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ABSTRACT

Risk Sharing Within and Outside the Firm: The Disparate Effects of Wrongful Discharge Laws on Expected Stock Returns

We study the effect of wrongful-discharge laws (WDL) on firm-level stock returns. We find disparate effects depending on the exact design of the law. Consistent with rational, risk-based pricing, the effect on returns seems to be linked to how firms share systematic risk with their employees under the respective laws. Firms in states with WDLs prohibiting employers from acting in bad faith have more intra-firm risk sharing and lower expected returns. Vaguer legislation that prohibits discharges in retaliation for acting in accordance with public policy is associated with less intra-firm risk sharing and higher expected returns.

JEL Classification: G12, J38, G38

Keywords: labor protection, expected stock returns, risk sharing

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1 Introduction

Risk sharing within and outside the firm are interconnected. Firms' risks are shared between investors on capital markets (outside the firm) but the amount and character of risk that firms sell to the public is determined by risk sharing between capital owners and workers (within the firm). If wages and employment do not react much to business conditions, workers' income is insured whereas securities issued by the firm become more risky. Conversely, risk sharing inside the firm takes into account how risks are shared on capital markets. For instance, firms can insure truly idiosyncratic risk at no cost because they can sell contingent claims without risk discounts on capital markets. This does not hold for all other (systematic) risks that command a premium in form of higher expected returns.

This interrelation is central to the interaction between workers and firms as it affects some fundamental aspects of capital and labor markets, such as firms' costs of equity and workers' labor supply decisions. In this paper, we explicitly study the connection between risk sharing within and outside the firm, by considering the effect of wrongful discharge laws (WDLs) on stock returns. WDLs, as a form of employment protection, exogenously reduce workers' risk of being displaced and therefore affect risk sharing within the firm. In a rational framework, expected stock returns respond to changes in the character and amount of risk that is borne by investors outside the firm, thereby allowing us to identify changes in premia for systematic risk.

There exist two potential channels through which employment protection may influence expected stock returns. First, it could affect the *direct* allocation of risk. This means that it becomes more difficult for firms to pass on systematic risk to workers (Pissarides, 2001). For instance, when firms' sales drop due to a recession, it is harder to reduce costs by firing workers. Consequently, shareholders bear more risk and should demand a higher compensation in form of expected stock returns (see e.g. Belo *et al.*, 2014). Second, employment protection could have *indirect* effects on the risk allocation when contracts are incomplete. WDLs which prevent employers from acting in bad faith can reduce workers' risk of being exposed to holdup situations (Acharya *et al.*, 2014). This could encourage workers to accept more variable compensation and consequently bear more firm risk,

which should lead to lower expected returns. The relative magnitude of direct and indirect effects is an open question and it is a priori not obvious how employment protection affects risk sharing at the firm-level and expected returns on the stock market.

We can show that the introduction of WDLs has disparate effects on stock returns depending on the design of the laws. In general, employment is less sensitive to changes in sales when WDLs are in place. This reflects a shift in the direct allocation of risk, with capital owners bearing more firm risk. However, when WDLs prevent employers from acting in bad faith, wages become more cyclical. This leads to lower operating leverage and less countercyclical labor shares, indicating that workers bear more firm risk than in absence of the law. Consistent with rational, risk-based pricing, we find that average returns decrease (increase) for designs that lead to more (less) risk sharing within the firm.

Our research design exploits the natural experiment created by the passage of WDLs in US states since the 1970s to identify the causal effects of employment protection on firm-level stock returns. WDLs are common law exceptions to the otherwise default employment-at-will doctrine and arguably increase firing cost because firms are more likely to have to pay severance payments and face an increased risk of wrongful termination lawsuits that lead to large settlements. The empirical setting is highly appealing for three reasons. First, the passage of these laws is typically motivated by juridical arguments (Walsh and Schwarz, 1996), which are independent of firms' capital costs. Second, the staggered adoption of WDLs across US states allows us to identify their effects independently of overall time trends. Third, there exist three kinds of common-law exceptions whose legal designs differ with respect to how they relate to the direct and indirect risk allocation channel. We can exploit these differences to get a better understanding of the empirical relevance of the possible channels.

We utilize this setting to study the effects of WDLs on two sets of outcome variables reflecting the different layers of risk sharing. First, we document disparate causal effects of WDLs on stock returns. Then, we investigate potential channels for these effects. In particular, we study how the WDLs alter explicit firm policy and the allocation of risk

within the firm to understand the mechanisms through which the laws ultimately affect expected returns.

WDLs can be classified into three types. They each differ with respect to how they affect employer-employee relations, risk sharing within the firm and expected returns. First, the so called *public policy* (PP) exception protects workers against discharges that can be understood as retaliation for acting in accordance with public policy. For instance, workers can sue their employers when they have been fired for filing workers' compensation claims. Irrespective of whether there was indeed a violation of the PP exception, this raises (expected) firing costs, which leads to uncertainty and hinders firms from optimally adjusting their workforce in response to systematic shocks such as a recession. The increased difficulty of passing on systematic risk to employees is reflected in stock returns. Upon passage of the law, we find negative abnormal returns for firms headquartered in the respective state, indicating that it is considered 'bad news' by investors. Moreover, in states recognizing the PP exception, average annual returns of firms increase by 2 - 2.5%. This suggests that the negative abnormal returns reflect a discount rate shock. The findings are consistent with increased systematic, i.e. priced risk induced by the PP exception. Moreover, we find that firm-level employment is less sensitive to changes in sales and firm-level labor shares, as a measure of risk sharing, are more procyclical in PP jurisdictions. This suggests that firms find it harder to adjust their workforce leading to more risk bearing by capital owners as an explanation for higher returns in PP jurisdictions.

Second, the *good faith* (GF) exception prohibits employers from firing workers by acting in bad faith. This may increase firms' firing costs, but it has been shown to also affect incentive problems arising from incomplete contracts (Acharya *et al.*, 2014). Our results show that average stock returns decrease, especially when GF represents a tort cause of action (where claims can lead to large settlements), for young firms and firms with a low book-to-market equity ratio (both of which arguably proxy for growth potential). We find that firm-level employment reacts less, but wages react more strongly to changes in sales, leading to a net effect of less countercyclical firm-level labor shares and less operating leverage. This indicates that there is more intra-firm risk sharing when GF is in place, offering a natural explanation for the difference in average stock returns, which

is also in line with the idea that GF reduces hold-up problems. This interpretation is supported by our analysis of a representative sample of workers across all states. We find that workers' wages more often contain variable components in jurisdictions recognizing GF.

Finally, the *implied contract* (IC) exception applies when an employer implicitly promises that a worker will not be discharged without good cause. However, as argued by Autor *et al.* (2007), employers can 'contract around' this exception by explicitly stating that employment is at will. Hence the effect of IC should be very limited. In line with that notion, we show that the recognition of the IC exception has no effect on stock returns.

Our study contributes to the literature on asset pricing in conjunction with risk sharing between labor and capital within the firm. Early theoretical studies argue that firms reduce the uncertainty of workers' income arising from the immobility of labor in exchange for lower wages (e.g. Baily, 1974; Azariadis, 1978; Boldrin and Horvath, 1995). Guiso *et al.* (2005) provide empirical evidence that firms indeed insure workers against idiosyncratic transitory shocks using Italian firm-level data on wages and productivity, while Rettl *et al.* (2018) show that firms in the electricity industry also provide insurance against arguably systematic risk. By showing that exogenous shifts in the distribution of risk affects stock returns, we establish that insurance of systematic risk is indeed widespread among firms. This echoes the arguments of Marfè (2017) and Bai and Zhang (2020), as well as Danthine and Donaldson (1992, 2002) that risk sharing between workers and capital owners leads to more volatile and procyclical dividends ("labor leverage"). Favilukis and Lin (2016b,a) show how infrequent wage negotiations and the complementarity of labor and capital in the production function creates labor leverage which helps explain aggregate asset pricing moments. Building on this idea, Donangelo *et al.* (2019) show that the firm-level labor share, defined as the ratio of labor compensation over firm value added, works as a proxy for labor leverage and that firms with high labor share have higher expected stock returns.

In line with the existing evidence, the disparate effects of the PP and GF exceptions are also reflected in the level and cyclicality of the labor share. However, in contrast to earlier studies, we exploit credible exogenous variation with respect to the allocation of risk through the introduction of WDLs. This is a particular advantage since the labor

share itself, as a proxy for labor leverage, is endogenously determined by variables related to firm risk.[1] Moreover, Xiaolan (2014) studies risk sharing between employers and workers as a trade-off between provision of insurance and retaining skilled workers depending on the level of human capital. Consistent with such a mechanism, GF plausibly leads to more investment in human capital by alleviating hold-up risk. This may contribute to the fact that workers bear more of the firm risk via variable compensation. Finally, our results are consistent with the argument in Acharya *et al.* (2014) that the recognition of the GF exception leads to a new value-enhancing equilibrium in worker-firm interaction, but we add a risk sharing dimension.

2 Institutional Setting and Hypotheses

2.1 Wrongful Discharge Protection in the US

Starting in the 1970's, many US states adopted wrongful discharge laws (WDLs) as exceptions to the employment-at-will doctrine which states that employers can fire employees without needing to provide a cause. These WDLs intend to protect employees from unfair dismissal practices. They are part of common law created by court decisions and can be classified into one of three types: (i) the public policy exception (PP), (ii) the implied covenant of good faith and fair dealing (GF) and (iii) the implied contract exception (IC) (see Section 2.2 for further details on all three policies). Courts in a given state may recognize either none or up to all three exceptions. We follow Autor *et al.* (2004) and Dertouzos and Karoly (1992) to classify states regarding their recognition of WDLs based

[1] Kehrig and Vincent (2018) provide a comprehensive analysis of micro-level labor shares. Their results indicate that low labor shares are a transient feature of firms associated with discount-rate related variables such as market power. Moreover, higher wages (which determine the numerator of the labor share) have been shown to compensate workers for working with a risky firm (Acemoglu and Shimer, 1999; Doornik *et al.*, 2019).

on precedent-setting cases.[2] An overview of the classification is given in Table A.1 and Figure 1 illustrates the adoption of wrongful discharge laws over the course of time.[3]

[Insert Figure 1 about here]

Dertouzos *et al.* (1988) analyze firms' financial risk posed by the three wrongful discharge laws using data on jury verdicts from 120 trials in California between 1980 to 1986. On average, winning plaintiffs received over $650,000 in the initial trial award, while settlements can extend up to $4m. Similarly, Jung (1997) records that plaintiffs won $1.29m on average in 1996, and Boxold (2008) reports that plaintiffs were awarded up to $5.4m between 2001 and 2007. Moreover, as outlined by Edelman *et al.* (1992), the popular and business press paid great attention to the common-law exceptions, which ensures that capital owners are informed about the potential consequences.

2.2 Possible Effects of WDLs on Discount Rates

We expect employment protection legislations to affect risk sharing and stock returns through two potential mechanisms. First, it affects the *direct* allocation of risks by increasing firing costs such that firms cannot easily pass on risk to employees by discharging them. For the effect that this would have on discount rates (expected returns), the distinction between systematic and idiosyncratic risk is crucial. Idiosyncratic risk may be defined as risk that is unpriced because it can be diversified away by investors who share risks perfectly among each other.[4] The risk premium of such risk is zero and claims with exposure to such risk can be sold on the capital markets without a discount. Because it comes at no cost to firms, it has often been argued that firms insure idiosyncratic risk for their workers (see Guiso and Pistaferri, 2020, for an overview of these arguments).

[2]Comprehensive discussions are provided by Dertouzos and Karoly (1992), Walsh and Schwarz (1996), Miles (2000), Kugler and Saint-Paul (2004) and Autor *et al.* (2006).

[3]Earlier studies sometimes differ with respect to their classification and introduction dates (see Legal Appendix in Autor *et al.*, 2002). Because in efficient markets, any information should be reflected in asset prices as soon as the information becomes available and common-law norms are in place right after the ruling that establishes them, we adopt the earlier of the introduction dates whenever there is a discrepancy. Moreover, our classification includes *in dicta* decisions, where courts state that they generally accept a doctrine even though it may not be applicable in the specific case at hand.

[4]From a theoretical perspective, it ultimately depends on the assumed asset pricing model what risks to consider systematic. Empirically, exposure to a risk that yields expected excess returns can be considered systematic. The last statement works both ways. Systematic risk is priced and priced risk is systematic.

Only systematic risk should be reflected in expected stock returns. Hence, when WDLs make it more difficult for firms to pass on systematic risk onto workers by firing them, shareholders bear more of that risk. This should lead to higher expected returns when such laws are in place.

Second, employment protection may also have *indirect* effects on the risk allocation through its impact on workers' behavior and firm policies. Specifically, when contracts are incomplete, e.g. when effort is non-verifiable, employees may be exposed to holdup by the employer (see e.g. Grossman and Hart, 1986; Aghion and Tirole, 1994; Hart, 1995). For instance, employers may refuse to pay (implicitly) promised bonuses by firing employees. In anticipation of this behavior, employees may refrain from exerting innovative effort and building up human capital that is not perfectly transferable. In such a situation, exogenously reducing the risk of being displaced could motivate employees to exhibit higher effort levels (Acharya *et al.*, 2014). Similarly, it may encourage them to invest in firm-specific human capital that is non-contractible (see e.g. Teulings and Hartog, 1998; Suedekum and Ruehmann, 2003; Belot *et al.*, 2007). Besides increasing overall efficiency and innovation, workers may be more willing to accept variable compensation that would otherwise be subject to holdup risk. Consequently, employment protection may lead to more risk sharing between firms and their employees. Relatedly, Xiaolan (2014) argues that a higher level of transferable human capital leads to optimal contracts that focus more on retaining workers through variable compensation such that workers bear more firm risk. A WDL that promotes the formation of (firm-specific) human capital therefore has the potential to increase risk sharing between employers and employees and thereby lead to lower discount rates.

