Do Courts Matter for Firm Value?
Evidence from the U.S. Court System[*]

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Abstract

We estimate the link between the court system and firm value by exploiting a U.S. Supreme Court ruling which changed firms' exposure to different courts. We find that exposure to courts which are highly ranked by the U.S. Chamber of Commerce increases firm value. The effect is driven by courts' attitude towards businesses more than by their efficiency and is more pronounced for firms in industries with high litigation risk. We also test whether firms benefit from the ability to steer lawsuits into friendly courts, so-called forum shopping. We provide evidence that a reduction in firms' ability to forum shop decreases firm value, whereas a reduction in plaintiffs' ability to forum shop increases firm value.

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1 Introduction

Economists have long recognized the importance of legal institutions. Examples include the work on shareholder rights (La Porta, López de Silanes, Shleifer, and Vishny, 1998) and legal formalism (Djankov, La Porta, López de Silanes, and Shleifer, 2003). We contribute to this research agenda by analyzing a key link between the legal system and economic development: The value of courts for the business sector. Whereas it is not surprising that different countries in different stages of development feature legal institutions of varying quality (Hay and Shleifer, 1998) and that specific court proceedings pose significant risk to individual firms (Bhagat, Brickley, and Coles, 1994), it is unclear to what extent the court system as such creates value for firms. We fill this gap in the literature by using evidence from the U.S. court system.

Two key questions arise in the context of courts and firm value: The first question concerns the magnitude of the impact courts have on firm value. The second question is the economic channel through which courts create value for firms. One potential channel is that efficient and competent resolution of cases reduces legal uncertainty and litigation costs. Alternatively, courts can increase firm value by moving resources from plaintiffs such as customers or employees to shareholders.

Our paper makes two key contributions. First, we disentangle the effect of courts from confounding factors both on the state level, such as different laws, and on the case level, such as case specific details. We quantify the link between court characteristics and shareholder value, and find strong evidence that differences between courts matter for firm value even inside a highly developed legal system. Second, we present evidence that, in the U.S., it is courts' attitude towards business rather than their efficiency which drives their impact on firm value. We further show that these effects are strongest for firms in industries with high operational legal risk, and that firms derive value from steering cases into favorable courts.

Previous studies of the impact of the legal system have mainly taken two forms: Cross-country comparisons of macroeconomic data or cross-firm event studies around the announcement (or resolution) of lawsuits. Both approaches are not suitable for our goal of estimating the impact of courts on firm value. The key challenge in cross-state or -country studies is that characteristics of the court system are directly linked to laws. Any study comparing measures of court quality across states is invariably also comparing different laws, firms, or political and social environments. Commonly used instruments such as legal tradition and colonial history are likely be related to a number of other

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institutions, and particularly laws. Therefore, a comparison of otherwise similar cases is not able to disentangle the impact of courts from that of laws, even when controlling for firm characteristics.

Event studies that focus on the impact of lawsuits on firm value, in contrast, cannot distinguish between the role of courts and the merits of a case. There is little doubt that legal proceedings pose a large risk to firms. Event studies report significantly negative stock market reactions upon the announcement of lawsuits (Bhagat, Brickley, and Coles, 1994; Hutton, Jiang, and Kumar, 2015). According to the U.S. Chamber of Commerce, 75% of surveyed corporate lawyers responded that the quality of a state's court system was likely to impact specific business decisions, such as where to conduct business.[1]

We provide a solution to the above identification challenges and link the impact of the court system across various U.S. states to firm value. We obtain identification from the two-layer structure of state and federal courts in the U.S., combined with an event study around a U.S. Supreme Court ruling. To understand our proposed solution, consider an idealized experimental setup in which identical firms, which face identical lawsuits, are randomly assigned to different courts. These different courts then have to apply the exact same laws. Since firms, lawsuits and laws are identical in such a setup, the only difference between two firms assigned to different courts lies in their respective courts. A simple event study of stock price reactions would then be able to estimate the impact of courts on firm value. The two key features of such an idealized setup are that firms, laws and lawsuits are identical, and that assignment to courts is random.

The U.S. court system features a setup which fulfills the first assumption, namely that firms and laws are the same across two different court systems. The U.S. judiciary is comprised of two layers: Federal and state courts. Most cases are handled by state courts, but there are important exceptions. If a civil lawsuit features parties from different U.S. states, their so-called "diversity of citizenship" grants federal courts jurisdiction over the case. Diversity jurisdiction has been a long-standing feature of U.S. law, rooted in the constitution and practiced in various forms since the Judiciary Act of 1789. Importantly, in diversity cases federal courts are bound to apply exactly the same law as the state court

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[1]The U.S. Chamber of Commerce is a vocal business lobbying organization pushing for legal reform. Since 2002, the U.S. Chamber of Commerce has published rankings of U.S. state courts based on surveys of large U.S. corporations. In its pursuit of legal reform, it does not just rank courts, but actively supports judges friendly to its agenda through donations and advertisement (Champagne, 2001, 2004). Candidates supported by the U.S. Chamber of Commerce in this manner prevailed in 36 out of 40 judicial elections between 2000 and 2004 (Shepherd, 2009). Choi, Gulati, and Posner (2009) provide further examples of the ranking's impact on both politicians and judges. See *2015 Lawsuit Climate Survey*, available at http://www.instituteforlegalreform.com.

in whichever state the original case was based in. This so-called "Erie doctrine" has been a well-established rule ever since the landmark case of *Erie Railroad Co. v. Tompkins* in 1938.[2] As a results of the Erie Doctrine, the difference between trying a case in federal or state courts does not lie in different laws, but solely in differences among courts. The diversity jurisdiction therefore allows us to evaluate the impact of courts on firm value while controlling for the applicable laws.

