



Firing Costs and Capital Structure: Evidence from Wrongful Discharge Laws

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Abstract. Using a sample of 58440 firm-year observations from 1965 to 1998 in the United States, this study investigates the relation between wrongful discharge laws and financial leverage. By using Difference-in-Difference model, this study reaches the results that show a negative impact of the adoption of the good faith exception on a firm's financial leverage, while the implied contract and the public policy exceptions have no significant influence on financial leverage.

Keywords: Wrongful Discharge Laws, Financial Leverage, Financial Constraint, Difference-in-Difference

1 Introduction

A growing body of research has examined how firing costs affect corporate leverage. The dominant evidence points to a negative relation: higher firing costs raise operating leverage and financial distress costs, leading firms to reduce their financial leverage. This finding has been corroborated across multiple institutional settings and empirical approaches. Recent work has also extended the analysis to dynamic adjustment speeds and various conditioning factors.

Since 1958, many states adopted WDLs based on three exceptions: good faith, public policy, and implied contract. Using 58,440 firm-year observations (1965–1998) and a difference-in-differences design, I find that adoption of the good faith exception reduces book leverage by 12.68% and market leverage by 7.72%, with no significant effects for the other two exceptions. The effect emerges two years after adoption, supporting causality.

2 Literature Review and Hypothesis Development

2.1 Literature Review

U.S. employment is traditionally at-will. Since 1958, many states have adopted three common-law exceptions—good faith, public policy, and implied contract—that limit employers' discretion to dismiss workers. These exceptions increased firing costs, creating a natural experiment to examine how such costs shape capital structure.

A growing body of research establishes that firing costs affect corporate leverage. Serfling (2016) demonstrates that wrongful discharge laws (WDLs) increase operating leverage and distress costs, reducing debt ratios. Kuzmina (2022) confirms the reverse: greater employment flexibility raises leverage. Cross-country evidence from China (Mukherjee et al., 2023; Li et al., 2024) and Italy (Cingano et al., 2016) corroborates this negative relation. Dynamic studies reveal context-dependent effects: faster adjustment in China (Li, Chiang & Liu, 2023) versus slower adjustment in OECD countries (Bai et al., 2022). Extending this line of inquiry, Xiao, Sun and Zhao (2025) find that labor policy shocks in the U.S. significantly accelerate leverage adjustment speed, consistent with the financing demand channel. Conditioning factors such as unemployment insurance (Agrawal & Matsa, 2013), labor market power (Bai et al., 2025), and employee welfare–law interactions (Han et al., 2024) moderate but do not overturn the core mechanism. Beyond leverage levels, El Ghouli et al. (2024) show that stronger employment protection leads firms to concentrate debt into fewer types, suggesting a credit constraints channel. Despite these advances, prior studies treat WDLs as a homogeneous shock, ignoring heterogeneity across the three exceptions.

2.2 Hypotheses

Based on theories above, the following hypotheses are put forward.

H1: The adoption of WDLs affects capital structure by increasing termination costs.

H2: Among the three WDL exceptions, the good faith exception has the strongest and most negative effect on financial leverage.

3 Data and Methodology

3.1 Data Selection and Descriptive Statistics

The sample includes 58,440 firm-year observations (1965–1998), excluding finance, insurance, real estate, and public administration. Data are from Compustat, BEA, and Professor Bill McDonald's website (Loughran & McDonald, 2016), which provides headquarters locations only after 1993; I assume no firm relocation during 1965–1993.

Table 1 Panel A reports average book leverage (22.0%) and market leverage (33.4%). Panel B shows treatment firms have lower average book leverage (19.8%) than controls (22.9%), a raw difference of 3.1%. However, this difference is mitigated by control variables and staggered adoption, meaning the actual difference is smaller.

3.2 Empirical methodology

This study employs a Difference-in-Differences (DID) model at the firm-year level to examine the relationship between WDL adoption and financial leverage. The DID model compares the outcome (leverage) between treatment states (those adopting a WDL) and control states (non-adopting) before and after adoption.