The adoption of WDLs provides an ideal setting to study these effects. Besides its methodological appeal, which we discuss in more detail in Section 3.2 below, the three types of exceptions to at-will employment arguably differ with respect to how they relate to the mechanisms discussed above. Hence, we expect the policies to have different effects on risk sharing and consequently on expected returns as a compensation for bearing that risk. In the following, we outline the exact design and the potential effects of each policy.

Public policy (PP) exception: The PP exception protects workers from being discharged in retaliation for acting in accordance with an established public policy or refusing to commit an illegal act. Workers may, for example, file a lawsuit if they were fired for reporting an employer's wrongdoing, refusing to commit perjury, filing a worker's compensation claim, or performing jury duty.

The incidents that give rise to public policy claims are typically not a consequence of explicit firm policy. However, a disgruntled discharged employee may be able to claim their discharge was in retaliation for acting in accordance with public policy even if they were actually fired for a different reason. Moreover, courts and plaintiffs may have a very wide understanding of public policy that may encompass a wide range of norms, including very vague ones, leading to considerable uncertainty.[5] Hence, we expect that firms have only limited possibilities to avoid the risk of being subject to public policy claims.[6] Therefore, the introduction of PP should affect expected returns mainly through the *direct risk allocation* channel.

In total, 44 states recognized the public policy exception by 1999, albeit with differences regarding the reach of its interpretation. Some states hold a *broader interpretation* of the public policy exception (PP-broad) (Dertouzos and Karoly, 1992). This means that courts allow the basis for PP claims to be grounded in legal norms besides explicit statute or statutorily protected rights, such as regulations, judicial decisions, constitutions or professional ethics codes. Moreover, all states with such a broader interpretation recognize PP claims in tort.[7] In other states, courts follow a more *narrow interpretation* (PP-narrow) and limit public policy cases to clear violations of explicit legislative commands, rather than violations of a vaguer sense of public obligation (Limani, 2006). Broader interpretations of PP induce more uncertainty about firing costs (Dertouzos and Karoly, 1992)

[5]This has even been recognized in court rulings such as *Hartley v. Ocean Reef Club*, 476 So. 2d 1327, 1329 (Fla. 1985) and has been discussed in the popular press Edelman *et al.* (1992).

[6]This assertion is supported by existing research that shows that the introduction of PP does not influence firms' level of employment (Autor *et al.*, 2007), innovation (Acharya *et al.*, 2014) or capital structure (Serfling, 2016).

[7]Dertouzos and Karoly (1992) identify eight states (California, Hawaii, Illinois, Kansas, New Hampshire, New Jersey, Vermont, and West Virginia) as adhering to broader interpretations of the public policy exception.

and can lead to much larger settlements (Walsh and Schwarz, 1996) which should give the policy more "bite".

It remains an empirical question whether the public policy exception changes systematic and not just idiosyncratic risk exposure and should therefore be priced. Note that it is not so much the character of claims based on PP that determines whether its introduction raises systematic risk. Rather, it is crucial whether PP prevents firms from passing on systematic risk onto workers. For instance, empirical evidence shows that there are more wrongful discharge lawsuits in recessions (Haider and Plancich, 2012; Donohue and Siegelman, 1992) even though it appears unlikely that firing in retaliation for following public policy is related to the business cycle. This indicates that wrongful discharge lawsuits impede the passing on of economic shocks to workers exactly when it matters most.

Good faith (GF) exception: The implied covenant of good faith and fair dealing, the so called good faith (GF) exception, prohibits employers from firing workers out of bad faith, malice, or retaliation. In particular, it prevents employers from discharging workers to deprive them of a promised benefit e.g., bonuses, commissions or non-vested pension. In three out of the 12 states adopting the GF exception (California, Montana and Nevada), the legal doctrine represents a *tort cause* of action where a violation of the GF exception constitutes grounds for compensatory and punitive damages, leading to possibly large settlements (GF-broad).

The GF exception may not only reduce firms' ability to fire workers in response to an adverse shock, but has also been suggested to directly affect agency problems arising from incomplete contracts. In particular, it has been argued that the GF exception reduces workers' risk of holdup by the employer (Acharya *et al.*, 2014). Workers may therefore increase their innovative effort and human capital formation. Moreover, because the risk of holdup is reduced, workers may be more willing to agree to variable compensation (that would otherwise be subject to holdup). Existing empirical evidence lends support to this idea. The GF exception has been shown to spur innovation and firm creation (Acharya *et al.*, 2014). Relatedly, Xiaolan (2014) argues that higher levels of human capital make

contracts with more risk-sharing optimal from a firm's perspective. This would imply that shareholders bear less risk in jurisdictions where the GF exception is recognized.

Nevertheless, like any form of employment protection, the GF exception potentially increases firing costs and impedes risk-shifting of systematic shocks from employers to workers. Whether its introduction increases expected returns because it reduces firms' action sets (direct channel) or lowers expected returns through the indirect channel remains an open empirical question.

Implied contract (IC) exception: The implied contract (IC) exception applies when an employer implicitly promises that a worker will not be discharged without good cause. Such promises do not need to be negotiated on an individual basis, but may be implicit. Courts have accepted various types of implied promises of ongoing employment, such as statements about a firm's termination policy in personnel manuals, a history of promotions or salary raises, general company policies, and typical industry practices. The implied contract exception has been recognized by 43 states in 1999.

As discussed in Walsh and Schwarz (1996), there are many instances of employers making and subsequently breaking promises of job security to employees. Therefore, the IC exception has the potential to impose costs on the termination of employment. It can potentially reclassify an employer's entire workforce as not 'at will', which may impose significant firing costs. However, the impact of the IC exception is limited for two reasons (see also Autor *et al.*, 2006). First, workers are unlikely to receive large compensations in implied-contract cases as they typically only lead to contractual rather than punitive or full compensatory claims (Dertouzos and Karoly, 1992). Moreover, employers can 'contract around' this exception and secure themselves against claims by adjusting employment contracts to state explicitly that all employees remain 'at will' (Autor *et al.*, 2007). It is therefore doubtful if IC should affect firms' systematic risk at all.

3 Data and Descriptive Statistics

3.1 Data and Sample Selection

To investigate the role of employment protection for the risk sharing between firms and workers, we are ultimately interested in shareholders' risk compensation as indicated by expected stock returns. To this end, we use data on stock prices, number of stocks outstanding and returns from the Center for Research in Security Prices (CRSP), as well as accounting and firm data from Compustat in combination with information regarding the introduction of WDLs in te state as provided by Autor *et al.* (2002) and Dertouzos and Karoly (1992). Moreover, we use state-level data on GDP from the Bureau of Economic Analysis (BEA).

The final dataset covers a period from 1965 to 2019 and the main outcome variable, stock returns, is measured on a monthly basis. Overall, our sample comprises 2,675,138 firm-month (respectively 230,855 firm-year) observations accounting for 20,303 firms in total. The last court ruling leading to the recognition of a WDL occurred in 1998. Observing realized stock returns for at least 20 years after the recognition of a law allows us to argue that they provide a reasonable proxy for expected returns.[8]

Finally, we also use individual-level data from the Panel Study of Income Dynamics (PSID), which provides a representative sample of the workforce from 1968 to 2017. The individual-level data allow us to provide further evidence regarding the prevalence of variable compensation schemes, as a potential way of risk sharing within the firm.

3.2 Potential Endogeneity of Wrongful Discharge Laws

To examine the effect the employment protection legislations on stock returns we exploit the natural experiment created by the staggered passage of WDLs by various US states. Our identification strategy assumes that the returns of firms headquartered in states that do and those that do not adopt wrongful discharge laws would have evolved similarly absent the law (*common-trend assumption*). This assumption could be violated if the adoption of a law systematically coincides with state-level factors that are correlated with

[8]We further test the sensitivity of our results with respect to the length of the observation window in Table A.2 in Appendix A.3.

stock returns. For instance, changes in returns and the adoption of a wrongful discharge law could be spuriously correlated with underlying economic and political conditions. However, since the considered WDLs are common-law exceptions, their recognition is not based on legislative but on judicial decisions and therefore less driven by economic considerations. According to Walsh and Schwarz (1996) courts typically adopted WDLs to enhance fairness between employers and employees, to assure consistency with established contract law principles or to follow other states that already recognize WDLs. This suggests that judges were not adopting exceptions to the at-will doctrine with the intention of changing firms' capital costs and it appears unlikely that these reasons are related to factors determining stock returns. Nevertheless, we further examine the validity of the underlying identification assumption and provide two empirical tests.

Determinants of WDL adoption: First, we follow the approach of Acharya *et al.* (2014) and estimate hazard models to investigate what determines the adoption of WDLs. To this end, we estimate three specifications, in which the outcome variable is a dummy indicating whether state i introduced the respective exception in a given year t and states are excluded from the sample after having adopted the law. The independent variables are average firm characteristics in state i, as well as state characteristics, such as GDP growth, the presence of right-to-work laws[9] and dummies for the ten federal regions. Since we control for state fixed effects in all our specifications, only changes with respect to underlying factors over the course of time could invalidate our empirical strategy. Specifically, we consider the most recent changes in firm-level characteristics between year $t-2$ and $t-1$ for our falsification test. Moreover, we include the share of states within the same federal region recognizing WDLs as a proxy for the political sentiments towards common-law exceptions. The results are shown in Table 1. In general, the explanatory power of the average firm and state characteristics is low. For the adoption of the PP and GF exception, only one (PP), respectively two (GF) out of 26 estimated coefficients

[9]Right-to-work laws refer to state laws that prohibit union agreements between employers and labor unions requiring all members who benefit from the union contract to contribute to the costs of union representation. Previous evidence indicates that the presence of these laws reflects preferences against union representation (Farber, 1984), which is likely to be related to the political sentiments towards employment protection.

are statistically significant at the 10%-level, while none is significant at the 5%-level. In contrast, the share of states in the same federal region adopting the corresponding WDL is a strong predictor. The results indicate that political and juridical rather than economic factors drive the courts' decisions, which mitigates concerns that firm performance and discount rates are spuriously correlated with the recognition of WDLs.

[Insert Table 1 and Figure 2 about here]

Pre-trends: The plausibility of the common-trend assumption in longitudinal data is usually assessed by examining outcomes before the moment t at which, for instance, a firm becomes exposed to the common-law exception. In our setting, we can directly test whether the stock returns in adopting and non-adopting states follow a similar trajectory. Although stock returns typically exhibit only little autocorrelation, one could be concerned that there are other unobserved state-level characteristics spuriously correlated with both, the recognition of WDLs and stock returns. For each year t, we consider changes in the difference of average state-level returns between adopting and non-adopting states.The results for the last ten years before the adoption of the law are presented in Figure 2. In general, there is no evidence for a violation of the common-trend assumption as the vast majority of yearly changes is close to zero and statistically insignificant at conventional levels. This provides suggestive evidence that the adopting and non-adopting states display a common-trend in stock returns before the recognition of the common-law exceptions.

4 The Effect of WDLs on Stock Returns

4.1 Market Reaction to the Introduction of WDLs

In efficient markets, if investors regard the court rulings in favor of exceptions to the at-will doctrine as 'bad news', one would expect negative abnormal returns at the time of adoption. Specifically, if the introduction is regarded as increasing (decreasing) risk, the news about the introduction should come with a positive (negative) change in the discount rate, resulting in a negative unexpected return. Similarly, a positive (negative) change in expected future cash flows due to the adoption of the WDL should lead to positive (negative) unexpected returns at the time of the introduction. To test whether the court

ruling did indeed come as a surprise to investors, we compute average abnormal returns as residuals from the Fama and French (1992) three-factor model for firms headquartered in the state of adoption of the respective doctrine.

[Insert Figure 3 about here]

It should be noted that the adoption of one WDL is often associated with the recognition of other exceptions from at will.[10] Since in most states, the PP exception preceded other exceptions to at will, one would expect that abnormal returns around the introduction of the GF and IC exception show less pronounced patterns. This is indeed what we find in the data. We therefore focus the following discussion on the introduction effects of PP shown in Figure 3 and present the corresponding results for GF and IC in Figure A.1 in Appendix A.3.

Figure 3 reveals some interesting patterns. First of all, there is no evidence that returns changed before the adoption of the law (all coefficients are statistically insignificant at conventional levels). This suggests that the adoption of the laws was not priced in prior to the court rulings or that other events systematically affected returns around the time of the passage of the WDLs. Moreover, we see a negative abnormal return of about -0.34% in the month of adoption. Although the estimated coefficient is not decisively significant (p-value = 0.105), it suggests investors deemed the adoption of the law 'bad news'. Moreover, we assume that the effect is more pronounced if the adoption was unexpected. To induce some variation with respect to how much investors were indeed surprised by the introduction, we focus on two groups of incidents where the surprise about the adoption of the law is arguably stronger and we would therefore expect larger negative returns.