A simple comparison of stock market reactions to cases in either state or federal courts would, however, not fulfill the second requirement of the idealized setup: Assignment into courts needs to be random. Whether a case is tried in federal or state court is endogenous and both the plaintiff and the defendant aim to steer cases into favorable courts. Lawyers refer to a party's attempt to move cases between courts as "forum shopping". Forum shopping is pervasive and whether a party is successful in setting the forum can greatly impact the outcome at trial (Clermont and Eisenberg, 1994). Any attempt to examine the effect of courts on legal outcomes based on actual cases therefore suffers from this endogeneity of court choice.

To resolve the endogenous matching of firms and courts, we exploit a U.S. Supreme Court ruling which caused an exogenous variation in the ability of parties to move cases between forums. In the case of *Hertz Corp. v. Melinda Friend* (*Hertz*), the U.S. Supreme Court ruled on the conditions under which a corporation is deemed a citizen of a state for the purpose of diversity jurisdiction.[3] On February 23, 2010, the court decided that a corporation should be deemed a citizen of at most two states: The state of incorporation and the state in which its officers guide the firm's day to day activities, its "nerve center". The judges ruled that this corporate nerve center is at the firm's headquarter. After the ruling, firms were able to reliably claim diversity of citizenship in state courts which were not their headquarter or incorporation state. At the same time, firms that were only marginally active in their headquarter state lost the ability to claim diversity of citizenship when sued in that state. Those firms were therefore "pinned" into their headquarter state courts through the ruling.

We perform an event study around the ruling in *Hertz* using a sample of U.S. nonfinancial firms. We focus on firms that lost the ability to move cases into federal courts in their headquarter state, i.e., those with small operations in their headquarter state. To identify such firms, we rely on a text-based measure of geographic dispersion of corporate activities across states. Using both an academic ranking of courts by Choi, Gulati, and

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[2]Case 304 U.S. 64 (1938).
[3]Case 559 U.S. 77 (2010).

Posner (2009) and a ranking produced by the U.S. Chamber of Commerce, we find that exposure to different courts is systematically connected to firm value. A firm exposed to a state court at the top tercile of the U.S. Chamber of Commerce ranking experiences a positive abnormal return of 0.45% compared to a firm exposed to a court from the bottom tercile. This translates into an $8.7 million increase in equity value for the median firm in our sample. In addition, we use differences between the two rankings to investigate whether this value effect is driven by court efficiency or rather court attitude towards businesses. We find that while a business-friendly court increases firm value, pure court efficiency does not.

Our finding that courts' business attitude matters for firm value implies that forum shopping between various courts is a profitable practice for both firms and plaintiffs. To test this prediction, we sharpen our identification strategy by exploiting geographic heterogeneity in treatment from the ruling in *Hertz*. Before *Hertz*, federal circuits across the U.S. employed different interpretations of corporate citizenship, creating a so-called "circuit split". The divergent interpretation created geographic variation in the treatment effect from *Hertz*. We use this geographic variation to identify firms which experienced a reduction in the ability of potential plaintiffs to sue in a favorable forum.[4] We match these treated firms to control firms characterized by similar geographic dispersion and size. We find that treated firms exhibit positive abnormal returns on the event date. Firms therefore benefit when their plaintiffs have less choice in picking a favorable court. If firms benefit when their plaintiffs lose flexibility to forum shop, the opposite should happen when firms themselves lose flexibility to select favorable courts. We identify instances where the ruling in *Hertz* caused firms, rather than plaintiffs, to lose flexibility in picking favorable courts. We find that those firms experienced negative abnormal returns on the event date. These results indicate that the observed forum shopping in legal cases is indeed a value-maximizing strategy.

Our paper is related to several strands of the literature. First, we contribute to the

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[4]For simplicity, the remainder of this paper uses the terms "firm" and "defendant" interchangeably. We refer to the opposing parties suing the firm as plaintiffs. Of course, a firm can be either plaintiff or defendant. The reason for classifying firms as defendands is that cases in which one corporation is suing another will be impacted roughly symmetrically by the ruling we analyze. In our event study of announcement returns, these opposing effects are going to net out as long as corporations suing each other are not systematically located in states with different court ratings. Some firms adopt so-called "forum selection clauses" in their contracts which fix the applicable court for any lawsuits arising under such a contract. Grundfest (2012) finds such provisions in less than 40% of the material contracts of publicly traded firms and in less than 2% of their bylaws and corporate charters. To the extend that forum selection clauses are likely less common in non material contracts, this constitutes an upper bound of their frequency. Any remaining influence of these clauses should attenuate our findings.

literature on law and finance, in particular to the research on the consequences of the quality of institutions for businesses. Plaintiffs do not just strategically choose between federal and state courts (Hubbard, 2013), but also between various judges (Taha, 2011), and venues inside the federal and state court systems (Sukhatme, 2014). Armour, Black, and Cheffins (2012) document forum shopping in cases involving firms in Delaware. They find that plaintiffs strategically move their cases out of Delaware courts when they see their chances of success diminishing due to earlier rulings. Wilson (2015) shows that exclusive forum provisions adopted by the board of directors (which define the venue for shareholder litigation) positively affect the value of the firm. Chang and Schoar (2013) study the impact of judges in bankruptcy cases and find that debtor-friendly judges adversely affect firm performance after Chapter 11 reorganizations. Our paper adds to this literature by examining the consequences for firm value of heterogeneity in state court systems and of flexibility in the choice of courts.[5]

The most prominent example of the interplay between legal institutions and corporate behavior is that the small state of Delaware is the incorporation state of more than 50% of U.S. corporations (Daines, 2001). The causes and consequences of this phenomenon, the so-called Delaware effect, are widely debated. Some authors argue that Delaware's sophisticated case law on corporate issues and its specialized business courts are key explanations for its popularity (Romano, 1985; Daines, 2001). Other factors that received significant attention are the effect of different regulations regarding merger and acquisition activity or liability of directors (Dodd and Leftwich, 1980; Heron and Lewellen, 1998). The evidence, however, is mixed due to the endogenous nature of the decision whether to incorporate in Delaware. Our finding that court characteristics have a significant impact on firm value contributes to the understanding of the Delaware effect.

