Risk Sharing Within and Outside the Firm: The Disparate Effects of Employment Protection on Expected Stock Returns

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Abstract

We study the interrelation between two types of risk sharing – within the firm and on capital markets – by analyzing the effect of wrongful-discharge laws (WDLs) on stock returns. Consistent with rational, risk-based pricing, the effect on returns is linked to how shareholders and workers share systematic risk via distinct channels of employment and wage flexibility. We find disparate effects depending on the degree to which the respective law alleviates agency frictions. In states where WDLs prohibit employers from holding up employees by firing them, workers accept more variable compensation such that they bear more firm risk and expected stock returns are lower. Legislation that raises firing costs without addressing agency frictions only makes employment more sticky such that workers bear less firm risk and expected returns are higher.

Keywords: Employment protection, expected stock returns, risk sharing, agency frictions

JEL codes: G12, J38, G38

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1 Introduction

Firms can provide income insurance to their employees. Intuitively, when wages and employment are stable across business conditions, workers' income is safe relative to firms' profits. Crucially, this risk sharing between capital owners and workers (within the firm) is interconnected with risk sharing on capital markets (outside the firm). The more workers' income is insured, the riskier securities issued by the firm are. Conversely, risk sharing within the firm is influenced by how risks are shared on capital markets. For instance, firms can insure truly idiosyncratic risk at no cost because it does not affect their capital costs. In contrast, systematic risk commands return premia on capital markets and firms should be more reluctant to insure such risk for their workers. Against this backdrop, wage and employment rigidities can have substantial effects on the allocation of risk, both within the firm and on capital markets.

We study the link between these layers of risk sharing by analyzing the effects of wrongful-discharge laws (WDLs) on both, firm-level measures of risk sharing and stock returns. WDLs, as a form of employment protection, exogenously make employment more rigid by reducing workers' risk of being displaced but can also affect wage rigidities by alleviating agency frictions arising from incomplete contracts. We document disparate effects of WDLs on firm-level risk sharing via these two distinct channels. Crucially, we show that these within-firm effects also translate into expected returns, the price for risk sharing outside the firm. Thereby, we provide conclusive, model-free evidence that intra-firm risk sharing is an important driver of capital market risk premia and that the insurance of systematic risk by firms is indeed widespread. While labor market frictions have long been suggested to play an important role for capital market outcomes (Favilukis and Lin, 2016b,a; Donangelo *et al.*, 2019), we follow a more holistic approach by considering the interrelation between micro-level within-firm and market outcomes. This allows us to establish employment and wage rigidities as disparate transmission channels of firm risk and to highlight the role of agency frictions for both, within-firm risk allocation and market risk premia.

Bearing firm risk needs to be compensated – either by higher expected excess returns for shareholders on capital markets or by higher (expected) wages for workers inside the firm. While it is efficient to allocate *idiosyncratic* risk to capital markets (where it does not command risk premia), workers may optimally bear at least some of the firm risk,

e.g. because it aligns incentives or perhaps even because they demand a lower premium when bearing *systematic* risk.[1]

WDLs can affect this within-firm risk allocation through different channels. On the one hand, the *employment channel* captures how easy it is for firms to pass on systematic risk to workers by firing them (Pissarides, 2001). For instance, when firms' sales drop in a recession, it is harder to reduce costs by firing workers when employment protection is in place. This may be partly absorbed by lower wages. However, if wages are not fully elastic, as is suggested by empirical evidence (see, e.g., Haefke *et al.*, 2013), this should also affect capital market outcomes such that shareholders bear more risk and should demand a higher compensation in form of expected stock returns (see e.g. Belo *et al.*, 2014). On the other hand, employment protection could make wages more *flexible* (henceforth denoted as the *wage channel*). For instance, when contracts are incomplete, WDLs that 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 stock returns. The relative magnitude of the employment and the wage channel effects is an open question, and it is not clear to what extent firms actually insure workers against systematic risk (which commands risk premia). Hence, it is a priori not obvious how employment protection affects intra-firm risk sharing and expected returns on the stock market.

Our research design exploits the natural experiment created by the passage of WDLs in US states since the 1970s in order to identify the effects of employment protection on risk sharing and firm-level stock returns. WDLs are common law exceptions to the otherwise default employment-at-will doctrine. They increase (expected) firing costs because firms are more likely 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 our purposes. First, the passage of these laws is typically motivated by juridical arguments (Walsh and Schwarz, 1996), which are independent of firms' capital

[1] There are several reasons why workers may demand lower risk premia than shareholders. For instance, workers may be better informed about the firm than capital market investors to whom the firm remains opaque. Moreover, it could be that workers are more optimistic about the firm's prospects or gain instantaneous utility from working for a specific firm, e.g., because they have an emotional attachment. Conditional on the availability of capital market funding, risk bearing by workers may be particularly valuable to firms. For instance, recent findings by Efing *et al.* (2021) suggest that European banks used variable compensation during the global financial crisis for risk sharing purposes.

costs. In combination with the staggered adoption of WDLs across US states, this allows us to identify their effects independently of overall time trends or unobserved confounders associated with risk sharing. To study the two layers of risk sharing, we consider measures of within-firm risk sharing (using compensation and employment data) and stock returns as an outcome of risk sharing outside the firm. Second, our setting enables us to explicitly study the distinct channels of intra-firm risk sharing. This is because there are different kinds of WDLs which – as we show within our study – differ with respect to how they relate to the wage and employment channels.

First, the *public policy* (PP) exception protects workers against discharges that undermine a state's public policy. For instance, it gives workers grounds to sue their employers when they have been fired for filing workers' compensation claims or performing jury duty. Irrespective of whether there was indeed a violation of the PP exception, the recognition of PP raises firing costs, thereby hindering firms from optimally adjusting their workforce in response to (systematic) shocks such as a recession. We find that, when PP is in place, firm-level employment is less sensitive to changes in sales and firm-level labor shares are more countercyclical. This suggests that shareholders indeed bear more firm risk. The increased difficulty of passing on systematic shocks to employees via the employment channel is also reflected in stock returns. In states recognizing the PP exception, average annual stock returns by about 2% - 2.5% higher than in states where PP is not in place. The findings are consistent with capital owners bearing more systematic, i.e. priced risk in PP jurisdictions.

Second, the *good faith* (GF) exception prohibits employers from firing workers by acting in bad faith. This too makes it harder to pass on risk by firing employees. However, GF also explicitly addresses bad-faith actions, which are typically associated with incomplete contracts (Bagchi, 2003). It limits employers' ability to hold up employees by firing them, e.g., to deprive them of promised rewards, bonus payments or unvested stock options. Hence, GF is likely to also operate through the wage channel since workers who are protected from holdup may accept variable compensation more often and thereby bear more firm risk. Our results support this idea. While firm-level employment reacts less, wages react more strongly to changes in sales when GF is in place. Moreover, firms in GF jurisdictions are more likely to compensate workers with stock options and the alleviation of wage rigidities leads to a net effect of less countercyclical firm-level labor

shares. We provide further evidence that GF affects risk sharing through the wage channel by analyzing a representative sample of households. We show that the likelihood that workers' wages contain variable components increases after the adoption of GF. This is also reflected in stock returns, which are on average lower by about 1.5 to two percent when GF is in place, suggesting that shareholders bear less systematic risk. The effect is particularly pronounced for growth firms in which contractual incompleteness is arguably more prevalent and risk bearing by workers is more efficient.

Altogether we provide conclusive evidence that WDLs affect the allocation of systematic risk. In general, employment is less sensitive to changes in sales when WDLs are in place, which implies ceteris paribus that shareholders bear more firm risk. Both PP and GF affect risk sharing through such an employment channel. However, it turns out that only GF also features substantial wage channel effects, presumably because its design prevents holdup as an instance of bad faith. This encourages workers to accept variable compensation more frequently and hence to bear more firm risk. The net effects are such that workers bear less risk when PP is in place, while the opposite is true for GF. Using that firms' risks are reflected in their discount rates, we provide conclusive evidence by showing that the disparate effects on intra-firm risk sharing are reflected in stock returns. Consistent with rational, risk-based pricing, we find that average returns decrease (increase) for legal settings in which workers bear more (less) of the firm's systematic risk.

Our study makes several important contributions to the literature on the nexus between labor and capital markets. In particular, we empirically establish a link between exogenous shifts in risk sharing within the firm (as surveyed by Guiso and Pistaferri, 2020; Pagano, 2020)[2] and stocks' discount rates on capital markets as an outcome of risk sharing outside the firm. By showing that such exogenous variation affects expected returns, we provide direct empirical evidence that firms generally insure systematic risk for their employees.[3] In contrast to previous studies (e.g. Guiso *et al.*, 2005), we rely on

[2]We also add an asset pricing perspective to an emerging strand of the corporate finance literature that highlights performance pay as a means of risk sharing (see, e.g. Efing *et al.*, 2021; Sockin and Sockin, 2021). Moreover, our paper relates to studies investigating the effects of WDLs on employment (see e.g. Autor *et al.*, 2006, 2007) and corporate finance (see e.g. Acharya *et al.*, 2014; Serfling, 2016; Bai *et al.*, 2020).

[3]A number of studies suggest that firms insure risk that can arguably be considered as systematic (see e.g. Agrawal and Matsa, 2013; Rettl *et al.*, 2018). However, by considering capital market outcomes, our paper provides the first conclusive evidence that firms indeed insure systematic risk.

stock returns as an all-encompassing, model-free measure of systematic risk. This echoes the theoretical arguments of Marfè (2017) and Bai and Zhang (2020), as well as Danthine and Donaldson (1992, 2002) and Danthine *et al.* (1992) that risk sharing between workers and capital owners leads to more volatile and procyclical dividends (which is also referred to as "labor leverage"). Favilukis and Lin (2016b,a) (and relatedly Favilukis *et al.* (2020) in the context of credit markets) show how wage rigidities and the complementarity of labor and capital in the production function create labor leverage, which helps explain aggregate asset pricing moments. Relatedly, Donangelo *et al.* (2019) argue that the firm-level labor share, defined as the ratio of labor compensation over firm value added, proxies for labor leverage and show that firms with high labor share have higher average stock returns.

Our empirical findings lend support to these ideas, but by providing explicit firm-level evidence we identify employment and wage rigidities as two disparate transmission channels between labor market frictions and capital market outcomes. Both channels are empirically relevant and, interestingly, employment protection can affect both channels with opposite effects on risk sharing. A key advantage of our approach is that we exploit credible exogenous variation in labor market frictions to elicit labor leverage. This is particularly important since proxies for labor leverage, such as the labor share, are endogenously determined by variables related to firm risk and discount rates.[4] Finally, it allows us to show that agency frictions arising from incomplete contracts have first-order effects on capital market outcomes.

2 Employment Protection and Risk Sharing

2.1 The Role of Labor Market Frictions

In the following, we outline how employment protection may affect risk sharing within the firm and how this in turn affects discount rates on capital markets. Within the firm, risk can be allocated via two distinct channels. First, employment protection obviously works through an *employment channel*. Stricter employment protection raises firing costs such

[4]Kehrig and Vincent (2021) 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). Hence, the overall relationship between labor leverage and returns is not clear from studying the labor share and returns.

that firms cannot as easily pass on firm risk to employees by discharging them. Because someone needs to assume the risk, shareholders should bear more of it.

Second, employment protection may affect the intra-firm risk allocation more indirectly through a *wage channel*, i.e. by affecting the flexibility of wages. The design of the law may encourage workers and firms to enter a contract with more variable compensation. This applies in particular to the case of incomplete contracts where employees face an especially high risk of being held up by their employer (see e.g. Grossman and Hart, 1986; Aghion and Tirole, 1994; Hart, 1995). For example, employers may deprive workers of (implicitly) promised bonus payments, non-vested stock options or other variable parts of compensation by discharging their employees. In anticipation of this behavior, workers may refuse to accept variable compensation in the first place. Even if firms promise to not exploit this situation, such a promise may not be credible in the absence of WDLs. A policy that prohibits firms from firing workers for such bad-faith reasons therefore has the potential to exogenously reduce holdup risk (Acharya *et al.*, 2014). Workers would consequently be more willing to accept variable compensation and thereby bear more firm risk. Relatedly, employment protection may encourage workers 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). This in turn raises their productivity and should lead to optimal contracts that involve more variable components (see among others Lazear, 2000; Dohmen and Falk, 2011) such that workers bear more firm risk, thereby reinforcing the suggested mechanism.[5] It should be noted that a shift in bargaining power may mitigate the aforementioned effects on wage flexibility (see e.g. Pagano, 2020). Empowered by increased employment protection, workers could bargain for less risky wages and thereby shift more firm risk to shareholders.