First, one would expect that the surprise was stronger for earlier court rulings. As shown in Figure 1, the 1980s saw a general trend towards the introduction of WDLs, and courts have stated that their acceptance of a doctrine was at least partly motivated by a growing acceptance of exceptions to the at-will doctrine (Walsh and Schwarz, 1996). Similarly, the results in Table 1 suggest that states are more likely to adopt an exception to at will if other states in the same federal region already recognize a given exception.[11]

[10] For instance, there is a positive correlation of 0.59 between the likelihood of recognizing the PP and the IC exception by a state in a given year.

[11] See Dertouzos and Karoly (1992) who refer to this as "snowballing".

Therefore, Panel B of Figure 3 considers only adoptions of the public policy exception before the end of 1984. At this point in time more than half of US states had recognized the doctrine. One could hence argue that allowing for exceptions to the at-will doctrine had become an established view by then, such that subsequent court rulings did not come as much of a surprise to investors anymore. As expected, in states adopting the public policy exception early on, the negative abnormal returns upon introduction are highly significant ($p-$value=0.009) and about two times larger (-0.68%) than the effect across all states.

Second, one may argue that the adoption of labor-friendly laws comes at a greater surprise to investor in states with right-to-work laws (see Footnote 9), with states having such laws being generally less likely to adopt WDLs (Dertouzos and Karoly, 1992). Therefore, one would expect that the adoption of exceptions to employment at will has a stronger effect in states that had passed right-to-work laws prior to the adoption of the WDL. The results shown in Panel C of Figure 3 support this idea. Unexpected returns upon the introduction of the law are substantially more negative in right-to-work states. The effect is about five times larger (-1.79%) than the effect across all states and statistically significant at the 1%-level.

4.2 Discount Rate Effects

In the following, we investigate the consequences of wrongful discharge laws by comparing mean returns of firms headquartered in states recognizing the laws to those who do not. As discussed in Section 2.2, negative returns upon introduction can be due to lower expected cash flows or higher discount rates. As opposed to cash-flow news, (persistent) changes in discount rates should be mirrored by higher expected returns in the time after the introduction. Before presenting the main results in Section 4.2.2, we discuss our econometric specification in more detail. Afterwards, we investigate whether the effects of the policy differ with respect to the design of the law in different states (see Section 4.2.3) and firm characteristics (see Section 4.2.4).

4.2.1 Econometric Specification

Our empirical analysis aims to identify the causal effect of the adoption of an exception to at will on the expected returns of firms headquartered in the corresponding state. Therefore, we exploit the longitudinal nature of our data and estimate fixed effects models that allow us to account for unobserved state-level differences that might be correlated with the likelihood that a court recognizes a WDL. Our baseline specification is characterized by the following equation:

$$r_{ist} = \gamma_{PP} PP_{st} + \gamma_{GF} GF_{st} + \gamma_{IC} IC_{st} + \phi_s + \mu_t + \varepsilon_{ist}, \tag{1}$$

where r_{ist} is the stock return of a firm i headquartered in state s in month t. Our main interest is to identify the effect of the public policy (γ_{PP}), implied contract (γ_{IC}) and good faith (γ_{GF}) exceptions being recognized in the corresponding state s at time t. Obviously, the general economic conditions might differ between states, which could affect stock returns and could be correlated with the likelihood that courts recognize one of the three WDLs. Therefore, in all specifications, we account for state fixed effects ϕ_s to rule out that these unobserved differences bias our estimates. Similarly, we also include time fixed effects μ_t, which are constructed based on calendar months, to control for the general economic environment.

We further test the robustness of our results by estimating two additional specifications. First, we address the concern that there could exist region-specific trends in *realized* returns that are correlated with the adoption of an exception to at will more explicitly. Specifically, we control for region-time trends by interacting indicator variables for ten federal regions with a continuous year variable. For instance, Dertouzos and Karoly (1992) show that Western states tend to adopt exceptions to at will more often than, e.g., Southern states. At the same time those states may happen to be home to firms realizing a series of positive surprises over the consecutive decades. In other words, we want to avoid mistaking a series of positive unexpected returns for a manifestation of high expected returns. Controlling for region-time trends ensures that such a correlation will not invalidate our results.

Second, we control for a set of firm characteristics X_i measured in month $t-1$. Specifically, we account for variables related to the cross-section of expected stock returns such as market beta, size (market capitalization), book-to-market equity ratio, investment and profitability (Fama and French, 2015). As shown by previous research, the passage of WDLs can affect firm characteristics like size, profitability or firm performance (see e.g. Bird and Knopf, 2009; Serfling, 2016). Hence, including these factors as control variables into our empirical model allows us to examine whether the effects of WDLs on stock returns work through changes in firms' fundamental characteristics.

Finally, it should be noted that the variation in common-law exceptions is only at the state level. Therefore, in all specifications, we correct the estimated standard errors for heteroskedasticity and cluster them at the state level to account for potentially serially correlated outcomes within a given state (Bertrand *et al.*, 2004).

4.2.2 Baseline Results

Table 2 presents the results of our main analysis of the relation between the adoption of WDLs and monthly stock returns for the different specifications discussed in Section 4.2.1. The adoption of the PP exception has a positive and statistically significant effect on the expected returns across all specifications. Our baseline specification shows a substantial increase of annualized returns of 2.1%, which is statistically significant at the 5%-level. When considering the alternative specifications including regional trends (column 2) and firm-level control variables (column 3), the effect slightly increases. Following our discussion from Section 2.2, the findings indicate that the adoption of the PP exception led to an increase in discount rates (expected returns), which is consistent with the notion that it increases shareholders' systematic, undiversifiable risk. Hence, the negative effect upon introduction presented in Section 4.1 seems to be the consequence of positive discount-rate shocks rather than of negative cash-flow news.

[Insert Table 2 about here]

When considering the effect of IC and GF exceptions, the picture looks very different. For the GF exception, there is no effect in our baseline specification, but we see a reduction of annualized monthly returns of about 2.2% when controlling for firm characteristics (see

column 3). The effect is statistically significant at the 5%-level. This shows that adopting the GF exception has a fundamentally different effect on stock returns than the PP exception and that the two laws operate through different mechanisms. As outlined in Section 2.2, GF can have substantial effects on firm policy and worker behavior because it prevents employers from acting in bad faith thereby alleviating holdup issues. One could speculate that the lower expected returns in GF states are the consequence of these effects. We explore this hypothesis in Section 5 below.

Moreover, our results show that the IC exception has only small and insignificant effects on stock returns in all specifications. This finding is in line with the idea that firms can simply 'contract around' the IC exception. The results suggest that the IC exception does not affect exposure to systematic, i.e. priced risk. Hence, in our following analysis, we focus on the PP and GF exceptions.

Finally, we also test the sensitivity of our results with respect to several potential sources of bias. Specifically, we estimate three additional specifications that (i) only exploit within-firm variation accounting for firm fixed effects, (ii) utilize alternative location information and (iii) consider a shorter observation window around the adoption of WDLs to make sure the results are not driven by confounding events long after the introduction of the laws. The results are shown in Table A.2 and further details are discussed in Appendix A.2. Overall, the findings are robust in these alternative specifications.

4.2.3 Measures of Risk and Reward and the Intensive Margin of WDLs

In the following, we extend our baseline analysis with respect to two dimensions. First, we consider heterogeneity with respect to the scope and reach of a policy in a given state. As outlined in Section 2.1, both among PP and GF states, there are differences regarding the norms considered as public policy (PP narrow/broad) and whether the policy is grounds for tort claims (GF narrow/broad). Following our previous argumentation, a broader interpretation of the respective exceptions to at will should reinforce the underlying mechanisms and hence the effect for expected returns should be larger as compared to states where courts follow the respective doctrine in a more narrow interpretation.

Second, we also investigate the effect of the introduction of different WDLs on different measures of risk and compensation for risk, namely stock return volatility and the Sharpe ratio.

[Insert Table 3 about here]

The results are presented in Table 3. Column 1 replicates the effects on monthly returns distinguishing between states following either a narrow or a broad interpretation of the respective exceptions to at-will employment.[12] As expected, both for GF and PP, the magnitude of the estimated coefficients is larger when courts in a state follow a broader, i.e. "stronger" interpretation of the policy. For GF, the negative effect on discount rates is driven by states with a broad interpretation, with a statistically significant difference of about 2.7%.

One way in which the increased underlying risk induced by the adoption of WDLs may manifest itself is by increased stock volatility. To check whether this is the case, we run a regression of return volatility on the regressors from column 1. The results presented in column 2 provide no evidence that the introduction of WDLs affects realized return volatility relative to the situation in which a state does not recognize any common law exception. However, when comparing states adhering to a narrow or a broad interpretation of GF the effects are significantly different from each other ($p-$value < 0.01). As with the results from column 1, the lower volatility of stock returns in states following a broad interpretation of GF supports the notion that the recognition of the corresponding claim in tort plays an important role for the mechanisms discussed in Section 2.2. One reason could be that only if the GF exception has sufficient "bite", it can have the suggested effects on agency issues.

Finally, we are interested in whether Sharpe ratios, as a measure of compensation per unit of risk (here: mean return per unit of volatility), are affected by the introduction of WDLs. Indeed, we find that for both, narrow and broad interpretations, investors get a higher reward per unit of volatility in states that adopted PP exceptions. This suggests that, while the PP exception may not change the amount of risk, it does change

[12] In all specifications, we also control for the adoption of the implied contract exception. There is no evidence that IC has a significant impact on any of the outcome variables.

its character in a way that investors dislike and demand higher compensation for. One obvious way in which this could happen is that the number of wrongful discharge lawsuits rises in a recession (Haider and Plancich, 2012; Donohue and Siegelman, 1992). This would lead to worse firm performance when it matters most to investors, which should be reflected in market prices of risk. Conversely, for states with GF exceptions, the reward per unit of volatility decreases. This is line with the idea that GF can lead to new equilibria in firm-worker interaction in which there is lower downside potential because of increased risk sharing.

4.2.4 Heterogeneous Effects by Firm Characteristics

It has been suggested that employment protection reduces holdup issues. One would expect that such an effect is larger in firms that have some upside potential to begin with. First, in firms with a larger growth potential, workers' investments in innovation and human capital, triggered by alleviated holdup risk, may be more productive.[13] Second, Xiaolan (2014) suggests that growth firms should offer more variable compensation to prevent their workers' from leaving, leading to more firm risk borne by workers. Hence the alleviation of holdup risk should be particularly valuable for firms with a high growth potential. Therefore, we examine heterogeneous effects across firms with respect to the book-to-market ratio as a proxy for the importance of existing assets relative to its growth potential (Berk *et al.*, 1999).

Panel A of Figure 4 shows separate effects for observations with a book-to-market ratio below and above the sample median. While there is only little heterogeneity when considering PP or the narrow interpretation of GF, we find a striking difference when GF represents a tort cause of action (GF-broad). Adopting the broad interpretation of GF significantly reduces the mean returns of growth firms (with a low book-to-market ratio) by about 6%, whereas there is an insignificant effect on firms with a high book-to-market ratio. This is consistent with the idea that the GF exception can help to overcome holdup problems, which fosters innovation (Acharya *et al.*, 2014) and reduces downside potential by increased risk sharing with employees. It is intuitive that highly valued growth firms

[13] See Lambert (1986) for a theoretical model analyzing the agency problem in connection to the upside potential of an investment.

(low book-to-market) are more likely to profit from the new environment. Together with the finding from the previous subsection that the introduction of the GF exception lowers the Sharpe ratio, our findings lend further support to the arguments in Acharya *et al.* (2014) and Griffith and Macartney (2014).

[Insert Figure 4 about here]

In a similar vein, for younger firms (as proxied by first listing in our sample), the introduction of the GF-broad exception has a significantly negative effect on returns. Firm age has been suggested to be inversely related to innovation (Hansen, 1992). Hence, the negative effect on younger firms may reflect a similar mechanism as the effect on firms with a low book-to-market ratio. Finally, there is no significant heterogeneity in effect size when conditioning on other variables associated with cross-sectional differences in expected returns, such as size (market capitalization), investment, profitability or market beta (see Panel C - F).

5 Mechanism

In the previous section we have gathered conclusive evidence that the PP exception is a driver of positively priced risk, whereas the GF exception seems to have contrary effects. In the following, we attempt to shed some light on the relevance of the potential mechanisms discussed in Section 2.2 that may drive these results. We start by investigating how WDLs influence firm policies and related characteristics in Section 5.1, before providing additional evidence regarding risk sharing in Section 5.2.

5.1 Firm Policy and Characteristics

In a first step, we estimate the effect of WDLs on various firm characteristics that reflect changes in the discount rate we found in Section 4.2, such as investment decisions. Subsequently, we consider variables related to worker-firm interaction such as employment and wages, which are also related to intra-firm risk sharing (see e.g Berk *et al.*, 2010).

Since we are now interested in the effect of the common-law exceptions on firm-level decisions (rather than market outcomes), we estimate a model including firm fixed effects

to ensure that changes in the composition of firms over time, which might be correlated with firm policies, do not affect our results.[14] The model is characterized by the following equation:

$$y_{ist} = \gamma_{PP} PP_{st} + \gamma_{GF} GF_{st} + \gamma_{IC} IC_{st} + \kappa_i + \mu_t + \varepsilon_{ist}. \quad (2)$$

Besides the inclusion of the firm fixed effect κ_i, the model is similar to the baseline model specified in Equation 1. We refrain from adding additional time-varying control variables. Since all firm decisions are arguably interrelated, various dimensions of firm policy are likely to be affected by the introduction of WDLs at the same time. Therefore, accounting for additional firm-level outcome variables could cause a severe endogeneity bias (see e.g. Rubin, 2005).