From a methodological perspective, the effect of court decisions has been the subject of various studies in economics and finance. For instance, such events have been used as exogenous shocks to study the role of takeover provisions (Cohen and Wang, 2013; Cheng, Nagar, and Rajan, 2005), alternative corporate governance mechanisms (Grinstein and Rossi, 2014), conflicts between shareholders and creditors (Becker and Strömberg, 2012), and shareholder litigation risk (Chu, 2014). Moreover, many studies have used variation across state laws as an identification strategy (e.g., Bailey, 2006; Bertrand and Mullainathan, 2003; Jayaratne and Strahan, 1996). Our approach differs since it does not

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[5]Spier (2007) provides an overview of the literature on law and economics including models of the decision to go to trial, settle or negotiate. However, he does not mention forum shopping and the consequences of choice of courts, an area of law and economics that has yet to be thoroughly explored.

rely on state-level differences in laws but on the interpretation and application of laws in different circuits. We believe this new identification strategy can be fruitfully applied in a number of different contexts.

2 Methodology and data

2.1 Identification strategy

Our identification strategy consists of three components. First, we exploit a unique feature of the U.S. court system which allows cases to be tried under institutionally distinct court systems but considering the exact same laws. Second, since selection into either of those two court systems is endogenous, we use a decision by the U.S. Supreme Court in *Hertz Corp. v. Friend* that changed the rules under which cases are assigned to the different courts. Finally, we exploit exogenous geographic variation in how the ruling affected firms, caused by a so-called circuit split. Such splits arise when different regional circuits at the federal level interpret laws in contradicting ways.

The questions of which laws are to be applied and which courts are in charge of the case are inherently intertwined. The outcome of a case brought in Austin under Texas law will be determined by different laws, legal precedents and courts than that of a similar case brought in Seattle under Washington law. There is, however, a peculiarity of the U.S. judicial framework that allows for the separation of court systems and laws. The U.S. constitution (Article III, Section 2) grants federal courts the right to try civil cases as long as the involved parties are from different states: "The judicial Power [of federal courts] shall extend to all Cases [...] between Citizens of different States".[6] In practice, this rule means that civil cases in which the two parties are from different states can be heard by federal courts. The Founding Fathers were afraid that a state court trying an out-of-state citizen lacked objectivity. The federal courts were to act as a neutral forum to settle interstate disputes.

The reason why this dual court system allows us to disentangle the role of court characteristics from that of laws is that the federal courts are forced to apply exactly the same laws as the state court. The so-called Erie Doctrine is a longstanding legal rule, first established in the case of *Erie Railroad Co. v. Tompkins* in 1938.[7] As a result of the

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[6]Implemented as "28 U.S. Code 1441 - Removal of civil actions". The rule was later interpreted as requiring "complete diversity": No member of the defendants can be a citizen of the same state as any of the plaintiffs (546 U.S. 81). See http://www.archives.gov/exhibits/charters/constitution_transcript.html, retrieved on April 19, 2015.

[7]Case 304 U.S. 64.

Erie Doctrine, the difference between a case tried in state or federal court lies solely in the court system itself. There are different judges, juries and procedural rules between the two systems, but exactly the same laws.

We exploit this dual court structure to isolate the impact of court attributes from that of laws. Yet a simple comparison of specific cases tried in either of the two court systems cannot account for the endogeneity of court choice. We resolve this challenge by exploiting a U.S. Supreme Court decision as an exogenous shock to the ability of firms to move cases between federal and state courts. In the case of *Hertz*, the U.S. Supreme Court had to decide under which circumstances a corporation is allowed to remove cases from state into federal court. Hertz, headquartered in New Jersey, was being sued by its former employee Melinda Friend in California state court over an alleged breach of employment laws. Hertz petitioned to remove the case into federal court, claiming diversity of citizenship. The petition was rejected on the grounds that between 16% and 20% of Hertz's employees, revenues, and transactions related to its Californian operations. Hertz then appealed this rejection, citing other cases in which firms with similarly sized operations in California had been granted diversity of citizenship. On February 23, 2010, the U.S. Supreme Court ruled in favor of Hertz. It argued that a corporation should only be considered a citizen in its state of incorporation and the state in which its day to day business activities were guided, something the judges referred to as the corporation's nerve center. We describe this ruling and its effect on the accessibility of federal and state courts in more detail in Appendix A. We also confirm that the ruling was both unanticipated and widely covered in the media upon decision, thus fulfilling the standard requirements for a quasi-natural experiment.

We further sharpen our identification by exploiting a so-called circuit split. The U.S. federal judiciary is geographically organized in 11 courts of appeal or *circuits*. Each circuit is composed of multiple federal states. Circuit splits arise when different circuits of the U.S. federal court system persistently interpret the same law in different ways. The resolution of circuit splits is one of three reasons for the U.S. Supreme Court to hear a case.[8] If the question in case is important enough and the differing interpretations vary significantly, the U.S. Supreme Court can opt to grant "petitions for writs of certiorari" in which it resolves the split and establishes a common interpretation among the circuits. When the court does so, the ruling creates a geographic variation in treatment. If the U.S. Supreme Court sides with one circuit, cases in that circuit (and the firms involved in those cases) do not experience a change in the interpretation of the law. They therefore

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[8]See U.S. Supreme Court's Rule 10(a): https://www.law.cornell.edu/rules/supct/rule.

form a control group. Cases in circuits whose interpretation of the law is overturned, on the other hand, experience a treatment effect. As in all event studies the treatment effect's size depends on the degree to which the ruling was anticipated.

In the split regarding corporate diversity jurisdiction, the 7th Circuit had been applying the nerve center test for the purpose of determining corporate citizenship even before the U.S. Supreme Court's ruling. Other circuits had employed different definitions, with the 9th Circuit applying the most divergent rules. The U.S. Supreme Court's decision therefore had a geographically heterogeneous impact on court cases. Firms with operations in the 9th circuit experienced the most significant change in the application of diversity jurisdiction. Firms in the 7th circuit experienced no change and form a control group.