The regression model examined is as follows:

$$\text{Leverage}_{ist} = \alpha_1 GF_{st} + \alpha_2 IC_{st} + \alpha_3 PP_{st} + \beta X_{ist} + v_s + \omega_t + \varepsilon_{ist}$$

Where Leverage_{ist} represents book or market leverage of firm i in state s and year t . GF_{st} , IC_{st} and PP_{st} are dummy variables indicating whether state s has adopted (or later revoked) the good faith, implied contract or public policy exception in year t . X_{ist} is a vector of control variables which will be described in the following paragraph. State fixed effects v_s , year fixed effects ω_t and a random error term ε_{ist} have also been included in the model.

Control variables include common determinants of financial leverage. Firm-level controls: natural logarithm of total assets (firm size), market-to-book ratio (growth opportunities), profitability (internal fund liquidity), fixed assets ratio (collateral, i.e., property, plant & equipment divided by total assets), a dividend payer indicator (financial constraints), and Z-score (bankruptcy probability). State-level economic controls: The natural logarithm of GDP per capita and the real GDP growth in the firm's headquarters states. To account for spillover effects from other states in the same federal judicial circuit, I also include the proportion of states in the circuit that have adopted each exception in each year (Bird & Smythe, 2008).

4 Result

4.1 The Empirical Results

I report both overall R^2 and within R^2 . Compared to adjusted R^2 , overall R^2 is sufficient because I am not comparing models. Within R^2 is also reported because fixed effects inflate overall R^2 , and clustered standard errors violate the i.i.d. assumption underlying traditional R^2 measures, making within R^2 more accurate under clustering.

Table 2 presents the regression results of book leverage (Panel A) and market leverage (Panel B) on the three policy indicators and control variables.

Panel A – Book Leverage

Column 1 includes only the three policy dummies along with state and year fixed effects. The coefficient on the good faith exception is negative and statistically significant at the 0.01 level. The implied contract and public policy exceptions are insignificant (negative and positive, respectively). The overall R^2 is 0.0538 and the within R^2 is 0.0025, meaning that only 0.25% of the variance in book leverage is explained, an expected result given that only three policy indicators are used.

Columns 2 to 5 progressively add control variables. Several trends emerge as controls increase. First, model fit improves substantially: with all controls (Column 5), overall R^2 rises to 0.3061 and within R^2 to 0.2680. Second, the coefficient on the good faith exception slightly falls to -0.0276 ($p < 0.01$). This means that the application of the good faith exception causes a reduction in the book leverage of 12.55% ($= 0.0276/0.220$ - the sample mean for the book leverage presented in Table 1 Panel A). Third, the implied contract and public policy exceptions remain insignificant throughout, although their coefficients fluctuate slightly. Together, these findings support H1 and H2.

Panel B – Market Leverage

Results for market leverage are broadly similar. With all controls (Column 5), the good faith coefficient is -0.0251 ($p < 0.1$), implying a 7.51% reduction in market leverage ($= 0.0251/0.334$ - the sample mean for the market leverage presented in Table 1 Panel A). The weaker significance (compared to book leverage) likely reflects the correlation between market leverage and stock returns (Welch, 2004). The implied contract and public policy exceptions remain insignificant, with signs consistent with Panel A.

4.2 Dynamic Effects and Parallel Trends

Figure 1 plots book and market leverage around good faith exception adoption (21 year dummies, $t-10$ to $t \geq 10$, state and year fixed effects, state-clustered SE, $N=58,440$ firm-years, 1965–1998). Both leverage measures decline after adoption ($t=0$). Post-adoption book leverage is lower overall, despite a $t=2-6$ uptick. No significant pre-adoption differences exist between treatment and control states in both panels.

Following Bertrand and Mullainathan (2003), I create four dummies: *Good Faith* _{$t-1$} (adoption next year), *Good Faith* _{t} (current year), *Good Faith* _{$t+1$} (one year after), and *Good Faith* _{$t+2$} (two or more years after). Then I regress leverage on these dummies with controls, state and year fixed effects.

Table 3 reports the results. Column 1 (book leverage) shows a slight pre-treatment decline: coefficients for $t-1$, t , and $t+1$ are negative and marginally significant ($p < 0.1$). More importantly, the coefficient for *Good Faith* _{$t+2$} is negative and significant at the 0.01 level, with a larger magnitude (above 0.0300) than the earlier coefficients (below 0.0200). This implies that book leverage declines by 14.73% ($= 0.0324/0.220$) two or more years after adoption, confirming that the good faith exception reduces book leverage.