Characteristics related to expected stock returns: The findings presented in Table 4 reveal that PP and GF affect firm characteristics very differently. When considering characteristics that are typically related to the cross-section of expected returns (see column 1 - 4) such as investment, profitability, size (market capitalization) and book-to-market equity ratio (Fama and French, 2015), we find no evidence that the PP exception has any effect. However, the picture looks very different for the GF exception when it is grounds for tort (GF-broad). Its recognition leads firms to increase investment rates by about 2.2% relative to the situation where GF is not recognized. The effect is statistically significant at the 1%-level. Moreover, firms in GF-broad jurisdictions become more profitable and more valuable in terms of market capitalization. High investment rates fit well with the lower discount rates following the introduction of GF-broad that we found in Section 4.2. Hou *et al.*'s 2014 standard discounting model suggests that lower discount rates should (ceteris paribus) lead firms to invest more. At first sight, the discount-rate

[14] Table A.2 in the Appendix replicates the effect on stock returns when estimating a model with firm fixed effects. The results are qualitatively similar to the baseline results. It should be noted that WDLs might also have a causal effect on the composition of firms as the increased risk might force some firms to close down, while at the same time new firms open up. In contrast to the baseline specification, a model with firm fixed effects captures only the 'local' effect of WDLs for firms existing before and after the adoption of the law. However, from an investor's perspective all stocks that are available at a given point in time should be relevant and therefore only a model without firm fixed effects allows us to identify the 'total' effect of WDLs on the allocation of risk. On the other hand, firms' financial decisions are likely to be correlated with firm age and therefore only a model accounting for firm fixed effects allows us to identify the causal effect of WDLs on firm policy.

effect seems to be at odds with the effect of GF-broad on profitability. All else equal, firms with a high profitability should have higher expected returns.[15] This however only holds if the change in profitability is accompanied by constant investment, which it is not. Our findings are in line with the mechanism outlined by Acharya *et al.* (2014), who show that adopting the GF exception spurs innovation due to the mitigation of holdup problems.

[Insert Table 4 about here]

Moreover, we estimate the effects of WDLs on financial leverage (see column 5 of Table 4) which is related to firm risk. We find a small and insignificant negative effect for GF and a significant although economically negligible positive effect of 0.5% (1.8%) for PP-narrow (broad). The regression in Table A.3 in the appendix shows that leverage does not explain higher mean returns. One may speculate that the slightly higher leverage may reflect firms' strategic decisions to reduce the money at stake in wage negotiations (similar to Bronars and Deere, 1991; Saint-Paul, 2002; Ellul and Pagano, 2019) due to a shift of bargaining power to workers.

Worker-firm interaction: Table 5 shows the effects of WDLs on employment and wages, which are more directly related to the risk allocation within the firm (see e.g. Berk *et al.*, 2010). The unconditional effects of both, GF an PP, on employment are rather small and statistically insignificant. For wages, we find a small negative effect of both types of PP. While insignificant, the effect is in line with the notion that workers require a lower risk premium in form of wages when facing a reduced threat of being displaced (see e.g. Berk *et al.*, 2010). Following this argument, one may expect that wages are also lower in GF jurisdictions. However, this is not the case. Wages are about 3 - 4% higher when GF is in place ($p-\text{value} < 0.10$). One reason could be that labor income has actually become riskier. In what follows, we further explore this idea by analyzing intra-firm risk sharing.

[Insert Table 5 about here]

[15] Intuitively, when there are two firms with equal investments and one is more profitable than the other, then this firm must have higher expected returns (capital costs) and be more risky because else it would have invested more.

5.2 Risk Sharing within the Firm

We have seen that the adoption of WDLs has disparate effects on firms' discount rates. A rational and perhaps the most obvious explanation is that WDLs affect the way in which workers and firms share systematic risk within the firm. On the one hand, reducing workers' risk of being displaced through the adoption of the PP exception reduces the firm's possibility of passing on systematic risk from all kinds of sources onto workers. On the other hand, adopting the GF exception reduces workers' risk of holdup, which leads to more variable compensation and therefore more risk sharing between workers and firms.

In the following, we explore this intra-firm risk sharing channel by investigating how the adoption of WDLs affects (i) the cyclicality of firms' labor share, (ii) its components, employment and wages, and (iii) firms' operating leverage, i.e. the degree to which firms' operating income increases when revenues increase.

5.2.1 The Interrelation of WDLs, Firms' Labor Share and Aggregate Shocks

As noted by Donangelo *et al.* (2019), labor market frictions, such as employment protection legislations, are likely to be important drivers of *labor leverage*. This characterizes the extent to which productivity or demand shocks translate into shocks in operating income. Firms with higher labor leverage have riskier cash flows. The literature on labor and asset pricing suggests that labor leverage rises in the labor share and that firms with higher labor share should therefore have higher discount rates as a compensation for the increased cash-flow risk (see Favilukis and Lin, 2016b,a; Donangelo *et al.*, 2019; Donangelo, 2020). A policy that is expected to affect labor leverage may have a different effect depending on the ex-ante level of labor leverage. It is hence natural to investigate whether the effect on discount rates we found in Section 4.2 differs across firms with high or low levels of labor share.

[Insert Figure 5 about here]

We follow the imputation procedure proposed by Donangelo *et al.* (2019), which allows us to calculate firm-level labor shares for a subsample of 78,845 firms. The results in Figure 5 show that the negative effect of GF on discount rates is mostly driven by firms

with low labor shares. This is in line with Kehrig and Vincent (2018) who show that at a given point in time, firms with a low labor share tend to enjoy high levels of productivity. Alleviating holdup and fostering more innovation is arguably more valuable for firms experiencing high productivity.

Moreover, Marfè (2017) highlights that the firm-level insurance mechanism between labor and capital generally generates a countercyclical labor share. Kessing (2003) and Vermeulen (2007) show that this is amplified in the presence of labor adjustment costs. Given that the PP exception reduces firms' possibilities to adjust the workforce and raises adjustment costs, one would expect that the countercyclicality is stronger when the PP exception is in place.

On the other hand, we observe lower mean returns in GF jurisdictions which is consistent with the hypothesis that GF affects risk sharing between workers and firms (for instance via flexible wages). As a straightforward test of this hypothesis we check whether the labor share becomes more or less countercyclical for firms in PP or GF jurisdictions by running regressions of firm-level labor shares on state GDP growth in the spirit of Table 5 in Donangelo *et al.* (2019).

[Insert Table 6 about here]

The results are presented in Table 6 and reveal two interesting patterns. First, we find that firms in PP jurisdictions have higher labor shares, while those in GF jurisdictions have (insignificantly) lower labor shares than firms not affected by any WDL. This is consistent with our main result of higher (lower) expected returns in PP (GF) jurisdictions. It is also in line with Donangelo *et al.* (2019) who show that firms with higher labor shares have higher expected returns.

Second, and this is even more striking, we find disparate effects of PP and GF when considering how the labor share reacts to the state of the economy. While we observe the expected overall relationship between the labor share and state GDP growth, namely that the labor share is higher in times of low growth (and vice versa), this effect is stronger when PP is in place. In jurisdictions recognizing PP, labor shares increase (decrease) significantly more strongly when GDP growth is negative (positive) relative to states that

do not recognize the PP exception as indicated by the significantly negative interaction term of GDP growth and PP. This is consistent with the risk sharing channel outlined in Section 2.2 and described in Marfè (2017).

Moreover, we find the opposite effect in states that adopted the GF exception. As indicated by the positive interaction term of GDP growth and GF, the negative relationship between growth and the labor share is significantly weaker. This is consistent with a higher degree of risk sharing when GF is in place. For instance, the risk of holdup (which is higher without GF) may not only dampen the innovative effort by the employee, but reduces the worker's willingness to accept contracts with large performance-contingent components (see e.g. Lazear, 1986). Hence, when GF is in place, workers may feel more attracted by variable compensation schemes and firms are more likely to offer such contracts to attract and retain the most productive workers (Salop and Salop, 1976; Xiaolan, 2014). This reduces the firms' wage costs in weak growth environments and explains why the countercyclicality of the labor share is reduced when GF is in place.

5.2.2 The Role of Business Conditions and Operating Leverage

We expect the effect of employment protection on expected returns to mainly operate via firms' possibility to react to systematic shocks on business conditions. Therefore, we now shed further light on the underlying mechanism by explicitly considering the connection between individual firms' business conditions in terms of sales and 1) the components of the labor share, i.e. employment and wages, 2) its operating leverage. In the spirit of Eisfeldt and Papanikolaou (2013), we estimate the following equation to analyze how the corresponding firm-level outcome variable (i.e. number of employees, wage payments per worker and operating income) reacts to changes in sales depending on whether PP or GF is in place.

$$\begin{aligned}\Delta y_{ist} =& \beta_1 \Delta log(Sales_{ist}) + \beta_{PP} \Delta log(Sales_{ist}) \times PP_{st} \\ &+ \beta_{GF} \Delta log(Sales_{ist}) \times GF_{st} + \beta_{IC} \Delta log(Sales_{ist}) \times IC_{st} \\ &+ \gamma_{PP} PP_{st} + \gamma_{GF} GF_{st} + \gamma_{IC} IC_{st} + \kappa_i + \mu_t + \varepsilon_{ist}\end{aligned}$$

Hence, we are particularly interested in the interaction effects of changes in sales with to PP and GF, respectively, which allows us to asses how the adoption WDLs affects firms' exposure to business conditions.

Components of labor share: As shown in Panel A of Table 7, both the PP and the GF exception significantly reduce the cyclicality of employment. This means that firms are less likely to adjust the size of their labor force in response to changes in sales as a measure of business conditions. On average, a 1% increase in sales leads to 0.4% increase in the number of employees. However, the relative size of this effect is about 10% (12%) lower when the PP (GF) exception is recognized, suggesting that the insignificant effects of WDLs on unconditional average employment shown in Table 5 masks heterogeneous effects on hiring depending on the state of the economy: In anticipation of higher firing costs, firms plausibly fire (hire) less in a downturn (upturn).

Since employment reacts similarly to both types of WDLs, one would expect that the differential effects on the cyclicality of the labor share are explained by a difference in how wages react to business conditions. As shown in column (2) of Table 7, this is indeed the case. While the PP exception has no significant effect on the relation between sales and wages, the adoption of GF increases the sales elasticity of wages. This result implies that workers' stake in firms' economic success or failure is higher when GF is in place. It appears plausible that this is a consequence of GF alleviating incentive problems as discussed in Section 2.2. When the possibility of holdup by the employer is reduced due to the recognition of GF, workers are more willing to bear a larger share of firm risk by accepting more variable compensation.

[Insert Table 7 about here]

To further investigate whether more variable compensation is a plausible driver of the result, we analyze individual-level data from a national representative sample of workers, the PSID. This additional data source allows us to construct an unbalanced yearly panel including the workers' state and an indicator whether they received any variable compen-

sation in a given year.[16] We replicate our main econometric analysis described in Section 4.2.1 for this individual-level dataset using the indicator for variable compensation as the outcome of interest.

[Insert Table 8 about here]

As shown in Table 8, the recognition of WDLs indeed affects the likelihood that the wages contain variable components. Workers who reside in states recognizing the broad version of GF are about 2.8 percentage points more likely to obtain parts of their salary from variable compensation in a given year. The effect is significant at the 1%-level. The result is in line with our earlier finding of increased profitability (see Table 4), since it has been shown that performance-related pay may further increase worker productivity (see e.g. Lazear, 2000; Shearer, 2004; Lavy, 2009).

Operating leverage: Table 9 shows the effect of WDLs on firms' *operating leverage*, measured as the sensitivity of earnings with respect to sales, i.e. the extent to which changes in sales translate into changes in earnings. Unlike wages and employment, earnings are not strictly positive, so we cannot compute operating leverage from a regression of log changes in earnings on log changes in sales but instead measure change in the level of earnings. On average, when firms' sales decrease, so do their earnings before income and taxes (EBIT). However, when GF is in place, this connection is substantially weaker. Together with the previous results of a less countercyclical labor share (Table 6) and more cyclical wages (Panel A of Table 7), this suggests that the adoption of GF leads to more risk sharing between workers and firms since workers are more likely to accept variable compensation schemes (see Table 8). This implies that workers participate to a larger extent in changing sales, thereby making firms' earnings less sensitive to changes in sales.[17]

[16] We observe yearly data from 1968 to 1997 and biannual data from 1999 to 2017. Each wave comprises between 4,500 to 11,000 observations referring to the income of the household head.

[17] Using a shorter sample and a different specification (among other differences with changes in log earnings as dependent variable), Serfling (2016) finds that the adoption of GF increases operating leverage. We find that this is due to discarding negative earnings when computing log changes in earnings. One could speculate that neglecting negative earnings implies that one underestimates the degree of variable compensation.