In principle, any form of employment protection can have both, employment and wage channel effects and it should be noted that neither channel operates in isolation. For instance, if wages were fully flexible, employers could pass on any risk to workers and shareholders would not be affected by the employment channel.

Considering stock returns as our ultimate variable of interest, allows us to identify the net effect of WDLs on shareholders' risk bearing through either channel. For the effect that changes in risk sharing have on discount rates (expected returns), the distinction between

[5]For a related argument regarding the retaining of high-skilled workers, see Xiaolan (2014).

systematic (priced) and idiosyncratic (unpriced) risk is crucial.[6] 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; Pagano, 2020, for an overview of these arguments). Purely idiosyncratic risk is a theoretical edge case but it is plausible that firms have an idea about the market prices of different types of risk. For instance the risk of low sales in a recession is likely understood to be systematic, i.e. it affects expected returns. When employment protection makes 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. Conversely, a higher wage flexibility reduces shareholders' risk and should therefore lead to lower expected returns.

2.2 Wrongful Discharge Laws and their Possible Effects

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 below, there are different types of exceptions to at-will employment that differ with respect to how they relate to the employment and wage channels discussed above. In the following, we (i) discuss the institutional details, (ii) outline the exact design of the policies and (iii) discuss their potential effects on risk sharing and consequently on expected returns.

From the 1970s onward, many US states have adopted wrongful discharge laws (WDLs) as exceptions to the employment-at-will doctrine, which states that employers can fire employees for any reason or no reason at all. 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). 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) in classifying states with respect to their recognition of WDLs based on precedent-setting cases.[7] An overview of the

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

[7] 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).

classification is given in Table A.1 and Figure 1 shows the number of states recognizing WDLs over the course of time.[8]

[Insert Figure 1 about here]

As highlighted by Dertouzos *et al.* (1988), the adoption of WDLs entailed a substantial financial risk for firms. Using data on jury verdicts from 120 trials in California between 1980 to 1986, they show that, on average, winning plaintiffs received over $650,000 in the initial trial award, with some settlements amounting to 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 noted by Edelman *et al.* (1992), the popular and business press paid great attention to the common-law exceptions, suggesting that capital owners were informed about the potential consequences.

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. On grounds of PP, workers can, for instance, 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. In total, 44 states recognized the public policy exception during the observation period.

By design, PP addresses incidents that are typically not a consequence of explicit firm policy. However, a disgruntled discharged employee can 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 extended understanding of public policy that encompasses a wide range of norms, including very vague ones, leading to considerable uncertainty.[9] This means that PP should affect risk sharing through the employment channel because it makes it more difficult to fire employees in response to (systematic) shocks. Like any form of employment protection, PP may also

[8]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.

[9]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).

have wage channel effects. However, PP does not explicitly address bad faith actions such as holdup, a risk that may have discouraged workers from accepting variable compensation in absence of the law. Therefore, it appears plausible that PP has, if at all, only relatively small effects on wage flexibility. Below, we test if this is indeed the case.

It remains an empirical question whether the public policy exception changes exposure to systematic and not just idiosyncratic risk and should therefore be priced. Note that it is not so much the character of PP claims that determines whether its introduction raises shareholders' 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, e.g., 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 during downturns when it matters most.

Good faith (GF) exception: The implied covenant of good faith and fair dealing, or good faith (GF) exception, which has been recognized by 12 states, prohibits employers from firing workers out of bad faith or malice. The opportunity for bad-faith actions often arises when contracts are incomplete (Bagchi, 2003). For instance, employers may discharge workers to deprive them of a promised benefit, e.g., bonuses, commissions or non-vested pension and stock options.[10] In GF jurisdictions, employers can sue their (former) employers when they were subject to such a holdup situation. Unlike PP, GF explicitly addresses holdup situations and should therefore alleviate agency problems arising from incomplete contracts (see Acharya *et al.*, 2014). Consequently, GF makes it more likely that workers accept variable compensation that would otherwise expose them to holdup situations. Moreover, with a lower risk of holdup, workers have stronger incentives to build up non-contractible (firm specific) human capital and their increased productivity should make variable compensation even more attractive. Accordingly, GF may also have wage channel effects resulting in workers bearing more firm risk.

[10]See for instance the leading case *Fortune v. National Cash Register Co.*, in which the salesman's contract specified his right to a bonus for equipment sales. After securing a large order, he was given a termination notice dated the first working day following the consummation of the purchase and subsequently sued the firm for his bonus payments (shortened recount from Brudney, 2010).

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

Implied contract (IC) exception: The 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 (Autor *et al.*, 2007). The implied contract exception has been recognized by 43 states in 1999.

The impact of the IC exception is limited for two reasons (see also Autor *et al.*, 2006). First, workers are unlikely to receive large settlements in implied-contract cases because they typically only lead to contractual rather than punitive or full compensatory claims (Dertouzos and Karoly, 1992). Second, employers can 'contract around' this exception and secure themselves against claims by adjusting employment contracts to state explicitly that all employment remains 'at will' (Autor *et al.*, 2007). It is therefore doubtful if IC should affect firms' systematic risk at all. Our analysis shows no clear effects of IC on either the employment or the wage channel. We nevertheless control for IC in our analyses and, for completeness, show the corresponding main results for the IC exception in Appendix A.2.

3 Empirical Setting and Data

To investigate the role of employment protection for risk sharing between shareholders and workers, we rely on information regarding the natural experiment created by the staggered passage of WDLs by various US states as provided by Autor *et al.* (2002) and Dertouzos and Karoly (1992). Our empirical analysis proceeds in two steps.

First, we investigate the connection between WDLs and risk sharing within firms. We employ yearly-frequency, firm-level data on the number of employees, wages, sales, shares reserved for employee compensation and firm-level labor shares (here we follow the im-

putation procedure proposed by Donangelo *et al.*, 2019). Our empirical analysis requires longitudinal information over a long time horizon covering periods before and after the adoption of WDLs that can be linked to stock market data. Therefore, we use firm-level data from the merged CRSP-Compustat database. Moreover, we make use of state-level data on GDP from the Bureau of Economic Analysis (BEA) and household-level data from the Panel Study of Income Dynamics (PSID), which provides a representative sample of households from 1968 to 2017. The household-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.

Second, we are interested in shareholders' risk compensation in the form of expected stock returns as ultimate measure of whether WDLs affected risk sharing between labor and capital. Data on stock prices, number of stocks outstanding and returns are provided by the Center for Research in Security Prices (CRSP). The final dataset covers a period from 1965 to 2019 and the main outcome variable, stock returns, is measured on a monthly basis. The last recognition of a WDL occurred in 1998 such that our dataset of stock returns is long enough to get an estimate of discount rates from realized stock returns. Overall, our sample comprises 2,675,138 firm-month observations accounting for 20,303 firms in total.

We identify the causal effect of WDLs on returns by exploiting the longitudinal nature of our data and comparing outcomes of adopting and non-adopting states at a given point in time (we discuss the exact econometric specification, potential limitations and extensions below). To this end, we match firms to states using the physical location of their headquarters as provided by Compustat. Obviously, many firms have workers in other states who are affected by the legal conditions applicable in the jurisdiction of their respective place of work. This could imply that we underestimate the magnitude of the true effect of WDLs.[11] In all specifications, standard errors are clustered at the state level.

As discussed by various scholars (see e.g. Autor *et al.*, 2006, 2007; Acharya *et al.*, 2014; Serfling, 2016, who studied the effects of WDLs from different perspectives), this setting is highly appealing since WDLs are common-law exceptions and their recognition is not based on legislative but on judicial decisions. Courts typically adopted WDLs to enhance

[11] Similarly, due to Compustat policy, the firm location observed in our data may sometimes not coincide with the location of the firm's headquarter at the time a WDL was introduced. Again, this should, if at all, bias our estimates towards zero. We test the robustness of our main results using alternative location data in Table A.7 in the appendix.

fairness between employers and employees, to assure consistency with established contract law principles or to follow other states that had already recognized WDLs (Walsh and Schwarz, 1996). This suggests that judges did not adopt exceptions to the at-will doctrine in response to changes in economic outcome variables, such as stock returns.

[Insert Table 1 about here]

Table 1 shows the determinants of the adoption of WDLs. To this end, we follow the approach of Acharya *et al.* (2014) and regress a dummy variable indicating whether a state adopts the PP or the GF exception in a given year t on different explanatory variables. Specifically, we consider state-level averages of economic variables that are typically related to discount rates, or risk sharing, respectively and construct averages over a four-year period prior to t in order to account for the fact that stock returns fluctuate substantially across periods. Most importantly, the average stock returns of firms in a given state do not predict the adoption of WDLs in year t (see Column 1 and Column 3). Moreover, other economic indicators associated with risk sharing and discount rates also have very little explanatory power for whether courts decide to recognize exemptions to the at-will doctrine (see Columns 2 and 4). However, the share of states in the federal region adopting the corresponding WDL is a strong predictor, which suggests that sentiments towards common-law exceptions rather than economic considerations drive the corresponding court decisions.

4 Risk Sharing Within the Firm

We start our empirical analysis by considering the connection between WDLs and intra-firm risk sharing. We follow the notion that the degree of risk sharing between workers and firms is reflected in the state-contingent allocation of payoffs. For instance, the compensation of a worker who bears relatively little firm risk should covary little with the firm's performance and vice versa. In this section, we establish a number of new empirical facts. First, we investigate how the elasticity of employment and wages with respect to firms' sales interacts with the recognition of WDLs. Second, we consider the prevalence of variable compensation as one particular form of intra-firm risk sharing. Finally, we study the cyclicality of firms' labor shares as a measure for the allocation of systematic risk.

4.1 Employment and Wage Flexibility

We expect the effect of employment protection on expected returns – as our ultimate variable of interest – to operate via firms' capability to react to systematic shocks in business conditions through wages and employment. Therefore, we are interested in the connection between individual firms' business conditions in terms of their sales on the one hand and employment and wages on the other hand, i.e. we investigate whether employment and wages adjust more or less strongly to firms' sales when PP or GF are in place. This provides an indication for whether WDLs affect intra-firm risk sharing through the employment and wage channels as outlined in Section 2.

Specifically, we estimate interaction effects of changes in sales and WDLs on the corresponding firm-level outcome variable, i.e. number of employees and wage payments per employee accounting for year and firm fixed effects (see notes of Table 2). The latter ensures that potential changes with respect to the composition of firms over the course of time do not affect our estimates.[12]

For the sake of completeness, Panel A of Table 2 also shows the unconditional effects of WDLs on the level of both outcome variables, which might be also directly related to the risk allocation within the firm (see e.g. Berk *et al.*, 2010). The unconditional effects on employment are rather small and statistically insignificant. For wages, we find a small negative effect 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. When GF is in place, wages are about 3% higher ($p = 0.065$), which provides a first indication that GF (in contrast to PP) may feature wage channel effects.

More interestingly, Panel B of Table 2 informs us about the impact of WDLs on the covariation of both variables with sales. Both the PP and the GF exception significantly reduce the covariation of employment with sales (see Column 3). This means that firms adjust the size of their labor force in response to changes in sales as a measure of business conditions to a lesser degree when either exception is in place. On average, a 1% decrease in sales leads to 0.4% decrease in the number of employees. However, the relative size of this effect is about 10% (12%) lower when the PP (GF) exception is recognized. This

[12]For instance, some firms may close down and new firms may open up in response to WDLs. By accounting for firm fixed effects, we ensure that our findings are not driven by these compositional effects, which might be also related to firms' compensation structures and their hiring decisions.

indicates that both policies operate through an employment channel by increasing firing costs such that firms cannot as easily discharge their employees when sales are low.