Column 2 (market leverage) shows no pre-treatment trend. Only the coefficient for $t+2$ is statistically significant ($p < 0.1$), indicating that the negative effect on market leverage emerges only two years after adoption.

Other Tests

Although I also test alternative leverage measures, comparison of state and firm fixed effects, and a cross-sectional analysis showing that the decline in book leverage is greater for financially constrained firms. These results are omitted due to space constraints. Full results are available upon request.

5 Conclusion

Using 58,440 firm-year observations (1965–1998) and a difference-in-differences design, this study finds that the good faith exception reduces book leverage by 12.55% and market leverage by 7.51%. The implied contract and public policy exceptions have no significant effect, supporting H1 and H2.

Robustness checks confirm the causal interpretation. Pre-treatment trends show that book leverage has a slight pre-decline but a much larger reduction after adoption, while

market leverage exhibits no pre-trend and declines significantly only post-adoption - at least partially satisfying the parallel trends assumption.

Contributions. This study provides evidence that WDLs reduce leverage by raising firing costs, complementing existing research, and offers insights for policy design.

Limitations. Regressions use state (not firm) fixed effects. Headquarters location data (obtained from Professor Bill McDonald's website) are unavailable before 1993, and firms may relocate. Future research could address these issues.

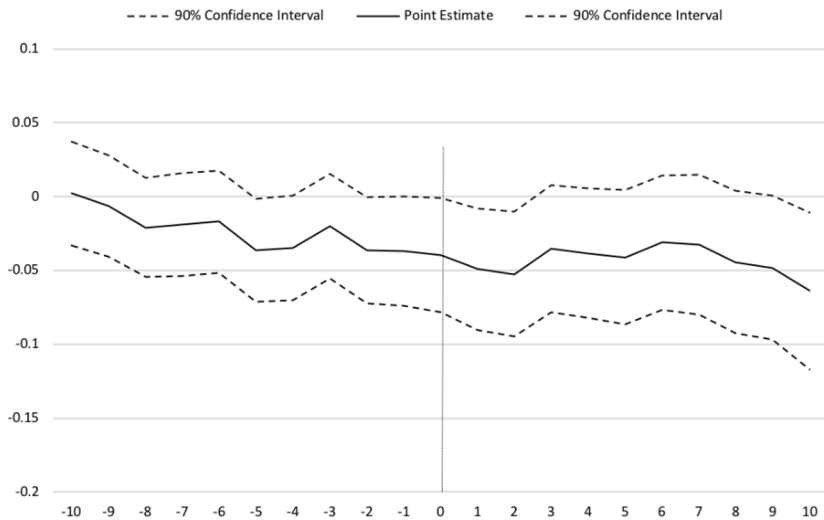
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Appendix: Figures and Tables

Figure 1 shows the effect of good faith adoption on book (Panel A) and market (Panel B) leverage over 10 years pre- and post-adoption. The x-axis is years relative to adoption; the y-axis shows the values of the parameter estimators of each dummy variable indicating the years before, of, or after the adoption of the good faith exception. Solid lines indicate point estimates; dashed lines indicate 90% confidence intervals.

Panel A. The Trend of Book Leverage and the Passage of the Good Faith Exception



Panel B. The Trend of Market Leverage and the Passage of the Good Faith Exception

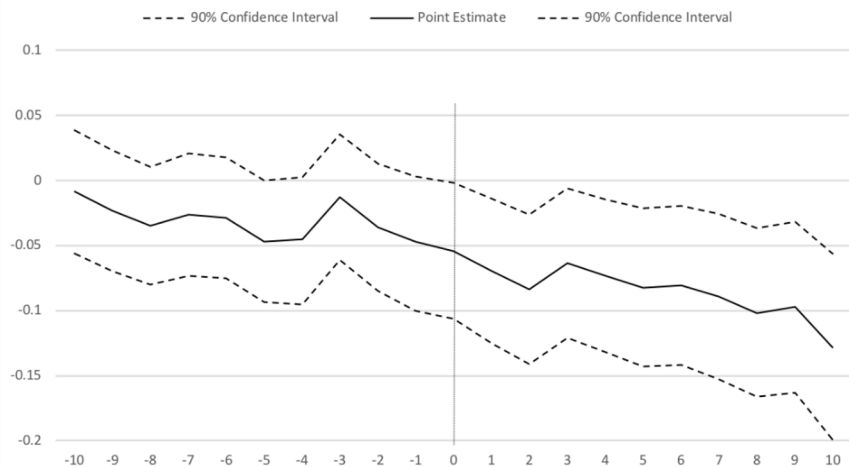


Fig. 1. The Trend of Financial Leverage and the Passage of the Good Faith Exception