[Insert Table 9 about here]

Finally, we also investigate the heterogeneity of the operating leverage effect with respect to the firm's growth potential. This follows the idea of Xiaolan (2014) who argues that growth firms optimally offer more variable compensation to their employees. In Xiaolan's framework, firms with a history of recent productivity shocks, which increased the human capital of their workforce, want to prevent their workers' from leaving the firm, taking parts of the human capital with them. In Section 4.2.4 above, we show that the negative effect of GF on discount rates is driven by firms with a low book-to-market ratio, in line with Xiaolan's notion of more risk sharing in growth firms. Indeed, when splitting the sample into firms with above and below book-to-market ratio, we find that operating leverage of value firms (with a high book-to-market ratio) is more than double that of growth firms (with a low book-to-market ratio). What is more, the negative effect of GF on operating leverage comes exclusively from firms with a low book-to-market ratio. This is consistent with the ideas brought forth in Acharya *et al.* (2014) and relatedly Suedekum and Ruehmann (2003): GF leads to more innovation and the associated accumulation of human capital should lead to more risk sharing (Xiaolan, 2014) and hence, lower discount rates. Interestingly, PP affects operating leverage positively for growth firms such that their operating leverage is roughly that of value firms in jurisdictions with PP in place.

6 Conclusion

Risk sharing between labor and capital has been suggested as a driver of cross-sectional differences in expected returns (Favilukis and Lin, 2016b,a; Donangelo *et al.*, 2019). The introduction of wrongful discharge laws (WDLs) as exceptions to the employment-at-will doctrine in various US states constitutes a perfect setting to study the role of changes in firing costs on discount rates and the risk allocation between workers and employers. While the staggered introduction of WDLs provides exogenous variation regarding workers' risk of being displaced, the design of the laws differ in their relation to the direct and indirect allocation of risk within the firm.

Our results mirror these disparate effects of WDLs on stock returns and intra-firm risk sharing. On the one hand, the public policy (PP) exception makes it more difficult

for firms to pass on risk to workers and leads to an increased annualized mean return of two percent. On the other hand, the exception of good faith and fair dealing (GF) shifts more risk from employers to workers and reduces expected returns by about 1.5 to two percent. This happens through two disparate channels. While employment is more sticky and hence less cyclical when either PP or GF is in place, only GF also features a strong wage channel. This means that, in states recognizing GF, wages react more strongly to changes in sales. At the same time, we can show that GF also increases the prevalence of variable compensation. This is intuitive: GF arguably reduces the risk of hold up and therefore leads workers to accept more flexible wages, which implies that they bear a larger share of firm risk. This echoes the argument of Acharya *et al.* (2014), who shows that innovative efforts are higher when GF is in place, and Xiaolan (2014), who concludes that risk sharing should be higher when workers build up more human capital after positive productivity shocks.

Our results suggest that firms insure workers not only from idiosyncratic, i.e. diversifiable risks, but also from risks that are systematic in an asset pricing sense. This highlights the crucial role that firms play in the allocation of macroeconomic risk. Policy makers should take into account that labor-market regulation has pronounced effects on the sharing of undiversifiable risks.

Finally, our study provides new evidence that employment protection may have more far-reaching implications than indicated by previous studies. Even a policy that has very limited direct effects on firm-level outcomes, such as the PP exception, changes to the allocation of risk and affects capital costs in a non-negligible way. These effects strongly depend on the exact design of the policy, which should be taken into account when implementing labor protection measures.

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Tables and Figures

Table 1: Predictability of WDL adoption

	Dependent variable: adoption of wrongful discharge law in year t					
	Public policy exception		Good faith exception		Implied contract exception	
	Coef.	SE	Coef.	SE	Coef.	SE
Firm characteristics (state-level averages)						
Revenues	-0.0002	(0.0199)	-0.0003	(0.0098)	-0.0221	(0.0305)
Labor costs per worker	-0.0021	(0.0043)	-0.0002	(0.0002)	-0.0009	(0.0014)
log(No. of employees)	0.0516	(0.0909)	0.0136	(0.0160)	-0.2336**	(0.0943)
log(Market capitalization)	0.0333	(0.0669)	0.0247	(0.0360)	-0.0903	(0.0639)
log(Book to market equity ratio)	0.0803	(0.0515)	0.0377	(0.0405)	-0.0392	(0.0320)
log(Book equity)	-0.0582	(0.1378)	-0.0394	(0.0360)	0.2670*	(0.1539)
Profitability	-0.1393	(0.1709)	0.0526	(0.0501)	-0.0990	(0.2057)
Investment	0.1720	(0.1394)	0.0557	(0.0700)	-0.1597	(0.1841)
Share R&D expenses	-0.0074	(0.7053)	0.0959	(0.1328)	-0.4147	(0.5952)
log(Leverage)	-0.0616	(0.0665)	0.0013	(0.0274)	0.0517	(0.0831)
Capital intensity	-0.0018*	(0.0010)	-0.0001	(0.0001)	0.0018*	(0.0011)
Industry (ref. service)						
Agriculture	0.0049	(1.2675)	0.6493	(0.8102)	2.7605*	(1.6511)
Finance, insurance and information	0.3872	(0.5163)	0.7487*	(0.4105)	0.0159	(0.4376)
Manufacturing and mining	0.1090	(0.4805)	0.6968	(0.4723)	-0.0160	(0.3801)
Retail, trade and logistics	0.7348	(0.5142)	0.5084	(0.3659)	0.0382	(0.5089)
Baseline state characteristics						
GDP Growth	0.0969	(0.2023)	-0.0131	(0.0969)	0.2738	(0.2434)
Right-to-work law	-0.0052	(0.0312)	-0.0092	(0.0115)	0.0080	(0.0337)
Federal region[(a)] (ref. Region I)						
Region II	0.0704	(0.0700)	0.0422	(0.0380)	0.0319	(0.0486)
Region III	-0.0558	(0.0584)	0.0369	(0.0352)	-0.0411	(0.0388)
Region IV	-0.0041	(0.0586)	0.0494	(0.0362)	-0.0561	(0.0469)
Region V	-0.0117	(0.0575)	0.0437	(0.0374)	0.0293	(0.0385)
Region VI	0.0348	(0.0521)	0.0469	(0.0337)	-0.0800*	(0.0483)
Region VII	0.0728	(0.0572)	0.0572	(0.0366)	0.0171	(0.0454)
Region VIII	0.0850	(0.0598)	0.0372	(0.0293)	0.0281	(0.0561)
Region IX	0.0349	(0.0720)	0.0837*	(0.0474)	-0.0222	(0.0637)
Region X	0.1388	(0.0998)	0.0191	(0.0284)	0.1094	(0.0743)
Share of circuit states adopting WDL						
Public policy exception	0.4885***	(0.0905)	0.0188	(0.0246)	-0.0595	(0.0561)
Good faith exception	-0.1982	(0.1394)	0.1956**	(0.0818)	-0.0428	(0.1189)
Implied contract exception	-0.1820**	(0.0846)	-0.0363	(0.0224)	0.4064***	(0.0755)
No. of observations	603		1,122		683	
R^2 (adj.)	0.1147		0.0838		0.1417	

Note: Depicted are the effects of (i) changes in firm characteristics (state-level averages) between year $t-2$ and $t-1$ and (ii) state characteristics on the likelihood that a state adopts a wrongful discharge law in a given year t. States are excluded from the sample after they adopted the corresponding law. Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

[(a)] Region I: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont; Region II: New Jersey, New York; Region III: Delaware, Maryland, Pennsylvania, Virginia, West Virginia; Region IV: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee; Region V: Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin; Region VI: Arkansas, Louisiana, New Mexico, Oklahoma, Texas; Region VII: Iowa, Kansas, Missouri, Nebraska; Region VIII: Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming; Region IX: Arizona, California, Hawaii, Nevada; Region X: Alaska, Idaho, Oregon.

Market capitalization is the product of shares outstanding and share price, book equity is common equity, book to market equity ratio is the ratio of the former two items, profitability is the ratio of earnings over book equity, investment is the growth of total assets, the share of R%D expenses is the ratio of research and development expenses over total operating expenses, leverage is one minus the ratio of book equity over total assets, and capital intensity is measured as the ratio of total assets over sales.

Table 2: The impact of wrongful discharge laws on stock returns

	Dependent variable: annualized monthly returns		
	(1)	(2)	(3)
Public policy exception	0.0214**	0.0237**	0.0232**
	(0.0096)	(0.0102)	(0.0096)
Good faith exception	0.00020	-0.0160*	-0.0224**
	(0.0077)	(0.0094)	(0.0111)
Implied contract exception	0.0027	0.0049	0.0026
	(0.0089)	(0.0112)	(0.0122)
log(Market capitalization$_{t-1}$)			-0.0143***
			(0.0010)
log(Book-to-market equity ratio$_{t-1}$)			0.0780***
			(0.0034)
Investment$_{t-1}$			-0.0601***
			(0.0084)
Profitability$_{t-1}$			0.0500***
			(0.0094)
Market β			0.0516***
			(0.0046)
No. of observations (firm-months)	2,675,138	2,675,138	2,675,138
No. of firms	20,303	20,303	20,303
R^2 (adj.)	0.109	0.109	0.111
Control variables			
Time fixed effects	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes
Region-trend effects	No	Yes	Yes

Note: Standard errors in parentheses are clustered at the state level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level.
See Table 1 for data definitions.

Table 3: WDL variation on the intensive margin and alternative risk measures

	Dependent variable		
	Monthly returns (annualized)	**Monthly volatility**$^{(a)}$ (standardized)	**Sharpe ratio**$^{(b)}$
	(1)	(2)	(3)
Public policy exception (ref. not recognized)			
narrow interpretation (PP_{narrow})	0.0222**	-0.0042	0.0137*
	(0.0091)	(0.0224)	(0.0069)
broad interpretation (PP_{broad})	0.0305**	0.0104	0.0205**
	(0.0131)	(0.0372)	(0.0099)
Good faith exception (ref. not recognized)			
narrow interpretation (GF_{narrow})	0.0026	0.0389	-0.0142**
	(0.0075)	(0.0241)	(0.0068)
broad interpretation (GF_{broad})	-0.0248**	-0.0167	-0.0262**
	(0.0118)	(0.0231)	(0.0101)
$P-$value (equal coefficients)			
$\text{PP}_{narrow} = \text{PP}_{broad}$	0.429	0.533	0.434
$\text{GF}_{narrow} = \text{GF}_{broad}$	0.013	0.003	0.137
No. of observations (firm-months)	2,675,138	2,675,138	2,675,138
No. of firms	20,303	20,303	20,303
R^2 (adj.)	0.109	0.163	0.165
Control variables			
Time fixed effects	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes

Note: Depicted are the effects of following a narrow, respectively a broad interpretation of the public policy and good faith exception relative to the reference group of states not recognizing the corresponding exception. In all models, we additionally control for the recognition of the implied contract exception. Standard errors in parentheses are clustered at the state level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level.

$^{(a)}$ Monthly return standard deviation calculated based on daily returns, scaled to monthly level. Winsorized at the 1%- and 99%-quantile.

$^{(b)}$Calculated as the difference between the monthly return and the risk-free rate (from Kenneth French's website) divided by the monthly standard deviation (calculation as in a)). Winsorized at the 1%- and 99%-quantile.

Table 4: The impact of wrongful discharge laws on factors related to stock returns

	Dependent variable				
	Investment (1)	**Profitability** (2)	**Log(Market capitalization)** (3)	**Book-to-market equity ratio** (4)	**Leverage** (5)
Public policy exception (ref. not recognized)					
narrow interpretation (PP_{narrow})	-0.0008	0.0016	-0.0287	-0.0008	0.0053*
	(0.0080)	(0.0080)	(0.0504)	(0.0369)	(0.0029)
broad interpretation (PP_{broad})	-0.0107	-0.0079	-0.0636	0.0037	0.0176*
	(0.0122)	(0.0091)	(0.0699)	(0.0470)	(0.0100)
Good faith exception (ref. not recognized)					
narrow interpretation (GF_{narrow})	-0.0167**	-0.0105*	0.0280	0.0504	-0.0001
	(0.0081)	(0.0056)	(0.0583)	(0.0395)	(0.0075)
broad interpretation (GF_{broad})	0.0223***	0.0161***	0.0616*	-0.0266	-0.0094
	(0.0074)	(0.0051)	(0.0365)	(0.0340)	(0.0060)
No. of observations	230,855	230,855	230,855	230,855	230,855
No. of firms	20,303	20,303	20,303	20,303	20,303
$P-$value (equal coefficients)					
$PP_{narrow} = GF_{broad}$	0.278	0.134	0.497	0.894	0.227
$GF_{narrow} = GF_{broad}$	0.000	0.000	0.407	0.013	0.045
R^2 (adj.)	0.029	0.015	0.450	0.047	0.032
Control variables					
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes

Note: Depicted are the effects of following a narrow, respectively a broad interpretation of the public policy and good faith exception relative to the reference group of states not recognizing the corresponding exception. In all specifications, we additionally control for the recognition of the implied contract exception. Standard errors in parentheses are clustered at state level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level.
See Table 1 for data definitions.

Table 5: The impact of wrongful discharge laws on worker-firm interaction

	Dependent variable	
	Log(# employees) (1)	**Log(Wage per worker)** (2)
Public policy exception (ref. not recognized)		
narrow interpretation (PP_{narrow})	0.0088	-0.0137
	(0.0172)	(0.0119)
broad interpretation (PP_{broad})	-0.0048	-0.0114
	(0.0403)	(0.0229)
Good faith exception (ref. not recognized)		
narrow interpretation (GF_{narrow})	0.0206	0.0301*
	(0.0316)	(0.0178
broad interpretation (GF_{broad})	0.0060	0.0444*
	(0.0299)	(0.0229)
$P-$value (equal coefficients)		
$PP_{narrow} = PP_{broad}$	0.737	0.906
$GF_{narrow} = GF_{broad}$	0.632	0.433
No. of observations (firm-years)	218,518	38,856
No. of firms	19,557	3,970
R^2 (adj.)	0.159	0.735
Control variables		
Time fixed effects	Yes	Yes
Firm fixed effects	Yes	Yes

Note: Depicted are the effects of following a narrow, respectively a broad interpretation of the public policy and good faith exception relative to the reference group of states not recognizing the corresponding exception. In all models, we additionally control for the recognition of the implied contract exception. Standard errors in parentheses are clustered at state level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level.