[Insert Table 2 about here]

In contrast, as shown in Column 4 of Table 2, the wage elasticity responds very differently to both types of WDLs. While the PP exception is unrelated to how wages react to business conditions, the adoption of GF increases the sales elasticity of wages. This 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. 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. By design, PP does not explicitly address problems arising from incomplete contracts, which would explain the absence of wage channel effects. Alternatively, it could be also the case that a shift in bargaining power towards workers offsets potential wage channel effects of PP.[13]

4.2 Variable Compensation

To shed further light on the potential wage channel effects, we also study the prevalence of variable compensation depending on whether WDLs are in place. While longitudinal information that allows us to compare firms' compensation structures across states are rarely available, we can rely on two complementary data sources to study the relationship between WDLs and the importance of variable pay. This is particularly valuable because Compustat wage data is only available for a fraction of the firms in our sample.

Our first measures is constructed based on Compustat's firm-level information regarding equity-based compensation, e.g. in form of equity grants and stock options. As highlighted in a recent study by Eisfeldt *et al.* (2021), this form of variable compensation has become increasingly important since the 1980s.[14] This is particularly interesting for our analysis for two reasons. First, workers who hold equity in the firm clearly bear more firm risk. Second, this form of compensation is particularly prone to holdup risk because

[13]It should be noted that the recognition of both policies PP and GF should allow workers to bargain for less risky wages. However, given that we observe more flexible wages when GF is in place, it appears unlikely that the overall pattern can be explained by a mechanism that is related to wage bargaining.

[14]Eisfeldt *et al.* (2021) document that it constitutes a 7% share of value added during the most recent decade and 78% of equity compensation went to employees outside the executive level.

shares issued to employees are typically subject to a vesting period. This implies that they forfeit if an employee leaves (or has to leave) the firm. Hence, reducing holdup risk by adopting GF should encourage workers to accept equity compensation more frequently.[15]

[Insert Figure 2 about here]

To see whether this is supported by our data, we consider shares reserved for employee compensation as a proxy for the prevalence of equity pay as in Eisfeldt *et al.* (2021). Figure 2 shows the value of shares reserved for employee compensation normalized by the firm's market capitalization. At each point in time, we distinguish between states that have and those that have not adopted the respective WDL in a given year. During a ten-year period from 1984 onward, we directly observe shares reserved for stock options in our data (see Panel A.1 and B.1), while the total number of shares reserved for conversion (net of preferred stocks and convertible debt) can be observed for a longer period (see Panel A.2 and B.2).

Besides the general increase in the importance of equity compensation, we can also see a marked difference between PP and GF states. While there is no evidence that PP promotes equity compensation, firms affected by GF reserve significantly more shares for compensating their employees than firms in states that have not adopted GF in a given year. This development started in the early 1980s when equity-based compensation became increasingly important. The observed pattern provides first direct evidence that the adoption of GF is associated with employees bearing more firm risk, e.g. by accepting equity compensation.

Equity-based compensation was generally uncommon up until 1982. This makes it difficult to directly tie the prevalence of equity compensation to the adoption of WDLs, which have been already adopted during the 1970s in many states. Therefore, we construct a second measure from a different data source that informs us about the prevalence of variable compensation in general (not only based on equity) over a longer time horizon. For a national representative sample of households, from the PSID, we consider the survey item indicating whether the household head received any (variable) income in form of bonuses or commission. This additional data source allows us to construct a state panel including the fraction of households receiving variable compensation in a

[15] Cases such as *Suzuki v. Abiomed*, Inc., – F. Supp. 3d – (D. Mass. 2017) suggest that GF does indeed protect workers from discharges meant to deprive them of unvested stock options.

given year.[16] Figure 3 depicts the corresponding share in a given year relative to the adoption of PP and GF, respectively. While there is little evidence that the prevalence of variable pay increases after the adoption of PP (see gray line), variable compensation becomes substantially more widespread after the recognition of GF (see black line) and is significantly higher than in PP states.

[Insert Figure 3 and Table 3 about here]

This pattern is confirmed by the results of the regression analysis including state and year fixed effects presented in Table 3. After the recognition of GF, the share of households receiving variable pay within a given state is about 1.5 percentage points higher than in non-adopting states ($p = 0.019$). This is a key result as it allows us to establish a direct relationship between GF and a measure of wage flexibility. Relatedly, the higher wage level when GF is in place (shown in Panel A of Table 2) could represent wage risk premia which would be consistent with a wage channel effect resulting in riskier labor income through more volatile wages and a higher prevalence of variable pay.

4.3 Cyclicality of Firm-level Labor Shares

The literature on labor and asset pricing suggests that labor leverage rises in the labor share. Firms with a 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). If WDLs affect labor leverage we would therefore also expect to see different levels of the labor share depending on whether WDLs are in place.

However, since the level of the labor share itself is affected by other risk-relevant variables such as market power (see Kehrig and Vincent, 2021), it is more informative to consider its cyclicality. After all, risk sharing may be defined as the state-contingent distribution of income. In this spirit, Marfè (2017) highlights that the firm-level insurance mechanism between labor and capital generally generates countercyclical time-variation in the labor share. Moreover, Kessing (2003) and Vermeulen (2007) show that this relation should be amplified in the presence of labor adjustment costs.

Against this backdrop, we test whether the labor share becomes more or less countercyclical for firms in PP or GF jurisdictions. Therefore, we estimate regressions of firm-level

[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 households.

labor shares on state GDP growth in the spirit of Table 5 in Donangelo *et al.* (2019) and furthermore interact GDP growth with indicators of whether PP or GF have been in place. Since business cycles differ substantially across US states (Owyang *et al.*, 2005) and the recognition of WDLs varies at the state level, our analysis uses state (rather than national) GDP growth. This extends the analysis of the employment and wage channel effects with respect to two dimensions. First, since the labor share combines wages and employment, considering labor share variation allows us to gauge the net effect of both channels on intra-firm risk sharing. Second, investigating the sensitivity of the labor share with respect to the business cycle provides suggestive evidence as to whether WDLs affect the sharing of systematic risk (which commands risk premia on capital markets).

[Insert Table 4 about here]

The results presented in Table 4 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. Following the argument in Doornik *et al.* (2019), this suggests that workers bear more (less) firm risk in GF (PP) jurisdictions.

Second, we find strikingly 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 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. The significantly negative interaction term of GDP growth and PP indicates that 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. 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.

Together with the empirical evidence presented in Section 4.1 and Section 4.2, it appears likely that the disparate effects of GF and PP on risk sharing are driven by the fact that GF explicitly addresses hold up, while such situations are outside the scope of PP. This suggests that workers bear less (more) firm risk when PP (GF) is in place and that the two policies operate through disparate channels. In what follows, we investigate

if and in what way the altered risk allocation between firms and workers through WDLs affects risk sharing on capital markets.

5 The Effect of WDLs on Stock Returns

Ultimately, we are interested in the causal effect of WDLs on stock returns, which provides conclusive and model-free evidence whether the altered risk allocation represent shifts in terms of systematic, undiversifiable risk. To that end, we now consider stock returns over longer time horizons that reflect changes in systematic risk premia on capital markets. Again, we estimate fixed effects models to account for unobserved state-level differences that might be correlated with the likelihood that a court recognizes a WDL:

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

where y_{ist} is the outcome variable of interest, e.g., the stock returns of a firm i headquartered in state s in month t. As we are now interested in market outcomes, we account for state fixed effects ϕ_s to rule out that these unobserved differences bias our estimates, but not for firm fixed effects.[17] Moreover, we also include time fixed effects μ_t, which are constructed based on calendar months, to control for the general economic environment.

Assuming that there are no unobserved, time-varying state-level characteristics, such a two-way fixed effects model allows to identify the causal effect of WDLs.[18] Having said this, it should be acknowledged that the recent econometrics literature has questioned the validity of this approach. If treatment effects are heterogeneous and there is variation in the timing of the treatment (here the adoption of WDLs), the staggered design may not provide valid estimates (see e.g. Goodman-Bacon, 2018; Baker *et al.*, 2021). Intuitively, the problem arises because firms in states adopting WDLs early (already-treated units), which may experience different treatment effects over time, could act as effective comparisons for firms in states adopting WDLs at a later stage (later-treated units).

[17] A model with firm fixed effects only identifies the effect of WDLs among 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 effect of WDLs on the overall allocation of risk among shareholders.

[18] In Figure A.2, we examine whether the stock returns in adopting and non-adopting states follow a similar trajectory. For each year t, we therefore consider changes in the difference of average state-level returns between adopting and non-adopting states. 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.

To address this concern, we extend our approach with respect to two dimensions. First, we also estimate the fixed effects model by using an "event study" approach. This allows us to determine the effect of WDLs in different time periods relative to the adoption of the corresponding law. This approach can be described by the following equation:

$$y_{ist} = \sum_{\ell} \gamma_{\ell} \mathbb{1}\{t - T_s^{WDL} = \ell\} + \phi_s + \mu_t + \varepsilon_{ist}, \tag{2}$$

where T_s^{WDL} is the time when state s adopted a given WDL (either PP or GF), ℓ denotes the relative time since the adoption of the law and the set of coefficients γ_{ℓ} characterizes the effects of a WDL in different relative periods. Second, this version of the two-way fixed effects model allows us to apply the interaction-weighted method proposed by Sun and Abraham (2020). This approach uses the shares of the different cohorts as weights and allows us to obtain estimates that are more robust to the concerns raised by Goodman-Bacon (2018).

5.1 Discount Rate Effects

In the following, we document the causal effects of the PP and the GF exception on stock returns. Table 5 presents the overall effect of the adoption of WDLs on monthly stock returns over the full observation period for different specifications and Figure 4 depicts the event study approach. The latter also compares estimates based on the traditional two-way fixed effects model (see Panel A.1 and Panel B.1) and those based on Sun and Abraham's (2020) interaction-weighted method (see Panel A.2 and Panel B.2). Before discussing the effects of the PP and the GF exception in more detail, two general remarks can be made. First, there is no evidence of stock price reactions before the adoption of WDLs (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 before the time of the passage of the WDLs. Second, when comparing the different estimation procedures, the two-way fixed effects and the interaction-weighted method, we find that both procedures reveal very similar patterns regarding the effects of PP and GF, which is reassuring for the validity of our empirical approach.

[Insert Table 5 and Figure 4 about here]

Panels A.1 and A.2 of Figure 4 show the effect of PP on average returns over time. In line with the idea that the introduction of PP was considered 'bad news' by investors, we find a negative return in the first year after the adoption. We further investigate the effect upon the introduction of WDLs in Appendix A.3. Our findings suggest that the adoption of the PP exception leads to a negative abnormal returns, while there is no evidence that GF has such an effect.[19] After the first year, we find significantly positive return effects that appear remarkably persistent over a time period of up until 25 years after the adoption of the law. This indicates that the negative return in the first year represents a positive discount rate shock rather than a negative cash-flow shock. When estimating the overall effect of PP, we find a substantial increase in annualized returns of 2.1%, which is statistically significant at the 5%-level (see Column 1 in Table 5).

We also estimate two additional specifications. First, we control for region-time trends by interacting indicator variables for ten federal regions with a continuous year variable addressing the concern that there could exist region-specific trends in *realized* returns. 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. Second, we control for a set of firm characteristics measured in the preceding year (Column 3) that are 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). Including these factors as control variables into our empirical model gives us an idea of whether the effects of WDLs on discount rates "work through" changes in firm characteristics. We acknowledge that these results should be interpreted with a grain of salt, given that such variables are often functions of discount rates themselves.[20] When considering these alternative specifications, the effect of PP on discount rates increases slightly.

Following our discussion from Section 2, the findings indicate that the adoption of the PP exception increases discount rates (expected returns), which is consistent with the notion that PP increases shareholders' systematic, undiversifiable risk.

[19] This is not surprising given that the PP exception typically preceded other exceptions to at-will and therefore came as a greater surprise to investors.

[20] In Appendix 2.1, we discuss the effects of WDLs on these potential outcome variables.

When considering the effect of the GF exception, the picture looks very different. While there is no overall effect of GF in our baseline specification presented in Column 1 of Table 5, the event study approach (see Panel B.1 and Panel B.2 of Figure 4) provides evidence that the adoption of GF reduces expected returns. This is further supported by the additional models presented in Table 5 which show a reduction of annualized monthly returns of about 1.6% when controlling for region-trends (see Column 2) and 2.2% when controlling for firm characteristics (see Column 3). The effect is statistically significant at the 5%-level.