Panel A: full sample descriptive statistics. Panel B: t-tests comparing treatment (states that adopted/revoked the good faith exception) vs. control (never-adopted states). Significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Continuous variables (except economic) winsorised at 1st/99th percentiles; dollar values adjusted to 2008 dollars. Variable definitions in Appendix B.

Table 1. Descriptive Statistics.

Panel A: Descriptive Statistics						
	Num- ber	Mean	Standard Devia- tion	P25	Me- dian	P75
Book Leverage	58440	0.220	0.177	0.064	0.202	0.336
Market Leverage	58440	0.334	0.280	0.067	0.288	0.557
Good Faith	58440	0.217	0.412	0.000	0.000	0.000
Implied Contract	58440	0.640	0.480	0.000	1.000	1.000
Public Policy	58440	0.645	0.478	0.000	1.000	1.000
Ln (Assets)	58440	5.997	2.118	4.467	5.877	7.381
Profitability	58440	0.056	0.168	0.045	0.090	0.132
Fixed Assets	58440	0.317	0.209	0.157	0.273	0.434
Market-to-Book	58440	1.771	1.397	0.991	1.304	1.952
Dividend Payer	58440	0.464	0.499	0.000	0.000	1.000
Z-Score	58440	5.068	5.723	2.446	3.666	5.559
Circuit State's GF	58440	0.166	0.234	0.000	0.000	0.333
Circuit State's IC	58440	0.577	0.383	0.333	0.750	0.889
Circuit State's PP	58440	0.614	0.385	0.333	0.667	1.000
Ln (State GDP per capita)	58440	-3.323	0.171	-3.435	-3.318	-3.194
State Real GDP Growth	58440	3.023	3.503	0.935	3.093	5.099

Panel B: The Result of Independent Samples T-Test			
	Treatment Group (Obs.: 16395)	Control Group (Obs.: 42045)	Difference
Book Leverage	0.198	0.229	0.031***
Market Leverage	0.29	0.351	0.061***
Good Faith	0.774	0	-0.774***
Implied Contract	0.775	0.588	-0.187***
Public Policy	0.863	0.561	-0.302***
Ln (Assets)	5.673	6.123	0.450***
Profitability	0.034	0.064	0.030***
Fixed Assets	0.29	0.327	0.037***
Market-to-Book	1.976	1.691	-0.286***
Dividend Payer	0.332	0.516	0.183***
Z-Score	5.575	4.871	-0.704***
Circuit State's GF	0.385	0.08	-0.304***
Circuit State's IC	0.687	0.534	-0.152***

Circuit State's PP	0.695	0.582	-0.113***
Ln (State GDP per capita)	-3.255	-3.35	-0.095***
State Real GDP Growth	3.258	2.931	-0.327***

This table reports the relation between leverage and WDLs. Panel A: book leverage; Panel B: market leverage. Continuous variables (except economic) winsorised at 1st/99th percentiles; dollar values adjusted to 2008 dollars. Clustered standard errors at state level (p-values in parentheses). Significance: *p<0.1, **p<0.05, ***p<0.01. Observations, R², and within R² reported for each regression.

Table 2. The Relation Between Leverage and WDLs.