One challenge is to determine the exposure of firms to lawsuits in the various circuits. We use machine-collected data to proxy for firms' geographical footprints (see Section 2.3). A firm with significant operations in a given state is likely to also experience exposure to this state's courts, either through employees, business partners or customers.

2.2 Circuit splits as quasi natural experiments

Our empirical design relies on the geographical heterogeneity of treatment due to a circuit split. It lies in the nature of those splits that treatment varies depending on geography. Consider, for example, a circuit split between the 2nd Circuit and the 4th Circuit.[9] If the U.S. Supreme Court decides to side with the 4th Circuit's opinion, this decision has no impact on lawsuits brought in any of the states in that circuit. But any lawsuit in the 2nd Circuit will now have to be judged under the different rules established by the 4th Circuit. This variation provides a geographic dimension in treatment through U.S. Supreme Court rulings. Firms in the 2nd Circuit form the treatment group, and firms in the 4th Circuit form the control group.

We believe that circuit splits provide valuable quasi-natural experiments for multiple reasons. First, federal circuits consist of multiple states (see Figure 1). The large size of treated areas assures that there will be a large number of treated firms in diverse industries. In addition, the fact that circuits span multiple states helps to control for any state specific shocks due to state laws or state Supreme Court rulings concerning other issues.

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[9]The 2nd Circuit includes Connecticut, New York and Vermont. The 4th Circuit includes Maryland, North Carolina, South Carolina, Virginia and West Virginia (see Figure 1).

Another particular feature that makes circuits ideal settings for experiments is that they group states in a unique way: Besides being geographically close, there is no obvious commonality across states in the same circuit. The composition of circuits is the result of historical political decisions and is therefore arguably unrelated to current economic circumstances. These historical origins should lessen concerns about estimates being driven by the local business cycle.[10] Because circuits are formed in such a unique way makes, it less likely that firms are sorted into treatment and control groups in a non-random fashion, increasing the credibility of the experiment (Meyer, 1995).

There are, however, challenges in exploiting the regionally different impact of rulings. A geographically diverse firm with operations all over the country will only be partially affected by rulings. A key challenge is therefore to measure the geographic dispersion of corporate operations. We propose a new measure of geographic diversification which is built from text analysis of publicly available 10-K filings.[11] Our measure builds on the one originally introduced by Garcia and Norli (2012), which for each firm counts the number of occurrences of each U.S. state in certain sections of the firm's annual report.

The ruling in *Hertz* is just one example of a circuit split being resolved by the U.S. Supreme Court. We believe that the geographic dimension of circuit splits can be fruitfully applied to numerous instances in finance and economics. Table 1 gives an overview of 17 circuit splits resolved by the U.S. Supreme Court.[12]

2.3 Data

We obtain accounting and daily stock return data for U.S. public firms from the CRSP-Compustat merged database over the period 2006 through 2014. Compustat only provides the current headquarter and incorporation states. We therefore add information on each firm's historic headquarter and incorporation states starting from 2007 from CRSP's COMPHIST table. We include firm-years with non-missing sales, total assets, common shares outstanding, share price, and calendar date. In addition, we require firms to report total assets in excess of $10 million in 1990 dollars. We use daily return risk factors from Kenneth French's data library.[13] Industry-level information regarding labor intensity is

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[10]For instance, Crone (2005), in hig Figure 1, produces a subdivision of U.S. states in economic regions based on similarities of state business cycles alone (i.e., without accounting for proximity measures), that bears little resemblance to the 11 circuits.

[11]The Compustat Segments data, for example, are very incomplete at the state-level.

[12]Some of these rulings have already been the subject of previous studies (see, e.g., Massoud, Saunders, and Scholnick, 2011; Giambona, de Silanes, and Matta, 2014).

[13]These risk factors are available on Kenneth French's website: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

from the NBER-CES Manufacturing Database. We obtain data about nonfatal occupational injury and illness rates from the Injuries, Illnesses, and Fatalities (IIF) program of the Bureau of Labor Statistics (BLS). We winsorize all variables at the 1st and the 99th percentile. All dollar amounts are expressed in 1990 dollars.

In the analysis of the ruling in *Hertz*, we exclude financial institutions. We focus on firms with available stock price data on the day of the ruling, February 23, 2010. We estimate regressions of each firm's daily stock returns over the estimation window on the three Fama and French (1993) risk factors (excess market return, small minus big, high minus low) and a momentum factor. We use a one-year estimation window from July 1, 2008 to June 30, 2009. We winsorize the estimated factor loadings at the 5th and 95th percentile as in Becker, Bergstresser, and Subramanian (2013). We then compute event-day abnormal returns (ARs), $CAR[0,0]$, and cumulative abnormal returns (CARs) over different windows around the event-day, $CAR[n1, n2]$, as residuals of the estimated factor model for each firm in our sample.[14]

To compute our measure of corporate geographic dispersion, we collect data from annual reports filed with the SEC's EDGAR database. Similar to Garcia and Norli (2012) and Bernile, Kumar, and Sulaeman (2015), we construct our measure of geographic dispersion by searching certain segments of 10-K annual report filings for the names of U.S. states and rank them according to their frequency of occurrence. If the number of state mentions is missing for a given firm-year, we interpolate it by taking the average between the counts in the year before and after the year with missing data. We only do not interpolate iteratively. We remove all the observations for which state counts are still missing after interpolation. Given these counts, we compute our baseline measure of corporate geographic dispersion, *Out of HQ state operations (%)*, namely the fraction of non-headquarter state counts to total state counts. Similarly, we obtain the concentration of non-headquarter state operations by computing the Herfindahl index of non-headquarter state counts, *Out of HQ state operations (HHI)*.[15] A detailed description of the construction of the measure can be found in Appendix B.

A key question of the paper is the impact of state court characteristics on firm value. To this end, we employ three measures of state court quality. First, we use the 2010 ranking of state courts published by the U.S. Chamber of Commerce. The ranking is

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[14]Event-day ARs should already incorporate the effect of the ruling in *Hertz*, as the U.S. Supreme Court released its decision at around 10 a.m. EST (see http://www.wsj.com/articles/SB10001424052748704188104575083371529042754).