Finally, we also examine earnings-price ratios as a proxy for expected returns. As shown in Table 6, earnings-price ratios are higher when PP is in place, indicating lower valuations (and higher discount rates), while the opposite is true in GF jurisdictions. Our findings corroborate the results from Table 5 that suggest an increase (decrease) in discount rates depending on whether PP (GF) is in place.

[Insert Table 6 about here]

Overall, the causal estimates of the effect of WDLs on stock returns as a measure of firm risk borne by shareholders are in line with our findings on intra-firm risk sharing presented in Section 4: PP decreases and GF increases workers' bearing of firm-level risk. Importantly, our results also suggest that WDLs lead to a shift in the allocation of systematic, undiversifiable, i.e. priced risk.

5.2 The Intensive Margin of WDLs

Next, we extend our baseline analysis by considering heterogeneity with respect to the scope and the reach of a policy in a given state. This is possible because, both among PP and GF states, there are differences in the interpretation of the respective exceptions to the at-will doctrine. In PP states, one can distinguish between states that consider only a narrow set of norms "public policy" (explicit statute or statutorily protected rights, regulations, judicial decisions, constitutions or professional ethics codes, see Dertouzos and Karoly, 1992) and those that have a wider understanding of norms that constitute grounds for public policy claims (Limani, 2006). Broader interpretations of PP therefore induce more uncertainty about firing costs (Dertouzos and Karoly, 1992). Moreover, all states with such a broader interpretation recognize PP claims in tort. In GF states, the

distinction between a broader and a narrower interpretation depends on whether a state recognizes a violation of GF as grounds for tort claims that give rise to larger settlements and should therefore make the law more effective (see Dertouzos and Karoly, 1992). Generally, we expect a broader interpretation of the respective WDL to reinforce the underlying mechanisms discussed in Section 2). Hence, the effect on expected returns should be larger as compared to states where courts follow a more narrow interpretation of the respective doctrine.[21]

[Insert Table 7 about here]

Table 7 shows the effects on annualized returns distinguishing between states following either a narrow or a broad interpretation of the respective exceptions to at-will employment. 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%. This suggests that the recognition of the corresponding claim in tort reinforces the mechanisms discussed in Section 2.2 as it increases the "bite" of GF.

It should be noted that the passage of WDLs may encourage firms to adjust their policies in various dimensions (see e.g. Bird and Knopf, 2009; Serfling, 2016; Bai *et al.*, 2020). In Appendix A.4, we document and discuss the effects of WDLs on other firm-level variables that are typically related to the cross-section of discount rates such as size (market capitalization), book-to-market equity ratio, investment, and operating profitability (Hou *et al.*, 2014; Fama and French, 2015) as well as leverage. The effect of WDLs on firm characteristics are mostly insignificant but largely line with the findings on discount rates. In particular, we find that the broader interpretations of the respective laws are associated with larger effects on firm policy. However, there is no indication that PP or GF alters firm policy in a way that could, e.g., explain the effects on discount rates presented above. Rather, note that many firm policies may just as well be understood as firms' reaction to discount rates (e.g. lower capital costs making investment more attractive)

[21] Eight states (California, Hawaii, Illinois, Kansas, New Hampshire, New Jersey, Vermont, and West Virginia) are considered PP broad states, three states (California (until 1988), Montana and Nevada) adhere to a broad interpretation of GF.

that emerge on capital markets and are therefore largely outside firms' control (see e.g. Gormsen, 2021).[22]

5.3 Measures of Risk and Reward

Next, we also investigate the effect of WDLs on different measures of risk and compensation for risk, namely stock return volatility and the Sharpe ratio. One way in which the changes in risk induced by the adoption of WDLs could manifest themselves is by a changed stock volatility. To check whether this is the case, we consider the effects of WDLs on return volatility. Overall, the results presented in Column 1 of Table 8 provide only little 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.

[Insert Table 8 about here]

Moreover, we are interested in whether Sharpe ratios – a measure of compensation per unit of risk that has a meaningful interpretation in a wide range of models (Hansen and Jagannathan, 1991) – 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 unconditional level of stocks' risk or volatility, PP does change its character in a way that investors dislike and demand higher compensation for. One obvious way in which this could happen is by harming firm performance in high marginal utility states. For instance, it has been shown 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 reduces the downside potential because of increased risk sharing.[23]

[22] Disentangling these equilibrium effects is beyond the scope of our paper.

[23] Additional estimates using Altman's z-score (computed as in Serfling, 2016) as a measure of default risk support the idea that GF lowers downside risk, while we find opposite effects of PP. This is in line with the argument of Favilukis *et al.* (2020) that labor leverage raises default probabilities (see Table A.8).

5.4 Heterogeneous Effects

Our discussion of the potential effects of the respective WDLs in Section 2 suggested that only GF should alleviate agency issues and thereby have wage channel effects. The results on intra-firm risk sharing in Section 4 support this hypothesis: While both GF and PP affect the employment channel, only GF has wage channel effects that lead to employees bearing more (systematic) firm risk, leading to lower mean returns on the stocks of firms in GF jurisdictions. We expect the wage channel to be more important and therefore GF to have a greater impact on mean returns whenever there are particular benefits to workers, as opposed to shareholders, bearing more risk. Specifically, we expect that GF has stronger effects on mean returns in firms where (i) contractual incompleteness is more prevalent, (ii) incentivizing workers through risk bearing is particularly beneficial or (iii) workers require relatively low wage risk premia as compared to the risk premia required by capital market investors.

All three criteria should be met by highly valued firms with growth potential. For instance, contractual incompleteness is more likely to prevail in innovative firms with high growth potential and where (firm-specific) human capital plays a larger role in the production process (Eisfeldt *et al.*, 2021).[24] Moreover, incentivizing workers (through risk bearing) yields greater benefits when information asymmetry between workers and firms is higher, e.g. because workers have more discretion. Arguably, this is more likely to be the case in firms with more growth potential.

Finally, it might also be the case that workers demand a relatively low wage premium (compared to investors on capital markets) in growth firms. For instance, the information advantage that workers have compared to capital markets regarding the future firm prospects is particularly pronounced for growth firms with innovative business models and production technologies. In a similar vein, workers could also demand a lower premium because they are overly optimistic about the firm's prospects, which is more likely to be the case in growth firms with 'hyped' glamour stocks (Lakonishok *et al.*, 1994). Also, conventional wisdom suggests that growth firms have longer cash flow duration which provides a greater scope for horizon bias (Cassella *et al.*, 2021), which should lead to higher valuation (and low wage risk premia). It seems plausible that such (behavioral)

[24]Relatedly, Xiaolan (2014) shows in her model that "growth firms" that experienced recent productivity shocks optimally have more variable compensation. In line with this idea, Acharya *et al.* (2014) highlight the positive effect of GF on innovation.

overvaluation is more likely to persist to the advantage of the firm in infrequent intra-firm contract negotiations (as opposed to liquid financial markets where stocks can be shorted to correct overvaluation). This makes it more attractive for firms to have workers bear more risk in growth firms.

Altogether, we expect that alleviating agency frictions by adopting GF has a larger effect on expected returns when firms' growth potential is high. We therefore re-estimate the discount rate effects (presented in Table 7) separately for growth and value firms. The results are shown in Figure 5 using three different proxies for growth potential.

[Insert Figure 5 about here]

Panel *A* shows separate discount rate effects for observations with a firm-level book-to-market ratio below and above the sample median. There is only little heterogeneity when considering PP or the narrow interpretation of GF but 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. Panel *B* shows that the overall pattern looks very similar when using the industry-level rather than the firm-level book-to-market ratio. 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, as shown in Panel *C*. Firm age has been suggested to be inversely related to innovation (Hansen, 1992) which makes a holdup situation more likely (Acharya *et al.*, 2014) and young firms arguably profit more from risk sharing (Michelacci and Quadrini, 2009). Hence, the negative effect on younger firms may reflect a similar mechanism as the effect on firms with a low book-to-market ratio.

Overall, the observed pattern is in line with the notion that GF operates through wage channel effects by reducing the risk of holdup, which encourages workers to bear more firm risk and leads to lower discount rates.

6 Conclusion

Risk sharing between labor and capital has been suggested as a driver of cross-sectional differences in expected stock returns (Favilukis and Lin, 2016b; Donangelo *et al.*, 2019),

but little is known about the underlying mechanisms. Our paper adopts a detailed and holistic approach in order to track down the complex interrelation between the different layers of risk sharing – within the firm and on capital markets. We exploit exogenous variation in the adoption of wrongful discharge laws (WDLs), as a form of employment protection, that alter risk sharing between capital owners and workers and consequently affect stock returns, which reflect systematic risk premia on capital markets. This allows to make several contributions.

First, by considering different types of WDLs, we identify employment and wage rigidities as two distinct transmission channels of firm risk. The public policy (PP) exception mainly operates through the employment channel. Here, stricter employment protection makes it more difficult for firms to pass on risk to workers, which leads to an increased annualized mean return of two percent. The exception of good faith and fair dealing (GF) also makes employment more sticky and hence less cyclical due to increased firing costs, but also features a wage channel. By preventing employers from acting in bad faith, GF addresses problems arising from incomplete contracts, reduces the risk of holdup and therefore leads workers to accept more flexible wages. This shifts risk from employers to workers and reduces average returns by about 1.5 to two percent.

Second, our findings imply that agency frictions arising from incomplete contracts have first-order effects on capital market outcomes. Only GF, as a policy with the distinctive feature of protecting workers from holdup situations, promotes the prevalence of variable compensation and thereby workers' risk bearing. In line with our suggested mechanism, we find that GF has the most pronounced effect on discount rates for innovative growth firms, where the benefits of workers' risk bearing are arguably greatest.

Third, we find that firms insure workers not only from idiosyncratic, i.e. diversifiable risks (as shown e.g. by Guiso *et al.*, 2005), but also from systematic risks. This is remarkable, as bearing such systematic risks commands premia on capital markets and therefore increases firms costs of equity. Our results highlight the crucial role that firms play in the allocation of macroeconomic risk with all the distributional welfare implications that come with it. For instance, it has been suggested that labor shares have declined in recent decades (Piketty and Zucman, 2014), in particular for 'superstar firms' (Autor *et al.*, 2020; Hartman-Glaser *et al.*, 2019), and Eisfeldt *et al.* (2021) suggest that a large chunk of this decline can be attributed to the growing importance of (variable) equity com-

pensation. We highlight that there is a crucial risk sharing component to these trends. Different levels of the labor share and more importantly different degrees of cyclicality in the labor share reflect the way in which shareholders and workers share risk. Our results suggest that the GF legislation fostered the development of more risk sharing (and lower labor shares) and thereby also affected firms' capital costs in a non-negligible way.

Finally, it is important to note that employment protection legislation may have more far-reaching implications than indicated by previous studies. Even a policy that has very limited direct effects on firm policy changes the allocation of risk and affects capital costs in a sizable way. Legislators can use employment protection to affect distributional outcomes across states of the world, e.g. to provide more income insurance to workers, but should take into account that labor market regulation may have pronounced effects on the firms' financing conditions and that these effects strongly depend on the exact design of the policy.

References

Acemoglu, D. and R. Shimer (1999): "Efficient unemployment insurance," *Journal of Political Economy*, 107, 893–928.

Acharya, V. V., R. P. Baghai, and K. V. Subramanian (2014): "Wrongful discharge laws and innovation," *The Review of Financial Studies*, 27, 301–346.

Aghion, P. and J. Tirole (1994): "The management of innovation," *Quarterly Journal of Economics*, 109, 1185–1209.

Agrawal, A. K. and D. A. Matsa (2013): "Labor unemployment risk and corporate financing decisions," *Journal of Financial Economics*, 108, 449–470.

Autor, D., D. Dorn, L. F. Katz, C. Patterson, and J. Van Reenen (2020): "The Fall of the Labor Share and the Rise of Superstar Firms*," *The Quarterly Journal of Economics*, 135, 645–709.

Autor, D. H., J. J. Donohue, and S. J. Schwab (2002): "The Employment Consequences of Wrongful-Discharge Laws: Large, Small, or None at All?" Working Paper.

——— (2003): "The Costs of Wrongful-Discharge Laws," NBER Working Paper 9425.

——— (2004): "The Employment Consequences of Wrongful-Discharge Laws: Large, Small, or None at All?" *American Economic Review*, 94, 440–446.