Table 6: Cyclicality of labor share and WDLs

	Dependent variable: Labor share	
	(1)	(2)
GDP growth	-0.392***	-0.328***
	(0.0568)	(0.078)
GDP growth × public policy exception		-0.234**
		(0.097)
GDP growth × good faith exception		0.192**
		(0.096)
Public policy exception		0.018**
		(0.009)
Good faith exception		-0.011
		(0.011)
No. of observations (firm-years)	78,845	78,845
No. of firms	8,811	8,811
R^2 (adj.)	0.0133	0.0133
Control variables		
Time fixed effects	Yes	Yes
State fixed effects	Yes	Yes

Note: Labor share is calculated based on the imputation procedure proposed by Donangelo *et al.* (2019). In all models, we additionally control for the recognition of the implied contract exception. Standard errors in parentheses are clustered at firm level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level.

Table 7: Risk sharing in response to WDLs: components of labor share

	Δ Log(# employees)	**Δ Log(wage per worker)**
	(1)	(2)
Δ Log(Sales)	0.417***	0.066
	(0.024)	(0.074)
Δ Log(Sales) × Public policy exception	-0.041*	0.036
	(0.021)	(0.051)
Δ Log(Sales) × Good faith exception	-0.052**	0.093**
	(0.020)	(0.043)
Public policy exception	0.011***	-0.012*
	(0.004)	(0.006)
Good faith exception	-0.004	0.006
	(0.005)	(0.008)
No. of observations (firm-years)	191,386	34,362
No. of firms	17,673	3,503
R^2 (adj.)	0.181	0.026
Control variables		
Time fixed effects	Yes	Yes
Firm fixed effects	Yes	Yes

Note: In all models, we additionally control for the recognition of the implied contract exception. Standard errors in parentheses are clustered at state level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level.
"Wage per worker" is defined as the ratio of staff expenses per employees.

Table 8: The impact of wrongful discharge laws on the prevalence of variable compensation

	Dependent variable: salary includes variable component
	(1)
Public policy exception (ref. not recognized)	
narrow interpretation (PP_{narrow})	-0.0026
	(0.0039)
broad interpretation (PP_{broad})	-0.0181
	(0.0134)
Good faith exception (ref. not recognized)	
narrow interpretation (GF_{narrow})	0.0118
	(0.0098)
broad interpretation (GF_{broad})	0.0277***
	(0.0096)
No. of observations (worker-years)	278,918
$P-$value (equal coefficients)	
$PP_{narrow} = PP_{broad}$	0.238
$GF_{narrow} = GF_{broad}$	0.007
R^2 (adj.)	0.005
Control variables	
Time fixed effects	Yes
State fixed effects	Yes

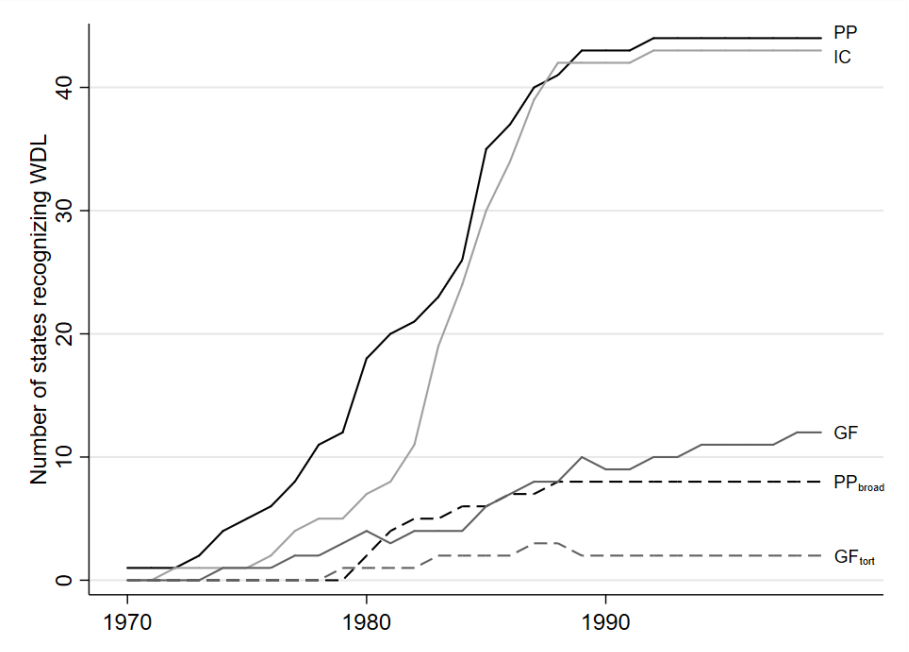
Note: Estimates based on PSID individual-level data. Depicted are the effects of following a narrow, respectively a broad interpretation of the public policy and good faith exception relative to the reference group of states not recognizing the corresponding exception. In all models, we additionally control for the recognition of the implied contract exception. Standard errors in parentheses are clustered at state level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level.

Table 9: Risk sharing in response to WDLs: operating leverage

	Δ Earnings before income and taxes in 1,000$		
		Book-to-market[(a)]	
	Full sample	≤median	>median
	(1)	(2)	(3)
Δ Log(Sales)	23.51***	15.64***	37.03***
	(4.81)	(3.14)	(9.06)
Δ Log(Sales) × Public policy exception	6.956	13.64**	-6.79
	(6.54)	(5.76)	(11.05)
Δ Log(Sales) × Good faith exception	-14.49**	-15.32**	-7.87
	(5.59)	(6.70)	(6.51)
Public policy exception	-0.08	-3.55	1.44
	(1.78)	(2.95)	(1.67)
Good faith exception	-0.27	0.20	1.92
	(2.59)	(6.11)	(2.76)
No. of observations (firm-years)	198,963	100,671	98,292
No. of firms	18,012	14,759	13,754
R^2 (adj.)	0.019	0.021	0.019
Control variables			
Time fixed effects	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes

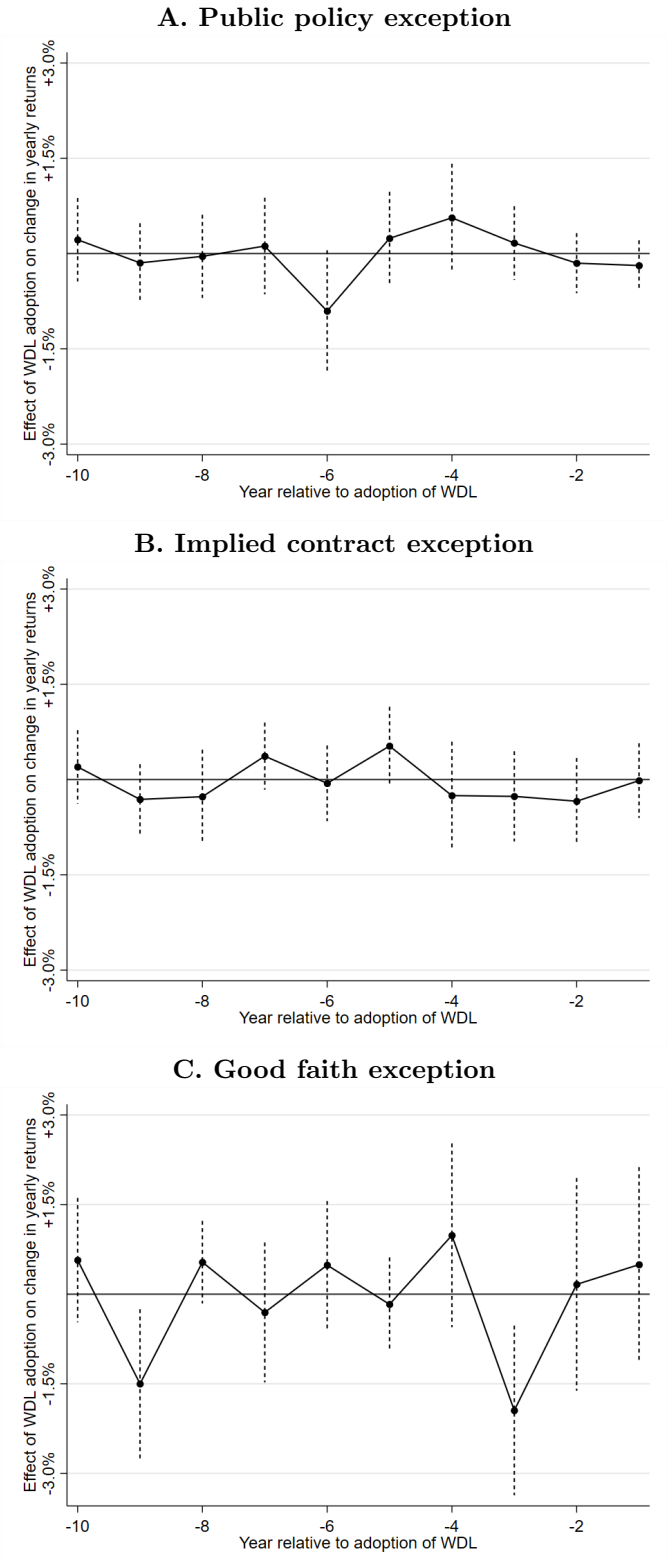
Note: In all models, we additionally control for the recognition of the implied contract exception. Standard errors in parentheses are clustered at state level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level.
[(a)]Depicted are separate estimates for firm-year observations with a book-to-market equity ratio in $t-1$ below/above the sample median.

Figure 1: Adoption of wrongful discharge laws by states over time



Note: Depicted are the number of states recognizing different wrongful discharge laws over the course of time following the classification of Dertouzos and Karoly (1992).
PP - public policy exception
PP_{broad} - broad interpretation of public policy exception
IC - implied contract exception
GF - good faith exception
GF_{tort} - good faith represents tort cause

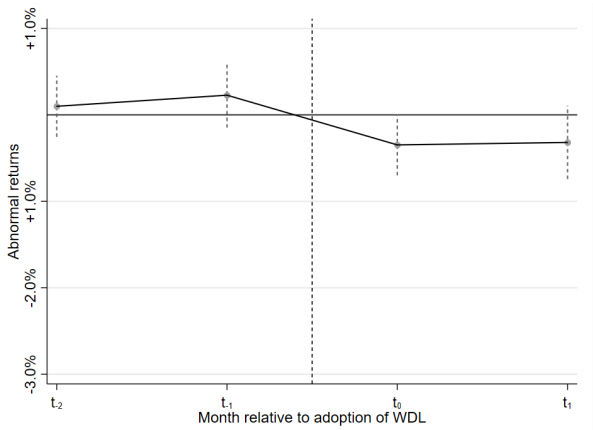
Figure 2: Change of yearly returns before WDL adoption by type of exception



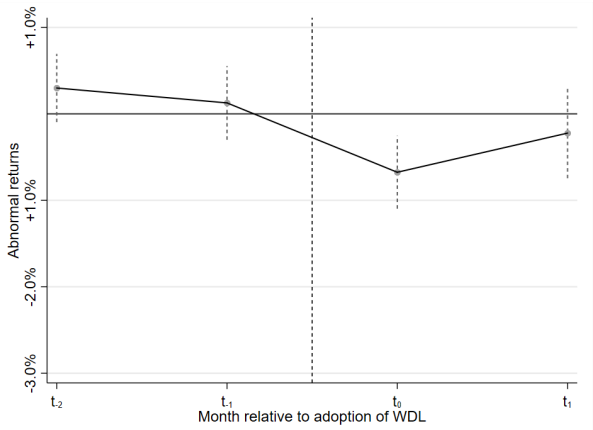
Note: Depicted are the effects of the adoption of a WDL on yearly changes of lagged returns on the state level for ten years prior to the ado

Figure 3: Abnormal returns around adoption of public policy exception

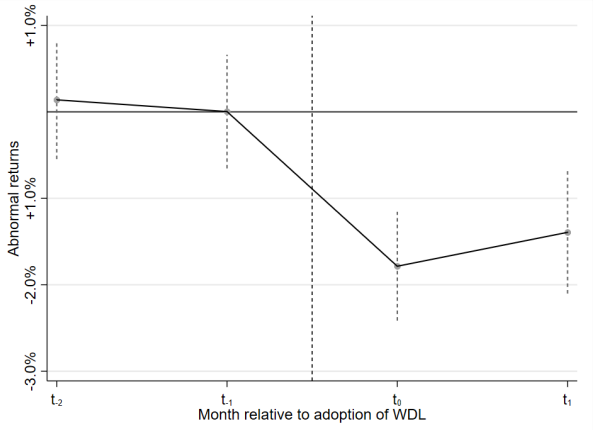
A. Any adoption of public policy exception