[15]The ruling in *Hertz* had an effect in states which were neither the headquarter nor the incorporation state. For the sake of brevity, we will use the expression headquarter state to mean both of these states.

constructed by surveying legal counsels of large U.S. corporations about various aspects of state court systems. Despite the ranking's large public profile, business lawyers are not an unbiased audience to survey. This feature has drawn criticism in the past (e.g. Eisenberg, 2009). Hence, we also employ an academic ranking that uses measures of efficiency such as the rulings per judge or citation counts of rulings in other states (Choi, Gulati, and Posner, 2009). We make the two rankings comparable by removing oversees territories and the District of Columbia from the academic ranking as they are not featured in the U.S. Chamber of Commerce ranking.[16] In our analysis, we assign to each state its ordinal rank, such that the value of 1 corresponds to the best ranked state, and 50 to the worst ranked state (see Appendix C). Finally, we orthogonalize the two rankings to extract two distinct components: Business attitude and court efficiency. The U.S. Chamber of Commerce ranking takes into account both efficiency as well as a business attitude considerations. According to the Lawsuit Climate Survey 2015, the number one complaint about courts was "biased judgement", a business attitude consideration. The number two and three concerns, on the other hand, were "corrupt system" and "poor quality of judges", which are objective efficiency concerns. The academic ranking, in contrast, is based solely on efficiency criteria. By orthogonalizing the two rankings, we obtain a measure of court business-friendliness that is unrelated to court efficiency.

We also combine our measure of geographic dispersion with state court rankings. For each firm and ranking, we build a weighted average of non-headquarter state courts by multiplying the relative percentage of occurrences for each state with the ranking of its courts. This yields the average quality of non-headquarter state courts for each firm. But this number does not take into account how much non-headquarter states contribute to a corporation's business. We therefore multiply the average non-headquarter state court quality by the fraction of non-headquarter state operations.[17]

Table 2 presents summary statistics for data used in our event study on the ruling in *Hertz*. Panel A reports the mean of several measures of geographic dispersion (also weighted by state court business-friendliness) by quartile. We observe non-trivial variation in these measures between the bottom and top quartiles. For instance, the average

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[16]In addition, the academic ranking assesses the civil and criminal courts of Texas separately. We only consider the civil court's ranking, since it is more relevant for the kind of lawsuits usually faced by corporations.

[17]We call these ranking-weighted measures *Chamber of Commerce ranking (out of state)*, *Academic ranking (out of state)*, and *Business attidute (out of state)*. Formally, let I be the set of states mentioned in the annual report different from the firm's headquarter state, and J be the set of all states. Let $rank_i$ denote the ranking and $count_i$ the number of mentions of $state_i$, then: $\frac{\Sigma_{i \in I} count_i rank_i}{\Sigma_{i \in I} count_i} \frac{\Sigma_{i \in I} count_i}{\Sigma_{j \in J} count_j} = \frac{\Sigma_{i \in I} count_i rank_i}{\Sigma_{j \in J} count_j}$.

firm in the bottom quartile by *Out of HQ state operations (%)* has 18.5% of operations outside its headquarter state. By contrast, the average firm in the top quartile has 85.4% of operations outside its headquarter state. Similarly, the lowest quartile of firms mention three different states in their annual report compared to 23 states for the highest quartile of firms. Panel B reports the mean of Febraury 23, 2010 ARs by quartile of the same geographic dispersion measures. Event-day ARs ($CAR[0,0]$) are generally decreasing in these measures of geographic dispersion. Panel C provides unconditional summary statistics for all the main variables used in our analysis. Detailed definitions of the variables are given in Table D.1.

In an additional experiment based on the ruling in *Wachovia* on January 17, 2006, we look at banks with available stock returns in CRSP according to the CRSP-FRB link file made available by the Federal Reserve Bank of New York.[18] By means of this link file, we supplement the bank sample with the 2005 FDIC's Summary of Deposits, which provides high-quality data on locations and deposits at the bank branch-level. To compute ARs, we follow the same procedure described above for the ruling in *Hertz* but with two differences. First, the one-year estimation window is adjusted to July 1, 2004 to June 30, 2005. Second, we use ARs based on the market model, as standard in the literature for banks (e.g., DeLong and DeYoung, 2007; Minnick, Unal, and Yang, 2011). We present summary statistics for the bank sample in Section 5.2.

2.4 Econometric issues

In our empirical analysis, we assess stock price reactions to the U.S. Supreme Court ruling concerning corporate diversity of citizenship following a regulatory event study methodology (Schwert, 1981).

We test our hypotheses by estimating cross-sectional regressions of event-day ARs and CARs on several measures of state court characteristics and corporate geographic dispersion. We restrict the analysis to event-day ARs and two-day CARs to establish a sounder causal interpretation of our findings, as confounding events are likely to take place as we move away from the event-day. We also employ the Abadie and Imbens (2002) matching technique to estimate the average treatment effect of the treated (ATT) on CARs.

Our tests exploit a single event affecting the firms in the sample. As a consequence, we are faced with cross-correlation of stock returns. We account for cross-correlation

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[18]See http://www.newyorkfed.org/research/banking_research/datasets.html.

in the systematic component of stock returns by adjusting returns for the three Fama and French (1993) risk factors and a momentum factor. Unless otherwise noted, we also correct for cross-correlation in the idiosyncratic component by clustering standard errors at the industry-level. Such an adjustment allows for arbitrary correlation among errors inside industries (Cohen and Wang, 2013).[19]

3   Hypothesis development

We begin our investigation with the question of whether the quality of the court system matters for firm value.