——— (2006): "The costs of wrongful-discharge laws," *Review of Economics and Statistics*, 88, 211–231.

Autor, D. H., W. R. Kerr, and A. D. Kugler (2007): "Does employment protection reduce productivity? Evidence from US states," *The Economic Journal*, 117, F189–F217.

Bagchi, A. (2003): "Unions and the Duty of Good Faith in Employment Contracts," *Yale Law Journal*, 112, 1881–1910.

Bai, H. and L. Zhang (2020): "Searching for the Equity Premium," NBER Working Paper 28001.

Bai, J., D. Fairhurst, and M. Serfling (2020): "Employment protection, investment, and firm growth," *Review of Financial Studies*, 33, 644–688.

Baker, A., D. F. Larcker, and C. C. Wang (2021): "How Much Should We Trust Staggered Difference-In-Differences Estimates?" *Available at SSRN 3794018*.

Belo, F., X. Lin, and S. Bazdresch (2014): "Labor hiring, investment, and stock return predictability in the cross section," *Journal of Political Economy*, 122, 129–177.

Belot, M., J. Boone, and J. Van Ours (2007): "Welfare-improving employment protection," *Economica*, 74, 381–396.

Berk, J. B., R. Stanton, and J. Zechner (2010): "Human Capital, Bankruptcy, and Capital Structure," *Journal of Finance*, 65, 891–926.

Bird, R. C. and J. D. Knopf (2009): "Do wrongful-discharge laws impair firm performance?" *Journal of Law and Economics*, 52, 197–222.

Boxold, D. (2008): *Employment practice liability: Jury award trends and statistics*, Jury Verdict Research.

Bronars, S. G. and D. R. Deere (1991): "The threat of unionization, the use of debt, and the preservation of shareholder wealth," *Quarterly Journal of Economics*, 106, 231–254.

Brudney, J. J. (2010): "Reluctance and Remorse: The Covenant of Good Faith and Fair Dealing with American Employment Law," *Comp. Lab. L. & Pol'y J.*, 32, 773.

Cassella, S., B. Golez, H. Gulen, and P. Kelly (2021): "Horizon bias in expectations formation," *Available at SSRN*.

Danthine, J.-P. and J. B. Donaldson (1992): "Risk sharing in the business cycle," *European Economic Review*, 36, 468–475.

——— (2002): "Labour relations and asset returns," *Review of Economic Studies*, 69, 41–64.

Danthine, J.-P., J. B. Donaldson, and R. Mehra (1992): "The equity premium and the allocation of income risk," *Journal of Economic Dynamics and Control*, 16, 509–532.

Dertouzos, J. N., E. Holland, and P. A. Ebener (1988): *The legal and economic consequences of wrongful termination*, Rand Corporation.

Dertouzos, J. N. and L. A. Karoly (1992): *Labor market responses to employer liability*, Rand Corporation.

Dohmen, T. and A. Falk (2011): "Performance pay and multidimensional sorting: Productivity, preferences, and gender," *American Economic Review*, 101, 556–90.

Donangelo, A. (2020): "Untangling the Value Premium with Labor Shares," *Review of Financial Studies*.

Donangelo, A., F. Gourio, M. , and M. Palacios (2019): "The cross-section of labor leverage and equity returns," *Journal of Financial Economics*, 132, 497–518.

Donohue, J. J. and P. Siegelman (1992): "Law and macroeconomics: Employment discrimination litigation over the business cycle," *S. Cal. L. Rev.*, 66, 709.

Doornik, B. F. N. V., D. Fazio, D. Schoenherr, and J. Skrastins (2019): "Unemployment insurance as a subsidy to risky firms," *Available at SSRN 3466314*.

Edelman, L. B., S. E. Abraham, and H. S. Erlanger (1992): "Professional construction of law: The inflated threat of wrongful discharge," *Law and Society Review*, 47–83.

Efing, M., H. Hau, P. Kampkötter, and J.-C. Rochet (2021): "Bank bonus pay as a risk sharing contract," Working Paper.

Eisfeldt, A. L., A. Falato, and M. Z. Xiaolan (2021): "Human capitalists," Nber working paper no. w28815.

Ellul, A. and M. Pagano (2019): "Corporate leverage and employees' rights in bankruptcy," *Journal of Financial Economics*, 133, 685 – 707.

Fama, E. F. and K. R. French (1992): "The cross-section of expected stock returns," *Journal of Finance*, 47, 427–465.

——— (2015): "A five-factor asset pricing model," *Journal of Financial Economics*, 116, 1–22.

Favilukis, J. and X. Lin (2016a): "Does wage rigidity make firms riskier? Evidence from long-horizon return predictability," *Journal of Monetary Economics*, 78, 80–95.

——— (2016b): "Wage rigidity: A quantitative solution to several asset pricing puzzles," *Review of Financial Studies*, 29, 148–192.

Favilukis, J., X. Lin, and X. Zhao (2020): "The elephant in the room: the impact of labor obligations on credit markets," *American Economic Review*, 110, 1673–1712.

Goodman-Bacon, A. (2018): "Difference-in-Differences with Variation in Treatment Timing," Working Paper 25018, National Bureau of Economic Research.

Gormsen, N. J. (2021): "Expected Stock Returns and Firms' Perceived Cost of Capital," *Available at SSRN*.

Grossman, S. and O. Hart (1986): "The Costs and Benefits of Ownership. A Theory of Vertical and Lateral Integration," *Journal of Political Economy*, 94, 691–719.

Guiso, L. and L. Pistaferri (2020): "The insurance role of the firm," *Geneva Risk and Insurance Review*, 45, 1–23.

Guiso, L., L. Pistaferri, and F. Schivardi (2005): "Insurance within the firm," *Journal of Political Economy*, 113, 1054–1087.

Haefke, C., M. Sonntag, and T. Van Rens (2013): "Wage rigidity and job creation," *Journal of Monetary Economics*, 60, 887–899.

Haider, L. and S. Plancich (2012): "Damage estimation in wrongful termination cases: Impact of the great recession," *NERA Economic Consulting*.

Hansen, J. A. (1992): "Innovation, firm size, and firm age," *Small Business Economics*, 4, 37–44.

Hansen, L. P. and R. Jagannathan (1991): "Implications of security market data for models of dynamic economies," *Journal of political economy*, 99, 225–262.

Hart, O. (1995): *Firms, contracts, and financial structure*, Clarendon press.

Hartman-Glaser, B., H. Lustig, and M. Z. Xiaolan (2019): "Capital Share Dynamics When Firms Insure Workers," *The Journal of Finance*, 74, 1707–1751.

Hou, K., C. Xue, and L. Zhang (2014): "Digesting Anomalies: An Investment Approach," *Review of Financial Studies*, 28, 650–705.

Jung, D. J. (1997): "Jury verdicts in wrongful termination cases," *Public Law Research Institute Report, University of California Hastings College of the Law*.

Kehrig, M. and N. Vincent (2021): "The Micro-Level Anatomy of the Labor Share Decline*," *The Quarterly Journal of Economics*, 136, 1031–1087.

Kessing, S. G. (2003): "A note on the determinants of labour share movements," *Economics Letters*, 81, 9–12.

Kugler, A. D. and G. Saint-Paul (2004): "How do firing costs affect worker flows in a world with adverse selection?" *Journal of Labor Economics*, 22, 553–584.

Lakonishok, J., A. Shleifer, and R. W. Vishny (1994): "Contrarian Investment, Extrapolation, and Risk," *The Journal of Finance*, 49, 1541–1578.

Lazear, E. P. (2000): "Performance pay and productivity," *American Economic Review*, 90, 1346–1361.

Limani, N. (2006): "Righting Wrongful Discharge: A Recommendation for the New York Judiciary to Adopt a Public Policy Exception to the Employment-At-Will Doctrine," *Cardozo Pub. L. Pol'y & Ethics J.*, 5, 309.

Marfè, R. (2017): "Income insurance and the equilibrium term structure of equity," *Journal of Finance*, 72, 2073–2130.

Michelacci, C. and V. Quadrini (2009): "Financial markets and wages," *The Review of Economic Studies*, 76, 795–827.

Miles, T. J. (2000): "Common law exceptions to employment at will and US labor markets," *Journal of Law, Economics, and Organization*, 16, 74–101.

Owyang, M. T., J. Piger, and H. J. Wall (2005): "Business Cycle Phases in U.S. States," *The Review of Economics and Statistics*, 87, 604–616.

Pagano, M. (2020): "Risk Sharing within the Firm: A Primer," CEPR Discussion Paper No. DP15046.

Park, H. (2019): "An intangible-adjusted book-to-market ratio still predicts stock returns," *Critical Finance Review*, 25, 207–236.

Piketty, T. and G. Zucman (2014): "Capital is back: Wealth-income ratios in rich countries 1700–2010," *The Quarterly Journal of Economics*, 129, 1255–1310.

Pissarides, C. A. (2001): "Employment protection," *Labour Economics*, 8, 131–159.

Rettl, D. A., A. Stomper, and J. Zechner (2018): "The stability of dividends and wages: Effects of competitor inflexibility," CFS Working Paper.

Saint-Paul, G. (2002): "The political economy of employment protection," *Journal of Political Economy*, 110, 672–704.

Schmalz, M. C. (2018): "Unionization, cash, and leverage," CEPR Discussion Paper No. DP12595.

Serfling, M. (2016): "Firing costs and capital structure decisions," *Journal of Finance*, 71, 2239–2286.

Sockin, J. and M. Sockin (2021): "Performance Pay and Risk Sharing between Firms and Workers," *Available at SSRN 3774639*.

Suedekum, J. and P. Ruehmann (2003): "Severance Payments and Firm–specific Human Capital," *Labour*, 17, 47–62.

Sun, L. and S. Abraham (2020): "Estimating dynamic treatment effects in event studies with heterogeneous treatment effects," *Journal of Econometrics*.

Teulings, C. and J. Hartog (1998): *Corporatism or competition?: labour contracts, institutions and wage structures in international comparison*, Cambridge University Press.

Vermeulen, P. (2007): "Can adjustment costs explain the variability and countercyclicality of the labour share at the firm and aggregate level?" ECB working paper.

Walsh, D. J. and J. L. Schwarz (1996): "State common law wrongful discharge doctrines: Up-date, refinement, and rationales," *American Business Law Journal*, 33, 645–689.

Xiaolan, M. Z. (2014): "Who bears firm-level risk? implications for cash flow volatility," mimeo.

Tables and Figures

Table 1: Determinants of WDL adoption

	Dependent variable: adoption of WDL in year t			
	PP exception		**GF exception**	
	(1)	(2)	(3)	(4)
Annualized returns	0.0194	0.0021	-0.0164	-0.0132
	(0.0374)	(0.0398)	(0.0198)	(0.0174)
log(Employment)		0.0014		-0.0062
		(0.0106)		(0.0063)
log(Market capitalization)		-0.0158		0.0098*
		(0.0125)		(0.0054)
log(Book to market equity ratio)		0.0232		0.0142
		(0.0240)		(0.0134)
Investment		0.1710		-0.0267
		(0.1317)		(0.0643)
Profitability		-0.0698		-0.0897
		(0.2794)		(0.1093)
Market β		-0.0292		-0.0081
		(0.0808)		(0.0416)
log(Leverage)		-0.0625		-0.0041
		(0.0373)		(0.0162)
Labor share		-0.2930		-0.0974
		(0.2082)		(0.0663)
GDP growth		-0.6794*		0.3134
		(0.3512)		(0.2156)
Share of states in fed. region adopting WDL				
Public policy exception		0.4758***		0.0416**
		(0.0921)		(0.0205)
Implied contract exception		-0.0203		-0.0253
		(0.0932)		(0.0210)
Good faith exception		-0.1573		0.1585**
		(0.1249)		(0.0593)
Period (ref. 1965 - 1969)				
1970 - 1974		0.0091		0.0028
		(0.0101)		(0.0054)
1975 - 1979		-0.0020		-0.0143
		(0.0215)		(0.0140)
1980 - 1984		-0.0059		-0.0214
		(0.0382)		(0.0178)
1985 - 1989		-0.0396		-0.0140
		(0.0961)		(0.0154)
1990 - 1994		-0.2438***		-0.0358**
		(0.0756)		(0.0175)
1995 - 1999		-0.2652***		-0.0458**
		(0.0750)		(0.0209)
No. of observations	898	898	1,467	1,467
P-value (joint significance econ. indicators)		0.2002		0.2650
R^2 (adj.)	0.0001	0.1684	0.0001	0.0574

Note: Depicted are the effects of state-level averages measured over the previous four years ($t-1$ to $t-4$) 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 are clustered at the state level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Market capitalization is the product of shares outstanding and share price; book to market equity ratio is the ratio of book (common) equity to market capitalization; profitability is the ratio of earnings over book equity; investment is the growth of total assets; leverage is one minus the ratio of book equity over total assets

Table 2: Risk sharing within the firm: employment and wage flexibility

Dependent variable	A. Unconditional effect		B. Elasticity[(a)]	
	Log(# employees)	Log(wage per worker)[(b)]	Δ Log(# employees)	Δ Log(wage per worker)[(b)]
	(1)	(2)	(3)	(4)
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	0.007	-0.013	0.011***	-0.012*
	(0.016)	(0.013)	(0.004)	(0.006)
Good faith exception	0.012	0.031*	-0.004	0.006
	(0.025)	(0.016)	(0.005)	(0.008)
No. of observations (firm-years)	218,518	38,856	191,386	34,362
No. of firms	19,557	3,970	17,673	3,503
R^2 (adj.)	0.157	0.780	0.181	0.026
Control variables				
Time fixed effects	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes

Note: In all specifications, we additionally control for the recognition of the implied contract (IC) exception (results for IC are shown in Appendix A.2). Standard errors in parentheses are clustered at state level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level.