Panel A: The Effect of WDLs on Book Leverage					
	(1)	(2)	(3)	(4)	(5)
Good Faith	-0.0470*** (0.000)	-0.0444*** (0.000)	-0.0409*** (0.000)	-0.0359*** (0.000)	-0.0276*** (0.002)
Implied Contract	-0.0062 (0.422)	-0.0069 (0.338)	-0.0075 (0.273)	-0.0037 (0.551)	-0.0110 (0.162)
Public Policy	0.0125 (0.138)	0.0123 (0.106)	0.0109 (0.130)	0.0099 (0.142)	0.0029 (0.562)
Ln (Assets)		0.0119*** (0.000)	0.0099*** (0.000)	0.0145*** (0.000)	0.0144*** (0.000)
Profitability		-0.1579*** (0.000)	-0.1906*** (0.000)	-0.0649*** (0.000)	-0.0660*** (0.000)
Fixed Assets		0.2215*** (0.000)	0.2009*** (0.000)	0.1591*** (0.000)	0.1589*** (0.000)
Market-to-Book			-0.0294*** (0.000)	0.0051*** (0.001)	0.0050*** (0.001)
Dividend Payer				-0.0709*** (0.000)	-0.0708*** (0.000)
Z-Score				-0.0125*** (0.000)	-0.0124*** (0.000)
Circuit State's GF					-0.0392* (0.091)
Circuit State's IC					0.0183 (0.290)
Circuit State's PP					0.0118 (0.303)
Ln (State GDP Per Capita)					0.0471 (0.148)
State Real GDP Growth					0.0003 (0.434)
State Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes

Panel A: The Effect of WDLs on Book Leverage					
	(1)	(2)	(3)	(4)	(5)
Observations	58,440	58,440	58,440	58,440	58,440
R-squared	0.0538	0.1480	0.1956	0.3053	0.3061
r2_within	0.00250	0.102	0.152	0.268	0.268

Table 2 (Continued). The Relation Between Leverage and WDLs.

Panel B: The Effect of WDLs on Market Leverage					
	(1)	(2)	(3)	(4)	(5)
Good Faith	-0.0519*** (0.004)	-0.0504*** (0.002)	-0.0406*** (0.002)	-0.0361*** (0.005)	-0.0251* (0.066)
Implied Contract	-0.0014 (0.873)	-0.0019 (0.810)	-0.0035 (0.597)	0.0000 (0.996)	-0.0041 (0.708)
Public Policy	0.0127 (0.240)	0.0127 (0.188)	0.0087 (0.259)	0.0084 (0.263)	0.0008 (0.926)
Ln (Assets)		0.0221*** (0.000)	0.0167*** (0.000)	0.0251*** (0.000)	0.0251*** (0.000)
Profitability		-0.2328*** (0.000)	-0.3249*** (0.000)	-0.2280*** (0.000)	-0.2281*** (0.000)
Fixed Assets		0.2621*** (0.000)	0.2039*** (0.000)	0.1798*** (0.000)	0.1795*** (0.000)
Market-to-Book			-0.0831*** (0.000)	-0.0600*** (0.000)	-0.0600*** (0.000)
Dividend Payer				-0.1005*** (0.000)	-0.1004*** (0.000)
Z-Score				-0.0083*** (0.000)	-0.0083*** (0.000)
Circuit State's GF					-0.0418 (0.153)
Circuit State's IC					0.0076 (0.751)
Circuit State's PP					0.0125 (0.411)
Ln (State GDP Per Capita)					0.0137 (0.784)
State Real GDP Growth					-0.0013* (0.061)
State Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	58,440	58,440	58,440	58,440	58,440
R2	0.2048	0.2753	0.4272	0.4626	0.4628
Within R2	0.00145	0.0900	0.281	0.325	0.325

This table reports OLS regressions of financial leverage on time dummies relative to good faith adoption. *Good Faith*_{t-1} = 1 if the state will adopt in one year; *Good Faith*_t = 1 if adopted in the current year; *Good Faith*_{t+1} = 1 if adopted for one year; *Good Faith*_{t+2} = 1 if adopted for two or more years. Control variables: Ln(Assets), Profitability, Fixed Assets, Market-to-Book, Dividend Payer, Z-Score, Circuit State dummies (GF, IC, PP), Ln(State GDP Per Capita), State Real GDP Growth.

Table 3. The Changes of Financial Leverage with Time.

	(1) Book Leverage	(2) Market Leverage
Good Faith _{t-1}	-0.0120* (0.052)	-0.0082 (0.365)
Good Faith _t	-0.0143* (0.057)	-0.0150 (0.162)
Good Faith _{t+1}	-0.0131* (0.088)	-0.0129 (0.286)
Good Faith _{t+2}	-0.0324*** (0.002)	-0.0287* (0.062)
Control Variables	Yes	Yes
State Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	58,440	58,440
R ²	0.3062	0.4628
within R ²	0.269	0.325

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