HYPOTHESIS 1: *Court characteristics impact firm value.*

The court system can impact firm value through two main channels: Efficiency and business attitude. The first channel is court efficiency. If courts correctly apply the law and arrive at decisions quickly, this reduces legal uncertainty. This reduction of uncertainty and increased efficiency saves transaction costs (e.g., lawyer fees), reduces uncertainty and frees up management resources. Management attention in particular has been shown to have a major impact on productivity and firm value (Giroud, 2013).

The second channel is court and jury attitude towards business. We compare two legal systems which apply the same law. If judges have a pro- or anti-business stance, this can significantly alter the course of a trial. The same logic holds even more strongly for juries. We test whether firm value is driven by court competency or business attitude.

Both sides in a legal dispute try to steer lawsuits into favorable courts. This practice of forum shopping leads us to Hypothesis 2.

HYPOTHESIS 2: *Firm value increases in a firm's ability to choose favorable courts. It decreases in the ability of opposing parties to choose favorable courts.*

The U.S. court system consists of a state and a federal layer. Therefore, courts vary both among states and between the state and federal level. Legal professionals refer to the choice among different state courts as "horizontal" forum shopping, compared to the "vertical" forum shopping between state and federal court levels. Figure 2 illustrates forum shopping.

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[19]In untabulated regressions, we also estimate standard errors robust to heteroskedasticity as in Larcker, Ormazabal, and Taylor (2011), and standard errors clustered at the industry-circuit level. Our results are robust to these alterative standard errors.

The initial choice of court is in the power of the plaintiff. She decides whether to bring her suit in federal or state court and in which circuit or state. If the defendant wishes to change courts, it is the defendant's obligation to show that the initial court choice was incorrect. Firms and plaintiffs therefore have different abilities in setting the court. Plaintiffs can choose the state in which to sue, which is equivalent to choosing the law which will be applied. In addition, plaintiffs can choose whether to file suit in federal or state court. Plaintiffs therefore have flexibility both in the horizontal and the vertical dimension. Firms can then mainly influence whether the case will be tried in federal or state court. As a result, firms mainly choose courts on the vertical dimension. Both vertical and horizontal forum shopping are pervasive phenomena (Hubbard, 2013; Sukhatme, 2014; Clermont and Eisenberg, 1997).

Our final hypothesis relates to the overall quality of federal and state courts.

HYPOTHESIS 3: *Federal courts are, as a rule, favorable for corporations compared to state courts.*

The idea that federal courts are more favorable than state courts for firms is widespread. The Wall Street Journal, for example, writes that "[...] corporations generally prefer to litigate in federal court; state courts are traditionally more plaintiff friendly".[20] Clermont and Eisenberg (1997) find that 71% of diversity cases which remain in state court end with a victory for plaintiffs, compared to 34% of cases which are removed to federal court. However, in an analysis of jury trial cases, Eisenberg, Goerdt, Ostrom, and Rottman (1995) find that win rates between federal and state courts are roughly similar when not limiting the sample to cases in which a party tried to remove the case. In addition, they find that federal courts actually award higher payments. These contradictory findings could be the result of the endogenous nature of forum choice: Corporate defendants will only choose to move cases into federal court if they expect an advantage from doing so. Even if federal courts are not uniformly favorable to corporations, the choice of federal courts in itself will imply a higher win rate for corporations upon successful removal. Our paper offers a potential solution to this endogeneity problem.

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[20] http://blogs.wsj.com/law/2006/01/17/supreme-court-issues-wachovia-decision-banking-industry-breathes-sigh-of-relief/, retrieved on April 19, 2015.

4 Results

4.1 Hypothesis 1: Court characteristics impact firm value

To test whether court characteristics impact firm value, we begin with an event study on the day of the ruling in *Hertz*. As discussed in Appendix A, the ruling determined that a firm's citizenship lies with its headquarter state, which made it impossible for firms to claim diversity of citizenship in their headquarter state. We focus on firms which were able to move cases to the federal system in the past because they had very small operations in their headquarter state. These firms were unable to do so after the ruling in *Hertz* and are therefore "pinned" into their headquarter state's court system. If the quality of state courts matters for firm value, then firms pinned into states with worse courts will lose value compared to firms which get pinned into better courts. Importantly, this setup allows us to compare different state courts while controlling for potential differences between state and federal courts.

To test this hypothesis, we limit the sample to firms headquartered outside the 7th Circuit and those for which their headquarter state constitutes less than 15% of their overall operations. The reason for eliminating firms headquartered in the 7th Circuit is that courts there had applied the nerve center test even before *Hertz*. Hence, those firms are not suitable for our test.[21] Therefore, all firms with their headquarter in a state outside the 7th Circuit had the chance to claim diversity of citizenship when sued in their headquarter state pre-*Hertz* if operations in that state were small enough. This is why we limit the sample to firms for which operations in their headquarter state, as measured by the count of mentions of this state, constitute less than 15% of their nationwide operations. We choose this cutoff as it is between the threshold of 18% at which Hertz was found a California citizen and the 13% at which Best Buy was found not to be a citizen.[22]

We quantify the quality of the court system in each firm's headquarter state. We do so using both the U.S. Chamber of Commerce ranking and academic ranking. The ruling denied firms the ability to escape state courts in their headquarter state. If state court

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[21]All other circuits allowed firms to claim diversity of citizenship in their headquarter state pre-*Hertz*. Note that we use the headquarter state rather than the incorporation state: Firms were unable to remove any cases brought against them in their state of incorporation both pre- and post-*Hertz*. The 9th Circuit was most extreme in applying the "significant operations" test described in Appendix A. All other states employed varying mixtures of the two methods. Usually courts would first test whether a firm was "centralized" in its headquarter state by using the significant operations test. If they found the firm not to be centralized, they assigned citizenship to the state with the most significant operations.

[22]Our results are robust to variations in this threshold (see Table 3, Panel B).

quality matters, we expect a negative coefficient on all ranking variables, since a higher ranking-number corresponds to a worse system.