[(a)] We estimate the following regression equation: $\Delta log(y_{ist}) = \beta_1 \Delta log(Sales_{ist}) + \beta_{PP} \Delta log(Sales_{ist}) \times PP_{st} + \beta_{GF} \Delta log(Sales_{ist}) \times GF_{st} + \beta_{IC} \Delta log(Sales_{ist}) \times IC_{st} + \gamma_{PP} PP_{st} + \gamma_{GF} GF_{st} + \gamma_{IC} IC_{st} + \kappa_i + \mu_t + \varepsilon_{ist}$, where we control for firm (κ_i) and time (μ_t) fixed effects.

[(b)] "Wage per worker" is defined as the ratio of total staff expenses over the number of employees. The Compustat item "XLR - Staff Expense - Total " includes salaries, wages, pension costs, profit sharing and incentive compensation, payroll taxes and other employee benefits.

Table 3: WDLs and the prevalence of variable compensation

Dependent variable	Fraction of households receiving variable pay[(a)]
	(1)
Public policy exception	-0.002
	(0.005)
Good faith exception	0.015**
	(0.006)
No. of observations (state-years)	1,900
R^2 (adj.)	0.425
Control variables	
Time fixed effects	Yes
State fixed effects	Yes

Note: Depicted are the effects the public policy and the good faith exception on the fraction of households receiving variable compensation based on the state-level within a given year. Estimates are weighted by the number of firms (observed in the firm-level dataset) in a given state. Standard errors are clustered at the state-level */**/*** indicate statistically significant effects at the 10%/5%/1%-level.

[(a)] Data are obtained from the PSID, a national representative sample of households.

Table 4: Cyclicality of labor share and WDLs

	Dependent variable: labor share	
	(1)	(2)
GDP growth	-0.495***	-0.387***
	(0.036)	(0.070)
GDP growth × public policy exception		-0.319***
		(0.096)
GDP growth × good faith exception		0.192**
		(0.095)
Public policy exception		0.023***
		(0.009)
Good faith exception		-0.016
		(0.011)
No. of observations (firm-years)	77,630	77,630
No. of firms	8,811	8,811
Firm fixed effects	Yes	Yes

Note: Labor share is calculated based on the imputation procedure proposed by Donangelo *et al.* (2019) for all firms with available data. In all specifications, we additionally control for the recognition of the implied contract (IC) exception (results for IC are shown in Appendix A.2). Standard errors in parentheses are clustered at firm level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level.

Table 5: 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)
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: In all specifications, we additionally control for the recognition of the implied contract (IC) exception (results for IC are shown in Appendix A.2). Standard errors in parentheses are clustered at the state level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level. In all specifications, we additionally control for the recognition of the implied contract exception. Covariates are measured in year $t-1$.
See Table 1 for data definitions.

Table 6: The impact of wrongful discharge laws on the earnings-price ratio

Dependent variable:	**EP ratio**$^{(a)}$ (yearly)	**EP ratio**$^{(b)}$ (3-year average)
	(1)	(2)
Public policy exception	0.0505***	0.0404***
	(0.0135)	(0.0118)
Good faith exception	-0.0370*	-0.0318*
	(0.0191)	(0.0173)
No. of observations (firm-years)	224,638	185,631
No. of firms	19,986	16,934
R^2 (adj.)	0.008	0.011
Control variables		
Time fixed effects	Yes	Yes
State fixed effects	Yes	Yes

Note: In all specifications, we additionally control for the recognition of the implied contract (IC) exception (results for IC are shown in Appendix A.2). Standard errors in parentheses are clustered at the state level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level.
$^{(a)}$ Ratio of earnings over stock price, computed using the Compustat item EBITDA.
$^{(b)}$Ratio of earnings over stock price, computed using the three year moving average of Compustat item EBITDA. .

Table 7: WDL variation on the intensive margin

Dependent variable	**Annualized monthly returns**
	(1)
Public policy exception (ref. not recognized)	
narrow interpretation (PP_{narrow})	0.0222**
	(0.0091)
broad interpretation (PP_{broad})	0.0305**
	(0.0131)
Good faith exception (ref. not recognized)	
narrow interpretation (GF_{narrow})	0.0026
	(0.0075)
broad interpretation (GF_{broad})	-0.0248**
	(0.0118)
$P-$value (equal coefficients)	
$PP_{narrow} = PP_{broad}$	0.429
$GF_{narrow} = GF_{broad}$	0.013
No. of observations (firm-months)	2,675,138
No. of firms	20,303
R^2 (adj.)	0.109
Control variables	
Time fixed effects	Yes
State fixed effects	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.

Table 8: WDLs and measures of risk and reward

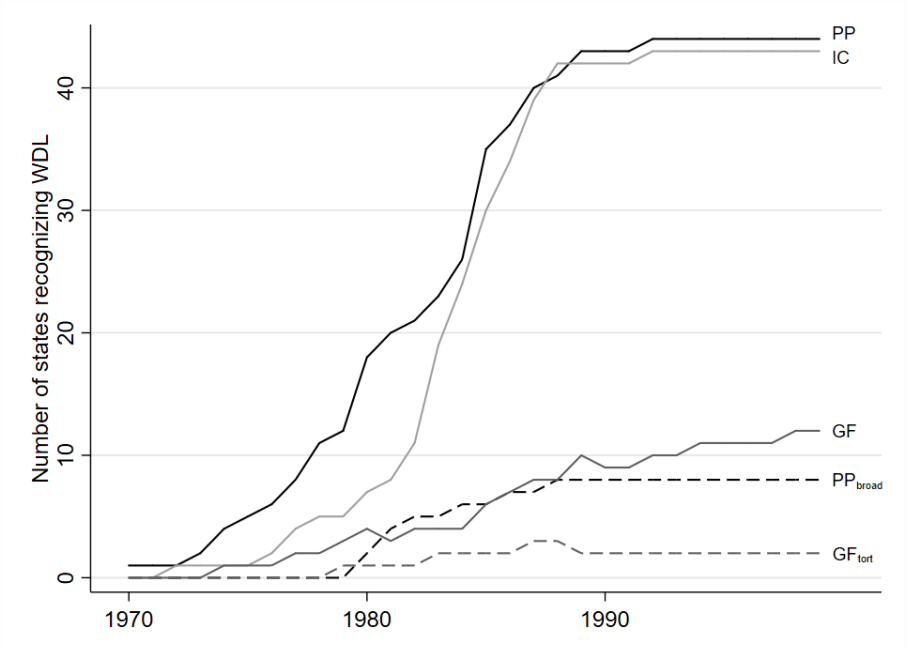
Dependent variable	**Monthly volatility**$^{(a)}$ (standardized)	**Sharpe ratio**$^{(b)}$
	(1)	(2)
Public policy exception (ref. not recognized)		
narrow interpretation (PP_{narrow})	-0.0042	0.0137*
	(0.0224)	(0.0069)
broad interpretation (PP_{broad})	0.0104	0.0205**
	(0.0372)	(0.0099)
Good faith exception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

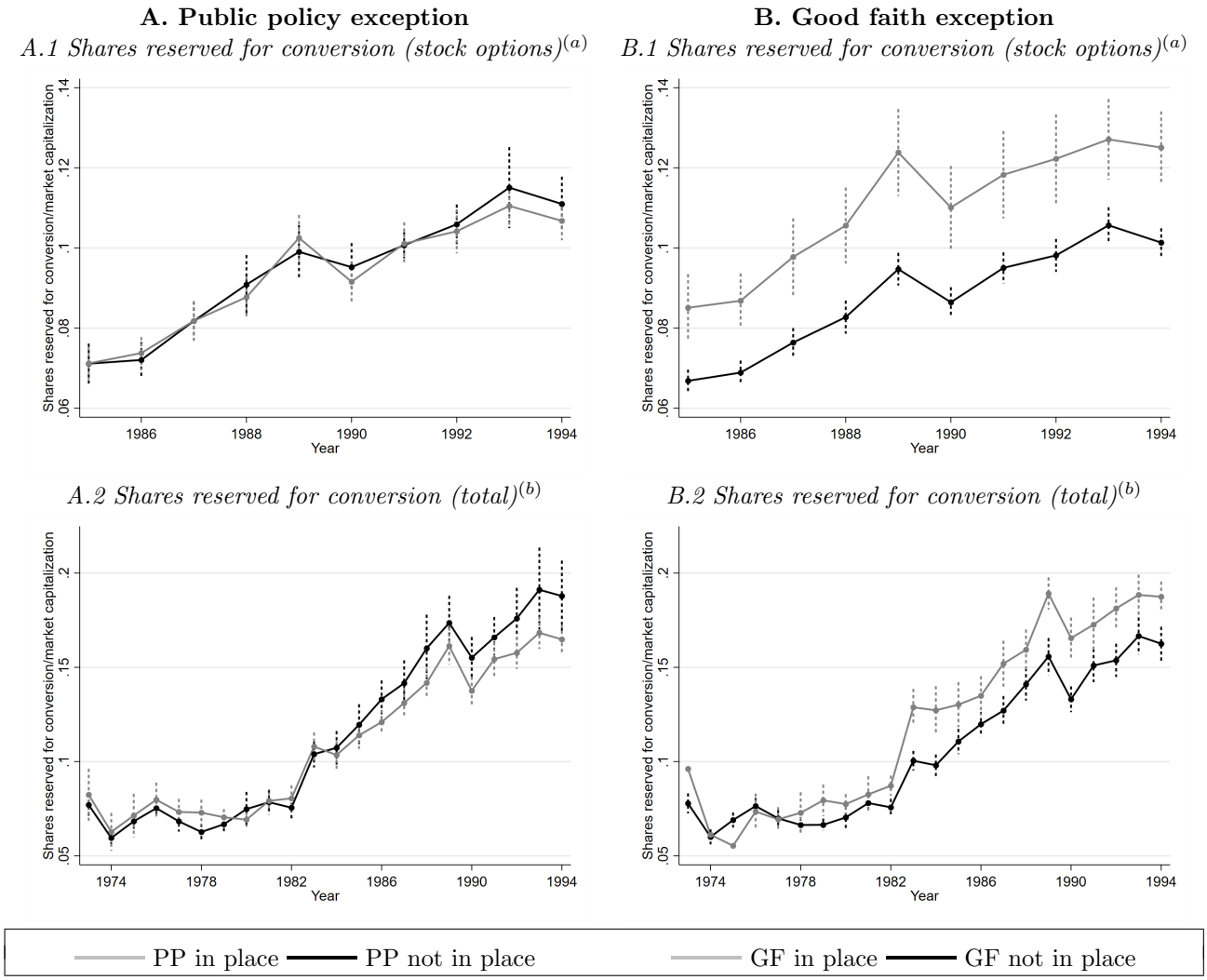
$^{(b)}$Calculated as the difference between the monthly return and the risk-free rate (from Kenneth French's website) divided by the monthly standard deviation (calculation as in a)). Winsorized at the 1%- and 99%-quantile.