B. Adoption up until 1984

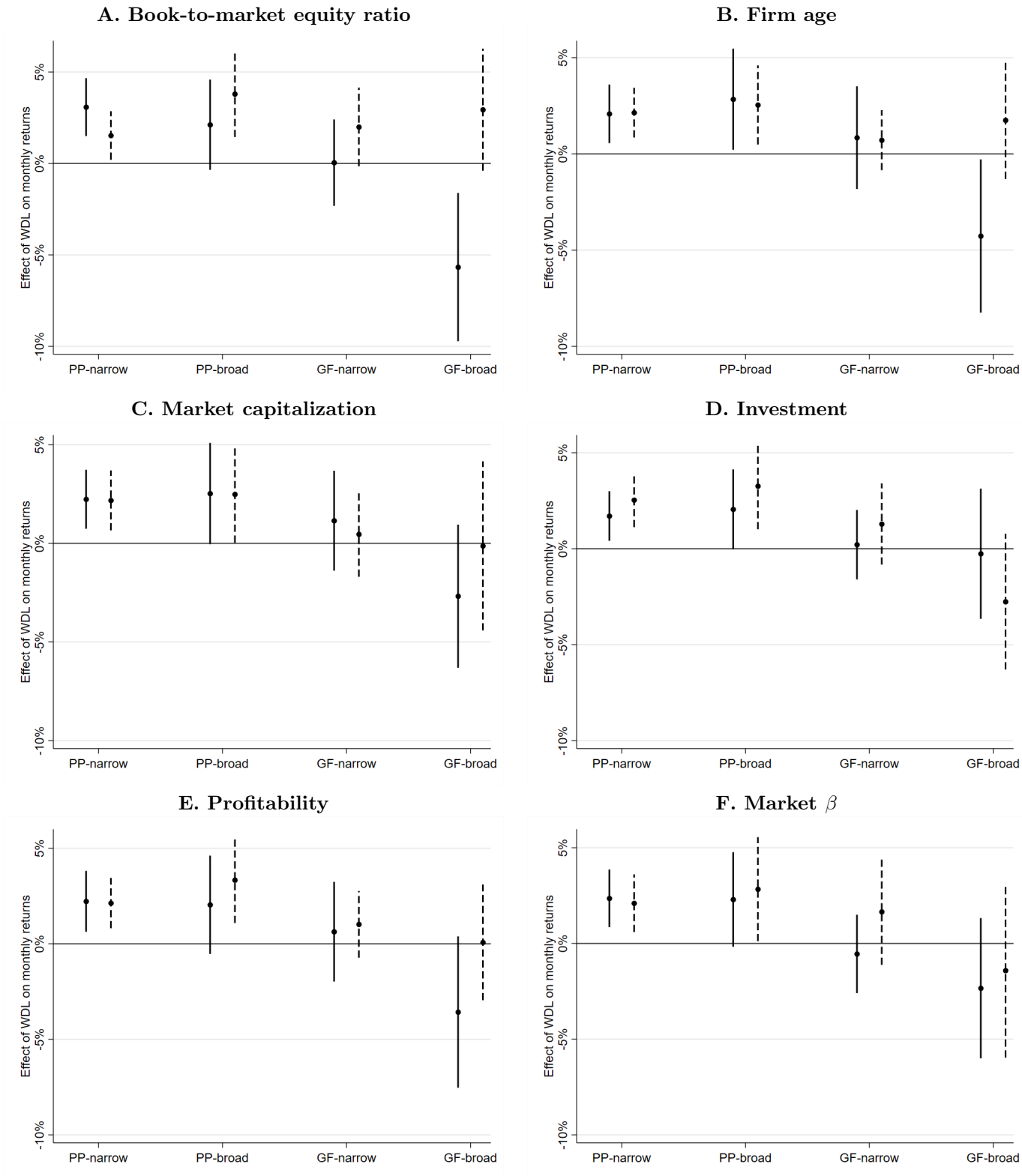


C. Right-to-work states only[(a)]



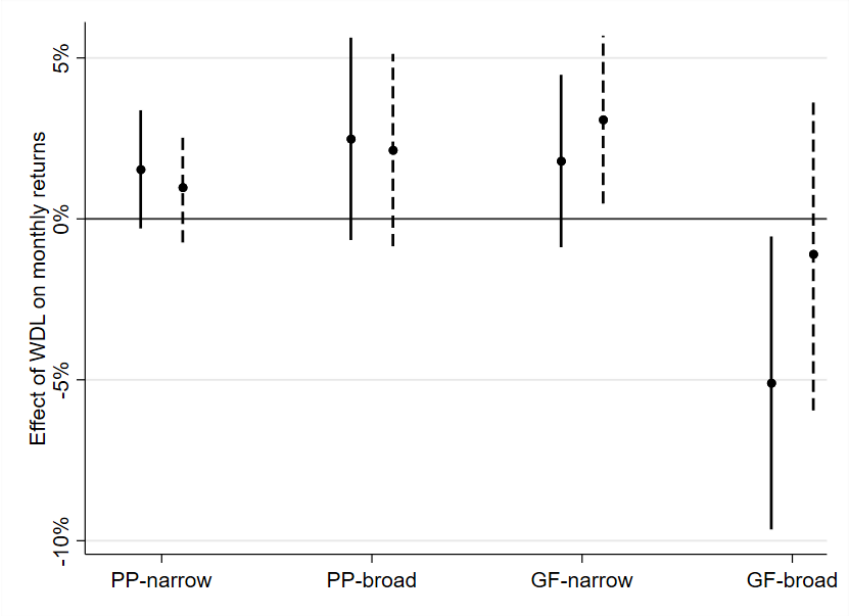
Note: Depicted are abnormal returns computed based on the Fama and French (1992) three-factor model in the months around a state's adoption of the public policy exception.
[(a)]The following states have passed right-to-work laws by the time of the adoption of the public policy exception: Alabama, Arkansas, Arizona, Florida, Georgia, Iowa, Kansas, Mississippi, North Carolina, North Dakota, Nebraska, Nevada, South Carolina, Tennessee, Texas, Utah, Virgina and Wyoming.

Figure 4: Heterogeneous effects of WDLs by firm characteristics



Note: Depicted are heterogeneous effects of wrongful discharge laws on annualized monthly returns by various firm characteristics including the corresponding 90% confidence intervals.

Figure 5: Heterogeneous effects of WDLs by firms' labor share



Note: Depicted are heterogeneous effects of wrongful discharge laws on annualized monthly returns by the firm-level labor share the corresponding 90% confidence intervals.

A Appendix

A.1 Legal Appendix

State	Public Policy	Implied Contract	Good Faith
Alabama		Hoffman-LaRoche v. Campbell, 512 So. 2d 725 (Ala. 1987 July).	
Alaska	Knight v. American Guard & Alert, 714 P.2d 788 (Alaska 1986 February).	Eales v. Tanana Valley Medical Surgical Group, 663 P.2d 958 (Alaska 1983 May).	Mitford v. Lasala, 666 P.2d 1000 (Alaska 1983 May).
Arizona	Wagenseller v. Scottsdale Memorial Hosp., 710 P.2d 1025 (Ariz. 1985 June).	Leikvold v. Valley View Community Hosp., 688 P.2d 201 (Ariz. App. 1983 June), vacated, 688 P.2d 170 (Ariz. 1984).	Wagenseller v. Scottsdale Memorial Hosp., 710 P.2d 1025 (Ariz. 1985 June).
Arkansas	MBM Co. v. Counce, 596 S.W.2d 681 (Ark. 1980 March).	Griffen v. Erickson, 642 S.W.2d 308 (Ark. 1982 November).	
California	Petermann v. Int'l Brotherhood of Teamsters, 344 P.2d 25 (Cal. Ct. App. 1959 September). *Broad*: June 1980 (Tameny v Atlantic Richfield)	Drzewiecki v. H&R Block, 101 Cal. Rptr. 169 (Cal. Ct. App. 1972 March).	Cleary v. American Airlines, 168 Cal. Rptr. 722 (Cal. Ct. App. 1980 October), modified to remove tort damages by Foley v. Interactive Data Corp., 765 P.2d 373 (Cal. 1988).*Broad*
Colorado	Winther v. DEC Int'l Inc., 625 F. Supp. 100 (D. Colo. 1985 September).	Brooks v. TWA, 574 F. Supp. 805 (D. Colo. 1983 October).	
Connecticut	Sheets v. Teddy's Frosted Foods, 427 A.2d 385 (Conn. 1980 January).	Magnan v. Anaconda Indus., 479 A.2d 781 (Conn. 1984 July).	Magnan v. Anaconda Indus., 429 A.2d 492 (Conn. Super. Ct. 1980 June)
Delaware	Henze v. Alloy Surfaces (Del. 1992 March).		Merril v. Crothall-American, 606 A.2d 96 (Del. Sup. Ct. 1992 April).
Florida			
Georgia			
Hawaii	Parnar v. Americana hotels, 652 P.2d 625 (Haw. 1982 October). *Broad*	Kinoshita v. Canadian Pacific Airlines, 724 P.2d 110 (Haw. 1986 August).	

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Idaho	Jackson v. Minidoka Irrigation District, 563 P.2d 54 (Idaho 1977 April).	Jackson v. Minidoka, 563 P.2d 54 (Idaho 1977 April).	Metcalf v. Intermountain Gas. Co., 778 P.2d 744 (Idaho 1989 August).
Illinois	Kelsay v. Motorola, 384 N.E.2d 353 (Ill. 1978 December).*Broad*: April 1981 (Palmateer v. International Harvester Co.)	Carter v. Kaskaskia Community Action Agency, 322 N.E.2d 574 (Ill. App. Ct. 1974 December).	
Indiana	Frampton v. Central Indiana Gas Co, 297 N.E.2d 425 (Ind. 1973 May).	Romak v. Public Service Co., 511 N.E.2d 1024 (Ind. 1987 August).	
Iowa	Northrup v. Farmland Ind., 372 N.W.2d 193 (Iowa 1985 July).	Young v. Cedar County Work Activity Center, 418 N.W.2d 844 (Iowa 1987 November).	
Kansas	Murphy v. City of Topeka, 630 P.2d 186 (Kan. Ct. App. 1981 June).*Broad*: March 1988 (Palmer v. Brown)	Allegri v. Providence-St. Margaret Health Center, 684 P.2d 1031 (Kan. Ct. App. 1984 August).	
Kentucky	Firestone Textile Co. v. Meadows, 666 S.W.2d 730 (Ky. 1983 November).	Shah v. American Synthetic Rubber Co., 655 S.W.2d 489 (Ky. 1983 August).	
Louisiana			Barbe v. A.A. Harmon Co, 705 So. 2d 1210 (La. 1998 January).
Maine		Terrio v. Millinocket Community Hospital, 379 A.2d 135 (Me. 1977 November).	
Maryland	Adler v. American Standard Corp., 432 A.2d 464 (Md. 1981 July).	Staggs v. Blue Cross, 486 A.2d 798 (Md. Ct. Spec. App.), cert. denied, 493 A.2d 349 (Md. 1985 January).	
Massachusetts	McKinney v. National Dairy Council, 491 F. Supp. 1108 (D. Mass. 1980 May).	Hobson v. McLean Hospital Corp., 522 N.E.2d 975 (Mass. 1988 May).	Fortune v. National Cash Register Co., 364 N.E.2d 1251 (Mass. 1977 July).
Michigan	Sventko v. Kroger, 245 N.W.2d 151 (Mich. 1976 June).	Toussaint v. Blue Cross, 292 N.W.2d 880 (Mich. 1980 June).	

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Minnesota	Phipps v. Clark Oil & Refining Co., 396 N.W.2d 588 (Minn. Ct. App. 1986 November), aff'd 408 N.W.2d 569 (Minn. 1987).	Pine River State Bank v. Mettille, 333 N.W.2d 622 (Minn. 1983 April).	
Mississippi	Laws v. Aetna Finance Co., 667 F. Supp. 342 (N.D. Miss. 1987 July).	Bobbitt v. The Orchard, Ltd., 603 So. 2d 356 (Miss. 1992 June).	
Missouri	Boyle v. Vista Eyewear, 700 S.W.2d 859 (Mo. Ct. App. 1985 November).	Arie v. Intertherm, 648 S.W.2d 142 (Mo. Ct. App. 1983 January).	
Montana	Keneally v. Sterling Orgain, 606 P.2d 127 (Mont. 1980 January).	Montana Wrongful Discharge from Employment Act, Mont. Code Ann. 392-901 to 914 (1987 June).	Gates v. Life of Montana Insurance Co., 638 P.2d 1063 (Mont. 1982 January). *Broad:* August 1983 (Gates v. Life of Montana Ins. Co., 668 P.2d 213)
Nebraska	Ambroz v. Cornhusker Square, 416 N.W.2d 510 (Neb. 1987 November).	Morris v. Lutheran Medical Center, 340 N.W.2d 388 (Neb. 1983 November).	
Nevada	Hansen v. Harrah's, 675 P.2d 394 (Nev. 1984 January).	Southwest Gas Corp. v. Ahmad, 668 P.2d 261 (Nev. 1983 August).	K-Mart Corp. v. Ponsock, 732 P.2d 1364 (Nev. 1987 February).*Broad*
New Hampshire	Monge v. Beebe Rubber Co., 316 A.2d 549 (N.H. 1974 February) (only contract damages); *Broad*: October 1981 (Cloutier v. A&P)	Panto v. Moore Business Forms, 547 A.2d 260 (N.H. 1988 August).	Monge v. Beebe Rubber Co., 316 A.2d 549 (N.H. 1974 February).
New Jersey	Pierce v. Ortho Pharm. Corp., 417 A.2d 505 (N.J. 1980 July). *Broad*	Woolley v. Hoffmann-LaRoche, Inc., 491 A.2d 1257 (N.J. 1985 May).	
New Mexico	Vigil v. Arzola, 699 P.2d 613 (N.M. Ct. App. 1983 July), reversed on other grounds, 687 P.2d 1038 (N.M. 1984).	Forrester v. Parker, 606 P.2d 191 (N.M. 1980 February).	