Table 3 estimates regressions of CARs around the date of the ruling in *Hertz* on February 23, 2010 on various measures of court attributes in firms' headquarter states. Panel A of Table 3 reports our baseline results. Column 1 shows that ARs on February 23, 2010 were negative and significant at -0.65%. Column 2 presents results from regressing ARs on the ranking of each firm's headquarter state in the U.S. Chamber of Commerce ranking. We find that the coefficient on ranking is negative at -0.029% and statistically significant at the 1% level. To illustrate the economic significance of this result, consider a change in U.S. Chamber of Commerce ranking from the top to the bottom tercile. Such a change is associated with a 0.45% increase in equity value. For the average (median) firm in our sample this corresponds to an increase in market capitalization of $8.7 ($1.2) million, using stock prices at the end of 2009. Column 3 repeats the exercise using the academic ranking. We find a positive and insignificant coefficient of 0.01%.

The value of courts for firms can stem from two economic channels: Efficiency or business attitude. To distinguish between the two channels, we exploit differences between the two rankings. The academic ranking, which is based on citation counts and productivity per judge, captures mainly the efficiency aspects of courts. On the other hand, the U.S. Chamber of Commerce ranking reflects both efficiency and attitude considerations. To separate the two channels, we orthogonalize the two rankings. Column 4 reports estimates of a regression of ARs on the resulting measure of business attitude. We find a negative point estimate of -0.41%. Column 5 adds the orthogonalized academic ranking to the regression. The coefficient on business attitude remains negative and significant. As before, the coefficient on the academic ranking is positive and insignificant.[23]

One potential concern is that our proxy of geographic dispersion is noisy, thus making our results sensitive to the precise cutoff point. In Panel B of Table 3, we therefore repeat the analysis of Panel A with varying cutoffs for out-of-headquarter state operations. Columns 1 to 3 report results when we loosen the restriction from 15% out of headquarter operations to 20%. All coefficients retain both their economic and statistical significance. Columns 4 to 6 add Fama-French 30-industry fixed effects to control for any

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[23]In unreported results, we repeat these regressions with a sample of firms headquartered in the 7th Circuit only. Since those firms were unaffected by *Hertz* they should not experience the same treatment effect. Indeed, all coefficients in this specification are statistically indistinguishable from zero. Due to the small number of firms in the 7th District, we cannot enforce the requirement that firms have less than 15% of their operations in their headquarter state which makes the sample not perfectly comparable to the analysis in Panel A.

potential industry shocks on the days surrounding the event. Columns 7 to 9 extend our event window by one additional day following the ruling. Again, both the economic and statistical significance of all coefficients remain unchanged.

Our results show that the stock price reaction to *Hertz* reflects the characteristics of the headquarter state courts. Firms pinned into state courts which are highly ranked by the U.S. Chamber of Commerce experience higher event-day ARs. We find no evidence that differences in efficiency between state courts impact firm value. Instead, it is state courts' attitude towards business that explains the different stock price reactions to *Hertz*.[24]

4.2 Hypothesis 2: The ability to forum shop impacts firm value

Forum shopping can create value for firms and plaintiffs. For instance, up to 39% of all patent lawsuits filed by non-practicing entities, so-called "patent trolls", were filed in the court of the Eastern District of Texas.[25] Non-practicing entities choose that court since it is considered to rule more frequently in their favor and grant higher awards. This behavior is an example of forum shopping at the expense of firms (e.g., U.S. Government Accountability Office, 2013; Cohen, Gurun, and Kominers, 2014).

A key challenge in our investigation is that the ruling in *Hertz* affected the ability to forum shop for both firms and plaintiffs. If firms can forum-shop more easily, this will increase their equity value. The opposite holds for plaintiffs: If plaintiffs have more forums to choose from, this will reduce firms' equity value. We now present results from two setups that allow us to capture each of the two channels separately. We begin by analyzing the impact of plaintiffs' ability to forum shop on firms' stock prices.

We focus on situations in which the ruling in *Hertz* made plaintiffs lose the ability to sue a firm in one specific federal circuit. Those firms form the treatment group. We then compare treated firms to a control group of firms for which plaintiffs did not lose the ability to sue in that circuit. If the ability to forum shop is indeed valuable to plaintiffs (and hence detrimental to firms), we expect treated firms to experience positive abnormal

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[24]These results do not imply that court competency is irrelevant for firm value. There are two potential alternative explanations. The first explanation is that objective court quality inside the U.S. may not vary much. After all, state court systems have a very similar legal and administrative tradition, the same legal origins and recruit their judges from a pool of similarly qualified candidates. A second potential explanation why court efficiency does not affect firm value is that it aids both plaintiffs and their counterparts symmetrically. A more efficient court system does not help the firm win more cases, unlike court attitude which is a zero sum game.

[25]Non-practicing entities are firms which own patents not for use in production but solely for the purpose of suing producing firms for potential infringements.

returns on the event date.

A situation in which plaintiffs lose flexibility to forum shop arises when a firm's only connection to a circuit is through its headquarter state. Pre-*Hertz*, there was a possibility for plaintiffs to sue such a firm in either its headquarter state or the corresponding circuit court. Yet post-*Hertz*, access to the federal court was impossible as the firm's only connection to the circuit was through its headquarter and *Hertz* forced all cases brought in the headquarter state into state court. Such firms form the treatment group. The control group consists of firms which operate in at least one more state inside the same circuit as their headquarter state. Plaintiffs suing those firms did not lose access to the circuit court post *Hertz* since they could always access the federal court through the second state.

Figure 3 is a simplified schematic of such a case. Two firms, A and B, are both headquartered in the same state, $State_i$, which is part of circuit α. Both firms' operations in $State_i$ are such that they can try to ask for removal of cases to federal court. Both firms operate in a second state. Firm A operates in $State_j$, which is also part of Circuit α, whereas firm B operates in $State_k$, which is part of Circuit β. The only difference therefore lies in the fact that firm B operates in states belonging to different federal circuits, whereas firm A does not. Pre-*Hertz*, the two firms have exposure to the court system in their headquarter state $State_i$ as well as the corresponding Circuit α. In addition, firm B is exposed to Circuit β through its operations in $State_k$. After the ruling in *Hertz*, firm B is no longer exposed to Circuit α since all its exposure was driven by the headquarter state. A plaintiff suing firm B therefore has three forums available pre-*Hertz* and two forums post-*Hertz*.Such a reduction by one forum limits the plaintiff in her ability to forum shop for a favorable court. For firm A, the corresponding number of forums are two and two, namely no reduction.