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



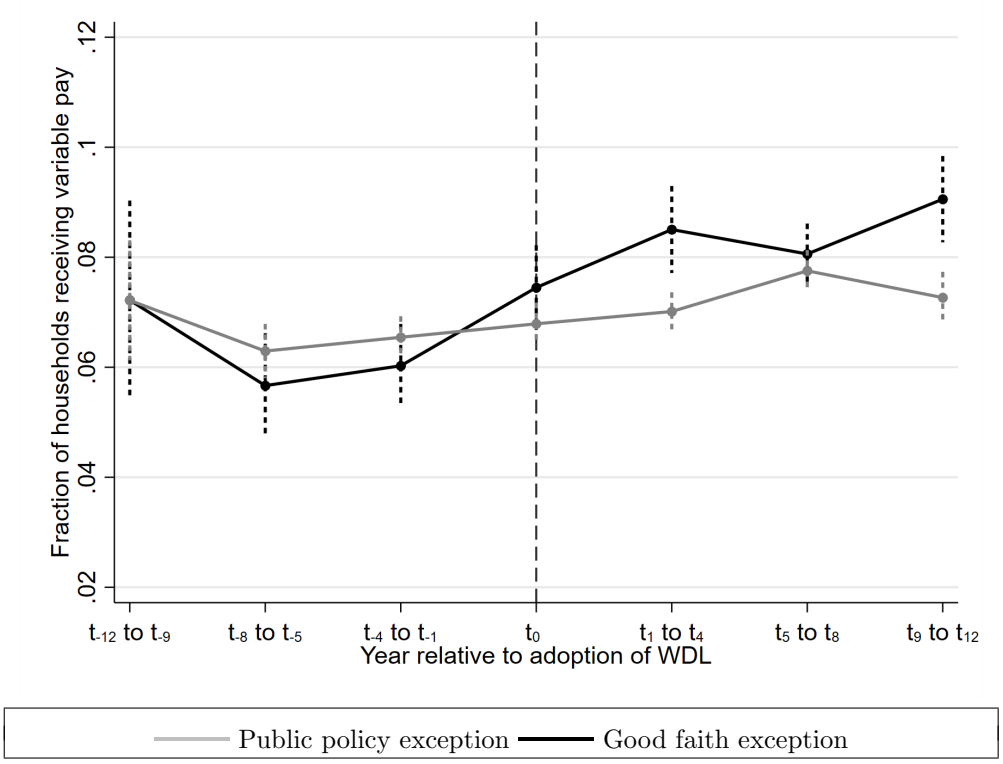
Note: Depicted are the number of states recognizing different wrongful discharge laws over the course of time following the classification of Dertouzos and Karoly (1992).
PP - public policy exception
PP_{broad} - broad interpretation of public policy exception
IC - implied contract exception
GF - good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

Figure 2: WDLs and stock option reserved for conversion over time



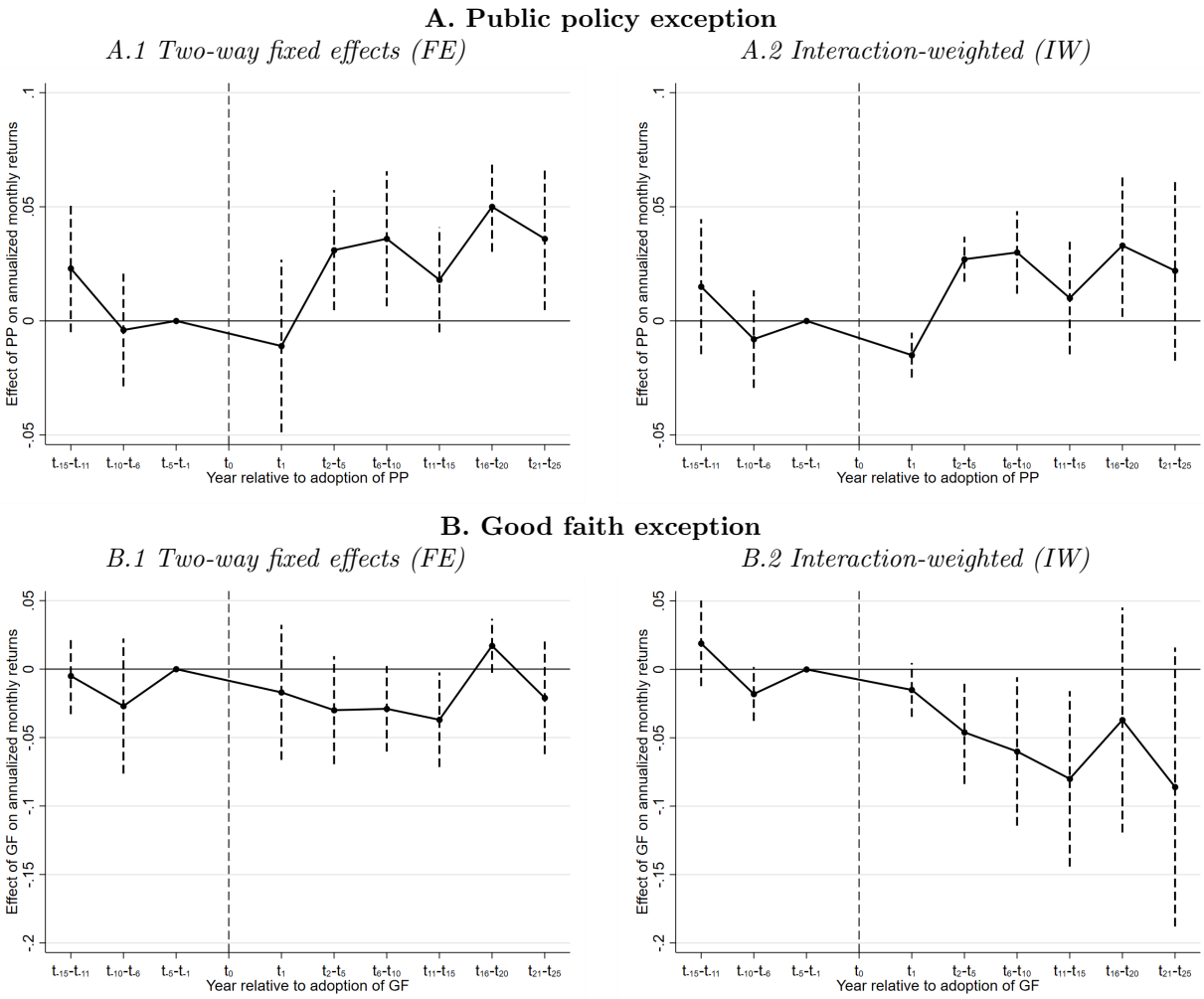
Note: Depicted are weighted state-level averages of states that have and states that have not adopted the PP, respectively the GF exception in a given year.
(a) Stock options reserved for conversion are directly observed in our data during the period 1985 to 1994.
(b) Value of total shares reserved for conversion and convertible debt net of the value of convertible debt and preferred stock (see Eisfeldt *et al.*, 2021).

Figure 3: WDLs and the prevalence of variable compensation



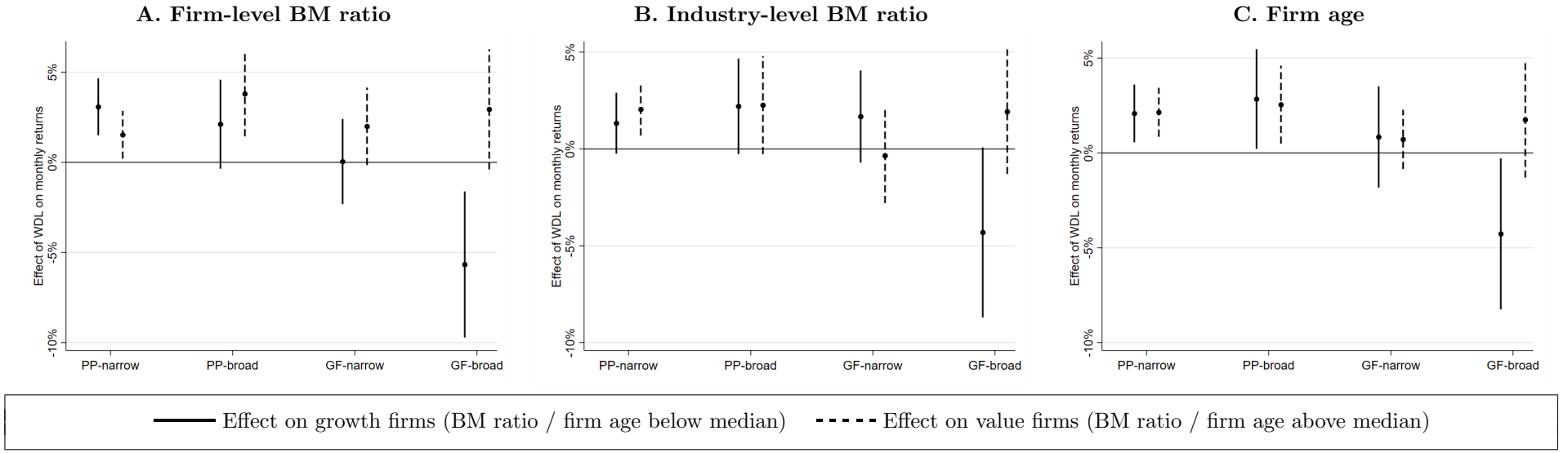
Note: Depicted are weighted state-level averages (and 90% confidence intervals) of the fraction of households receiving variable pay separated for states that have and states that have not adopted the PP, respectively the GF exception relative to the adoption of the corresponding law. Information are obtained from PSID household-level data.

Figure 4: The impact of wrongful discharge laws on stock returns over time



Note: Depicted are the effects of the public policy and the good faith exception on stock returns for different time intervals relative to the adoption of the corresponding law and 90% confidence intervals based on standard errors clustered at the state level. The reference period includes the 5-year interval before the adoption of the corresponding law. All specifications account fortime and state fixed effects, as well as region-trend effects. We additionally control for the recognition of the implied contract (IC) exception and the good faith exception (Panel A), respectively the public policy exception (Panel B).

Figure 5: Heterogeneous effects of WDLs on stock returns by growth potential



Note: Depicted are heterogeneous effects of wrongful discharge laws on annualized monthly returns separated for growth and value firms including the corresponding 90% confidence intervals. We use different proxies for growth potential: (A) Book-to-market equity ratio of an individual firm, (B) Average book-to-market equity ratio in the industry (Fama-French-49 classification) or (C) firm age (as approximated by the first listing in our sample).

A Appendix (for Online Publication)

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).	
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).

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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).	
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).	

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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).	
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).		

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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).		
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).	

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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 Effects of the Implied Contract Exception

Table A.2: Risk sharing within the firm: employment and wage flexibility (incl. IC)

	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)
Δ Log(Sales) × Implied contract exception	-0.061**	0.013
	(0.024)	(0.049)
Public policy exception	0.011***	-0.012*
	(0.004)	(0.006)
Good faith exception	-0.004	0.006
	(0.005)	(0.008)
Implied contract exception	0.005	-0.005
	(0.006)	(0.007)
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: Standard errors in parentheses are clustered at state level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level.
We estimate the following regression equation: $\Delta log(y_{ist}) = \beta_1 \Delta log(Sales_{ist}) + \beta_{PP} \Delta log(Sales_{ist}) \times PP_{st} + \beta_{GF} \Delta log(Sales_{ist}) \times GF_{st} + \beta_{IC} \Delta log(Sales_{ist}) \times IC_{st} + \gamma_{PP} PP_{st} + \gamma_{GF} GF_{st} + \gamma_{IC} IC_{st} + \kappa_i + \mu_t + \varepsilon_{ist}$, where we control for firm (κ_i) and time (μ_t) fixed effects.
[a] "Wage per worker" is defined as the ratio of total staff expenses per employees. The Compustat item "XLR - Staff Expense - Total " includes salaries, wages, pension costs, profit sharing and incentive compensation, payroll taxes and other employee benefits.