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New York	Chin v. AT&T, 96 Misc. 2d 1070, 410 N.Y.S.2d 737 (1978) (contract damages only), until the public policy exception was clearly rejected by NY's highest court in Murphy v. American Home Products Corp., 448 N.E.2d 86 (N.Y. 1983 March).	Weiner v. McGraw-Hill, Inc., 443 N.E.2d 441(N.Y. 1982 November).	
North Carolina	Sides v. Duke Univ., 328 S.E.2d 818 (N.C. Ct. App. 1985 May).		
North Dakota	Krein v. Marian Manor Nursing Home, 415 N.W.2d 793 (N.D. 1987 November).	Hammond v. North Dakota State Personnel Bd., 345 N.W.2d 359 (N.D. 1984 February).	
Ohio	Adopted, Goodspeed v. Airborne Express, Inc., 121 L.R.R.M. (BNA) 3216 (Ohio Ct. App. 1985 February); rejected, Phung v. Waste Management Inc., 491 N.E.2d 1114 (Ohio 1986 April); adopted, Greely v. Miami Valley Maintenance Contractors, Inc., 551 N.E.2d 981 (Ohio 1990 March).	West v. Roadway Express, In.c, 115 L.R.R.M. (BNA) 4553 (Ohio Ct. App. 1982 April).	
Oklahoma	Burk v. K-Mart Corp., 770 P.2d 24 (Okla. 1989 February).	Langdon v. Saga Corp., 569 P.2d 524 (Okla. Ct. App. 1976 December).	adopted, Hall v. Farmers Insurance Exchange, 713 P.2d 1027 (Okla. 1985 May); rejected, Burk v. KMart Corp., 770 P.2d 24 (Okla. 1989 February).
Oregon	Nees v. Hocks, 536 P.2d 512 (1975 June).	Yartzoff v. Democrat-Herald Publ. Co., 576 P.2d 356 (Ore. 1978 March).	
Pennsylvania	Geary v. United States Steel Corp., 319 A.2d 174 (Pa. 1974 March).		
Rhode Island	Volino v. General Dynamics, 539 A.2d 531 (R.I. 1988 April).		

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South Carolina	Ludwick v. This Minute of Carolina, Inc., 337 S.E.2d 213 (S.C. 1985 November).	Small v. Springs Industries, Inc., 357 S.E.2d 452 (S.C. 1987 June).	
South Dakota	Tombollo v. Dunn, 342 N.W.2d 23 (S.D. 1984 January).	Osterkamp v. Alkota Mfg, Inc., 332 N.W.2d 275 (S.D. 1983 April)	
Tennessee	Clanton v. Clain-Sloan Co., 677 S.W.2d 441 (Tenn. 1984 August).	Hamby v. Genesco Inc., 627 S.W.2d 373 (Tenn. Ct. App. 1981 November).	
Texas	Sabine Pilot Serv. Inc. v. Hauck, 672 S.W.2d 322 (Tex. Civ. App. 1984 June), affirmed, 687 S.W.2d 733 (Tex. 1985).	Johnson v. Ford Motor Co., 690 S.W.2d 90 (Tex. Civ. App. 1985 April).	
Utah	Berube v. Fashion Centre, 771 P.2d 1033 (Utah 1989 March).	Rose v. Allied Development, 719 P.2d 83 (Utah 1986 May).	
Vermont	Jones v. Keough, 409 A.2d 581 (Vt. 1979 November). *Broad*: September 1986 (Payne v. Rozendaal)	Sherman v. Rutland Hospital, Inc. 500 A.2d 230 (Vt. 1985 August).	
Virginia	Bowman v. State Bank of Keysville, 331 S.E.2d 797 (Va. 1985 June).	Frazier v. Colonial Williamsburg Foundation, 574 F. Supp. 318 (E.D. Va. 1983 September).	
Washington	Roberts v. Atlantic Richfield Co., 568 P.2d 764 (Wash. 1977 August).	Roberts v. Atlantic Richfield Co., 568 P.2d 764 (Wash. 1977 August).	
West Virginia	Harless v. First National Bank, 246 S.E.2d 270 (W. Va. 1978 July).*Broad:* July 1984 (Cordle v. General Hugh Mercer Corp)	Cook v. Heck's Inc., 342 S.E.2d 453 (W. Va. 1986 April).	
Wisconsin	Ward v. Frito-Lay, Inc., 290 N.W.2d 536 (Wis. Ct. App. 1980 January).	Ferraro v. Koelsch, 368 N.W.2d 666 (Wis. 1985 June).	
Wyoming	Allen v. Safeway Stores, Inc., 699 P.2d 277 (Wyo. 1985 May).	Mobil Coal Producing Inc., v. Parks, 704 P.2d 702 (Wyo. 1985 August).	Wilder v. Cody Country Chamber of Commerce, 868 P.2d 211 (Wyo. 1994 January).

Source: Autor *et al.* (2003) and Dertouzos and Karoly (1992).

A.2 Sensitivity Analysis

We estimate three additional specifications to test the sensitivity of our results. The results are presented in Table A.2

(i). We only exploit within-firm variation by accounting for firm fixed effects (see column 2). This is arguably a more conservative specification as the effect of the exception to at will is only identified based on within-firm variation for firms who are in our sample before and after the corresponding law has been recognized. It should be noted that, in contrast to the baseline specification, a model with firm fixed effects captures only the 'local' effect of WDLs for firms existing before and after the adoption of the law. However, from an investor's perspective all stocks that are available at a given point in time should be relevant and therefore only a model without firm fixed effects allows us to identify the 'total' effect of WDLs on the allocation of risk.

(ii). We utilize alternative location information as used in Bai *et al.* (2020) (see column 3). We thank Matthew Serfling's for making the data available on his website. Compustat provides only the most recent headquarters locations. This should bias our results towards the null of no effect. Analogously to the argument in Serfling (2016) and Acharya *et al.* (2014), if a firm is coded as not being located in a PP/GF/IC jurisdiction, the effect of the adoption of this law would be reduced, as the firm's returns policies and discount rates would change despite the supposed absence of the law. Similarly, if a firm is coded as being located in a state that does recognize PP/GF/IC, the firm would fail to appear responsive to the law.

We use the data without firms that move from one state to another because it is unclear how much of their actual operation moves to the new headquarter state.

Our results are more pronounced with the Bai *et al.* data but we continue working with Compustat as the more established database.

(iii). We consider a shorter observation window of +/-5 years around the adoption of WDLs (see column 4). This addresses concerns that the long observation window

in our specification may give rise to potential endogeneity issues. Since states may adopt several WDLs over the course of time, we consider a time period ranging from five years before the first passage of a WDL up until five years after the last passage. Further, we exclude all states not adopting any WDL.

Table A.3 shows the effect of WDLs in stock returns when additionally controlling for firms' financial leverage (see column 2).

A.3 Additional Tables and Figures

Table A.2: Sensitivity analysis: state vs. firm fixed effects, location data and sample period

	Dependent variable: annualized monthly returns			
	(1)	(2)	(3)	(4)
Public policy exception	0.0237**	0.0146***	0.0299***	0.0313**
	(0.0102)	(0.0054)	(0.0110)	(0.0148)
Good faith exception	-0.0160*	-0.0102	-0.0204*	-0.0044
	(0.0094)	(0.0094)	(0.0115)	(0.0191)
Implied contract exception	0.0049	0.0103	0.0007	0.0121
	(0.0112)	(0.0063)	(0.0117)	(0.0140)
No. of observations (firm-months)	2,675,138	2,675,138	2,103,074	794,458
No. of firms	20,303	20,303	17,355	7,975
R^2 (adj.)	0.109	0.103	0.110	0.154
Control variables				
Time fixed effects	Yes	Yes	Yes	Yes
State fixed effects	Yes	No	Yes	Yes
Region-trend effects	Yes	No	Yes	Yes
Firm fixed effects	No	Yes	No	No
Alternative location information	No	No	Yes	No
Alternative observation period	No	No	No	Yes

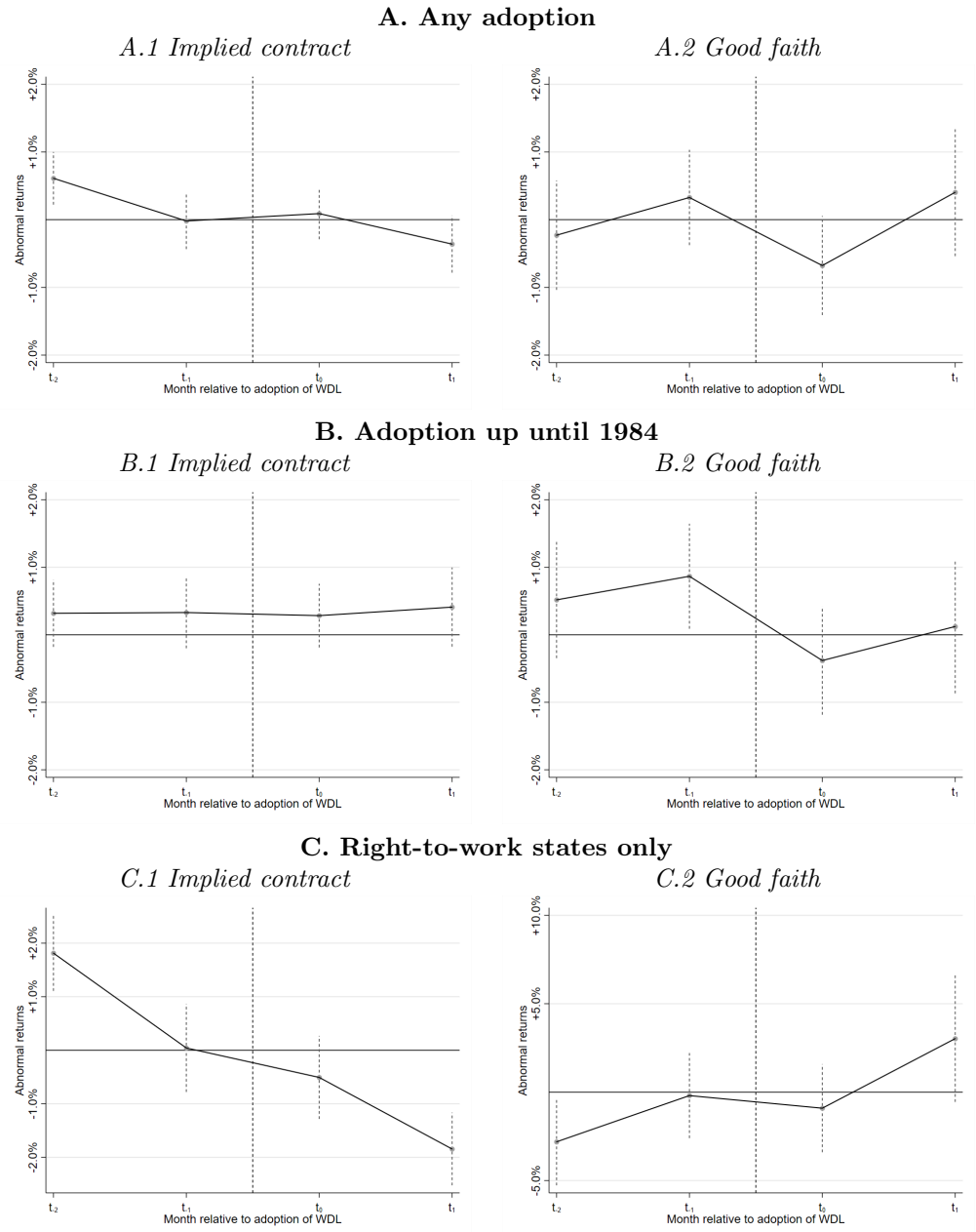
Note: Standard errors in parentheses are clustered at state-month level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level

Table A.3: Sensitivity analysis: accounting for financial leverage

	Dependent variable: annualized monthly returns	
	(1)	(2)
Public policy exception	0.0232**	0.0223**
	(0.0096)	(0.0096)
Good faith exception	-0.0224**	-0.0218*
	(0.0111)	(0.0110)
Implied contract exception	0.0026	0.0018
	(0.0122)	(0.0121)
log(Market capitalization$_{t-1}$)	-0.0143***	-0.0156***
	(0.0011)	(0.0011)
log(Book-to-market equity ratio$_{t-1}$)	0.0780***	0.0755***
	(0.0034)	(0.0034)
Investment$_{t-1}$	-0.0601***	-0.0605***
	(0.0084)	(0.0084)
Profitability$_{t-1}$	0.0500***	0.0489***
	(0.0094)	(0.0095)
Market β	0.0516***	0.0521***
	(0.0046)	(0.0046)
log(Leverage$_{t-1}$)		0.0398***
		(0.0047)
No. of observations (firm-months)	2,675,138	2,675,138
No. of firms	20,303	20,303
R^2 (adj.)	0.111	0.111
Control variables		
Time fixed effects	Yes	Yes
State fixed effects	Yes	Yes
Region-trend effects	Yes	Yes

Note: Standard errors in parentheses are clustered at the state level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level.

Figure A.1: Abnormal returns around adoption of implied contract and good faith exception



Note: Depicted are abnormal returns computed based on residuals from the Fama and French (1992) three-factor model in the months around a state's first adoption of a wrongful discharge law.