control rights are held by the owner. Other variables and fixed effects are the same as those used in Table 4. *t*-statistics are in parentheses. Standard errors are clustered at the country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.