Table A.3: Cyclicality of labor share and WDLs (incl. IC)

	Dependent variable: Labor share	
	(1)	(2)
GDP growth	-0.495***	-0.387***
	(0.036)	(0.070)
GDP growth × public policy exception		-0.319***
		(0.096)
GDP growth × good faith exception		0.192**
		(0.095)
GDP growth × implied contract exception		0.049
		(0.093)
Public policy exception		0.023***
		(0.009)
Good faith exception		-0.016
		(0.011)
Implied contract exception		-0.018**
		(0.008)
No. of observations (firm-years)	77,630	77,630
No. of firms	8,811	8,811
Firm fixed effects	Yes	Yes

Note: Labor share is calculated based on the imputation procedure proposed by Donangelo *et al.* (2019). Standard errors in parentheses are clustered at firm level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level.

Table A.4: The impact of wrongful discharge laws on stock returns (incl. IC)

	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

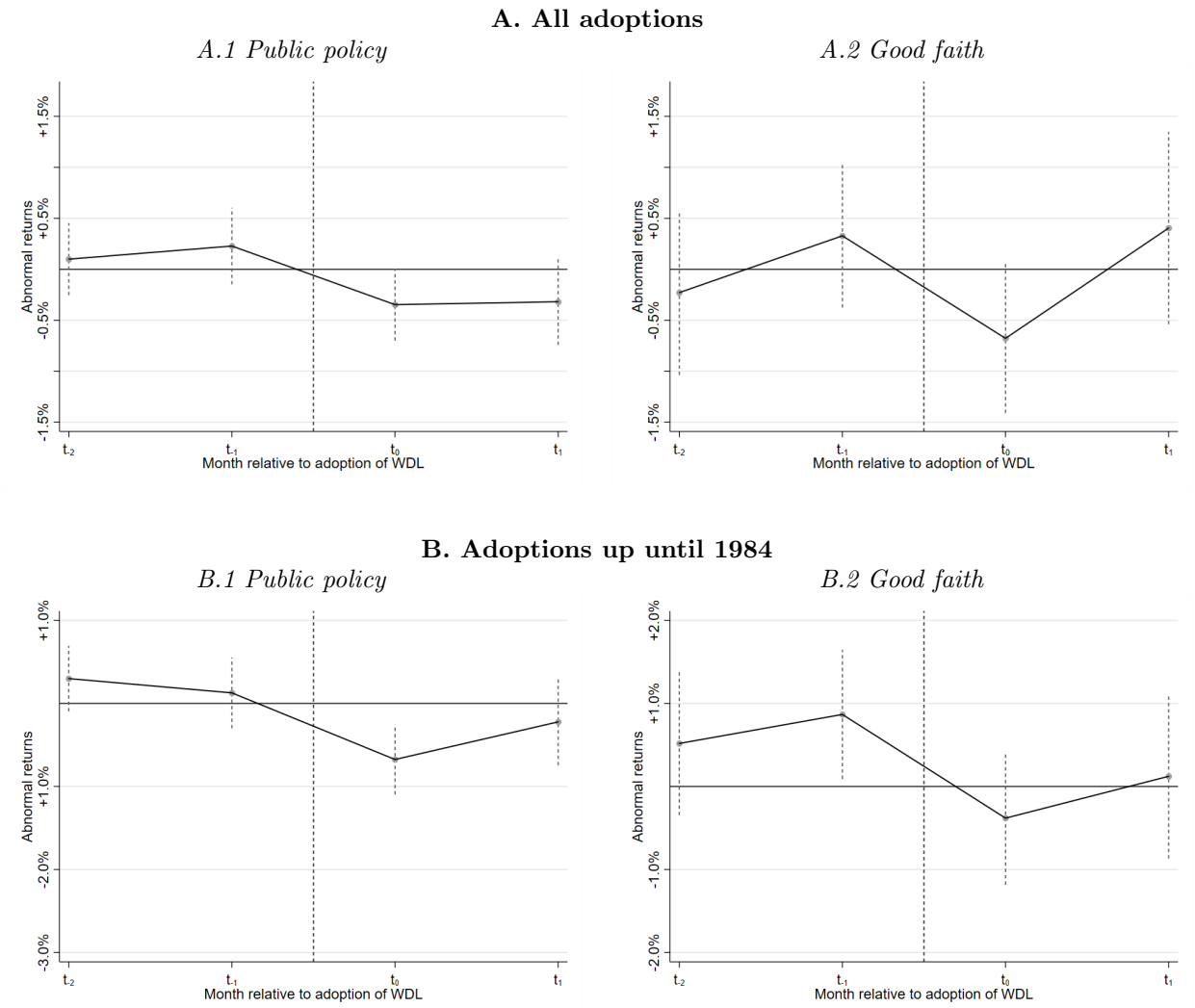
Note: Standard errors in parentheses are clustered at the state level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level.
See Table 1 for data definitions.

A.3 Market Reaction to the Introduction of WDLs

As discussed in Section 5.1, the PP exceptions leads to a reduction of stock returns in the year after the adoption. This is in line with the notion that investors regard the court rulings in favor of PP as 'bad news'. 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 (positive) 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.

Figure A.1 shows average abnormal returns as residuals from the Fama and French (1992) three-factor model. While there are no decisively significant abnormal returns in the overall sample (note that the effect of PP is almost significant at the 10%-level; p-value = 0.105), we find significantly negative abnormal returns when considering early introductions before 1984. This refers to the point in time when half of U.S. states had recognized the PP doctrine and it was arguably less of a surprise to investors afterwards. Note that the introduction of GF did not have any significantly negative effects in these instances, either, suggesting that overall, GF was not regarded as a negative surprise.

Figure A.1: Abnormal returns around adoption of public policy exception



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.4 Effects of WDLs on Firm Characteristics

In Table A.5, we present the results of a regression of firm characteristics on dummy variables for whether either type of WDL is in place. In the following, we discuss the results against the backdrop of established results from the literature and highlight how the effects may arise as a consequence of changes in discount rates, i.e. capital costs. We also consider heterogeneity with respect to the scope and the reach of a policy in a given state, i.e. distinguishing between states following a broad or narrow interpretation of PP or GF, respectively (see Section 5.2).

Column 1 shows the effects of WDLs on investment measured as relative growth in total balance sheet assets. In line with the discount rate effects from Table 7, we find (insignificantly) lower asset growth for PP jurisdictions and higher investment for firms in GF (broad) states and lower investment in GF (narrow) states. This supports the notion that only when GF has sufficient 'bite', it has the marked positive effect on employee risk-bearing which we find is associated with lower discount rates. Bai *et al.* (2020) find in a 1964-2003 sample excluding financial and utility firms lower capital expenditure when the good-faith exception is in place. It should be noted that our measure of investment is broader and includes all kinds of assets, including intangible ones and our sample is not restricted to firms of specific industries.

Column 2 shows the results for (operating) profitability. We find significant effects only for GF with a weakly negative coefficient on GF (narrow) and a significantly positive coefficient for GF (broad). This is at first sight puzzling. The q-theory(see, e.g. Hou *et al.*, 2014) would suggest that given a level of investment, firms with lower discount rates should be less profitable: 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. Note however that this holds conditional on investment being the same (which according to Column 1 is not the case). Bird and Knopf (2009) find that wrongful discharge laws are associated with lower profitability in a sample of banks from the 1980s. In contrast, we consider all firms included in the Compustat database, including non-financial ones, from 1965 to 2019.

Column 3 shows the effect of WDLs on firm market capitalization. In line with the effects on discount rates, market capitalization (which reflects valuation) is higher for

firms in GF (broad) jurisdictions and slightly lower for other settings. Again, this points to the importance of the scope of the interpretation of the laws.

Column 4 shows the results for a regression of book-to-market ratios on dummy variables indicating whether a WDL was in place. There are no effects visible. This is perhaps suprising (given that we found marked effects on the earnings-price-ratio as another valuation measure) but is likely due to the measurement of intangible assets (Park, 2019).

Column 5 shows the results for book leverage defined as one minus the ratio of common equity to total assets. There is no significant impact on leverage for GF (perhaps due to higher profitability and thus more internal financing) but a weakly significant and economically small impact of the PP exception between 0.5 and 1.8 percentage points of book leverage. The results are largely in line with established results on the effects of WDLs on leverage. Using a shorter observation period, Serfling (2016) finds no effect of either policy in a similar specification without control variables, while he does find that GF has a negative effect when controlling for potentially co-determined operating profitability (see Column 2 and Bird and Knopf, 2009). One may speculate that the slightly higher leverage in PP states reflects firms' strategic decisions to reduce the money at stake in wage negotiations (similar to Bronars and Deere, 1991; Saint-Paul, 2002; Schmalz, 2018; Ellul and Pagano, 2019, in the context of unionization and employee rights in liquidation) due to a shift of bargaining power to workers. The regression results presented in Table A.6 show that leverage does not explain higher mean returns when PP is in place.

Table A.5: 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 A.6: 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.

A.5 Additional Tables and Figures

Table A.7: Sensitivity analysis: alternative location data

	Dependent variable: annualized monthly returns	
	Baseline estimates (1)	Alternative location (2)
Public policy exception	0.0237**	0.0299***
	(0.0102)	(0.0110)
Good faith exception	-0.0160*	-0.0204*
	(0.0094)	(0.0115)
Implied contract exception	0.0049	0.0007
	(0.0112)	(0.0117)
No. of observations (firm-months)	2,675,138	2,103,074
No. of firms	20,303	17,355
R^2 (adj.)	0.109	0.110
Control variables		
Time fixed effects	Yes	Yes
State fixed effects	Yes	Yes
Region-trend effects	Yes	Yes

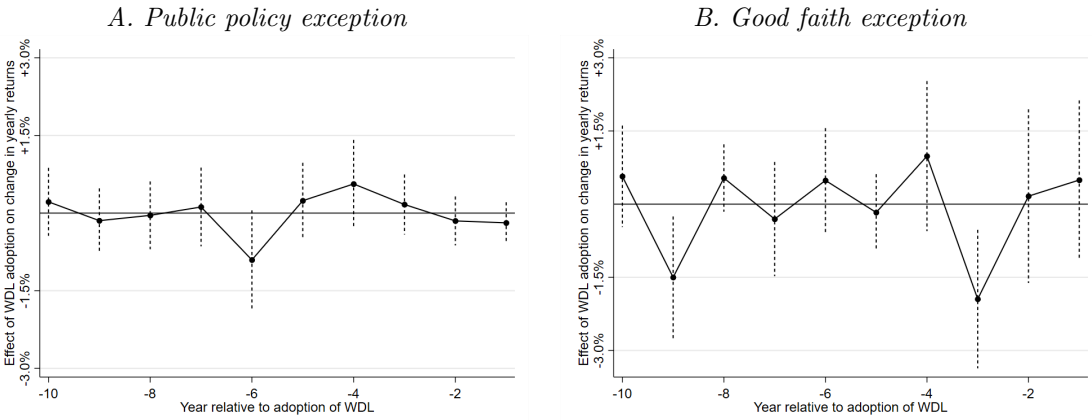
Note: In column (2), we utilize alternative location information as used in Bai *et al.* (2020). Standard errors in parentheses are clustered at state-month level. */**/*** indicate statistically significant effects at the 10%/5%/1%-level

Table A.8: The impact of wrongful discharge laws on default risk

	Dependent variable: Altman's z-score (standardized)
	(1)
Public policy exception	0.120***
	(0.0293)
Good faith exception	-0.161***
	(0.0533)
Implied contract exception	0.0225
	(0.0530)
No. of observations (firm-years)	172,933
No. of firms	15,776
R^2 (adj.)	0.108
Control variables	
Time fixed effects	Yes
State fixed effects	Yes

Note: (Modified) Altman's z-score as a measure for default risk is calculated as $1.2(wcap/at) + 1.4(re/at) + 3.3(ebit/at) + (sales/at)$ (see e.g. Serfling, 2016). The variable is standardized to have a mean of zero and a standard deviation of one. *wcap* - working capital; *at* - value of total book assets, *re* - retained earnings; *ebit* - earnings before income and taxes. Depicted are the effects 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.

Figure A.2: Trends to annualized returns before WDL adoption



Note: Depicted are differences in yearly changes of lagged stock returns comparing states adopting a WDL in year t with states not recognizing the corresponding law in year t over a period of ten years prior to the adoption of the law.