To implement this test, we assign treatment to firms whose headquarter state is the only state in the corresponding circuit, such as firm B. The control group is comprised of firms operating in at least a second state in the same circuit as the firm's headquarter state, such as firm A. We then match treated firms to control firms using the Abadie and Imbens (2002) procedure.[26] This estimator minimizes the matching error on a vector of continuous covariates and allows for exact matching on selected categorical variables. Moreover, it applies a bias-correction to the estimated treatment effect (as the matching on continuous covariates cannot be exact), and provides heteroskedasticity-consistent standard errors. We impose exact matching on firms' headquarter state to control for

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[26]We use the Stata routine `nnmatch` developed by Abadie, Drukker, Herr, and Imbens (2004).

the headquarter state quality effect we find above. In addition, we match on a set of continuous covariates including size, number of states in which the firm operates and fraction of out of state operations. We therefore compare firms with the same change in their ability to remove cases from the state to the federal court system, with the only difference between treatment and control groups being plaintiffs' ability to forum shop.

Firms in the treatment group therefore experience a reduction in forums in which they can be sued compared to firms in the control group. According to Hypothesis 2, the lower ability to forum shop for plaintiffs should result in positive event returns for treated firms. Panel A of Table 4 presents results from estimating ATTs using the above matching and variations of it. Column 1 presents the result of the baseline matching for the event-day ARs. As predicted, the coefficient is positive at 0.72%. It is also statistically significant at the 10% level. Column 2 repeats the analysis using two-day CARs [0,1]. The coefficient is slightly higher at 0.81% and also statistically significant at the 10% level. Columns 3 and 4 add exact matching on firms' state of incorporation.[27] Controlling for incorporation state, the point estimates for one- and two-day CARs are 1.018% and 1.108%, respectively. Both estimates are statistically significant at the 5% level. Columns 5 and 6 repeat the analysis excluding firms headquartered in the 9th Circuit in addition to the 7th Circuit. As discussed in Appendix A, the 9th Circuit was different from the other circuits in that it applied the test of citizenship more loosely. We find that excluding firms headquartered in the 9th Circuit leads to estimated treatment effects of 1.188% and 0.810% for the one- and two-day CARs, respectively. The estimate for one-day (two-day) CARs is statistically significant at the 5% (10%) level. Finally, Columns 7 and 8 report the results for the whole sample. When not excluding firms from the 7th Circuit, the results become weaker both economically and statistically, but remain overall robust.

In Panel B, we examine the stock price reaction when *firms* rather than *plaintiffs* lose flexibility to shop for forums. Our identification stems from the looser application of the citizenship test in the 9th Circuit. This provides us with a setup to investigate the impact of forum shopping by firms on firm value. Firms with high exposure to 9th Circuit states benefited from substantial vertical forum shopping ability (Hubbard, 2013). These firms lost part of their forum shopping ability after *Hertz* and form our treatment group. The control group consists of comparable firms with low exposure to the 9th Circuit.

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[27]This is done to avoid accidentally comparing firms with incorporation in special states with those incorporated elsewhere. For example, firms incorporated in Delaware have been shown to differ significantly from non-Delaware ones in previous work (Daines, 2001; Barzuza and Smith, 2014).

In columns 1 and 2 of Panel B, the treatment (control) group includes firms with an above (below) median Herfindahl index of non-headquarter state operations in the 9th Circuit. Using the Abadie and Imbens (2002) procedure, we match treatment and control firms based on the fraction and concentration of out-of-headquarter state operations as well as size. In addition, we impose exact matching at the 2-digit SIC industry-level. The estimated ATT for event-day ARs reported in column 1 is -0.32% and statistically significant at the 10% level. The two-day estimate is -0.5% and significant at the 5% level. Columns 3 through 6 report the results from assigning treatment based on the Herfindahl index of all non-headquarter states, not just those in the 9th Circuit.[28] Columns 3 and 4 (5 and 6) match firms based on the 2-digit SIC (Fama-French 30) industry-level. The coefficients for both the one- and two-day CARs are similar to the ones found before, but slightly smaller in magnitude and statistical significance. These results are in line with Hypothesis 2. Firms which experience a drop in flexibility to forum shop exhibit a loss in value on the event date.

4.3 Hypothesis 3: Are federal courts more friendly to corporations?

We now examine whether federal courts are more favorable forums for firms than state courts. Panel A of Table 5 reports results from regressions of CARs on various measures of corporate geographic footprint. Before *Hertz*, firms with a large geographic spread were more likely to be "pinned" into a state court without the ability to claim diversity of citizenship. Post-*Hertz* those firms were always able to claim diversity. If federal courts are generally advantageous for shareholders, these firms should experience positive ARs on the day of the ruling.

Column 1 reports the result of a regression of event-day ARs on the fraction of non-headquarter state operations. The coefficient is -0.545% but statistically insignificant at any conventional level. One potential concern is that this result is driven by firms that have a very small exposure to a lot of different states. Such firms were not affected as much by the ruling in *Hertz* since they were in no danger of being found a citizen of these states even before the ruling. We therefore add controls for the concentration of non-headquarter operations. The estimated coefficient on the fraction of non-headquarter state operations remains negative and insignificant. These results do not support the hypothesis that firms with a larger geographic footprint should experience positive ARs. Columns 3 to 5 confirm this finding using various weights of out-of-headquarter state operations. If *Hertz*

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[28]In this analysis, we do not match firms based on their Herfindahl index of non-headquarter state operations.

reduced the danger of being pinned into a state court, one would expect the positive effect
to be larger for firms with operations in worse courts. Weighting operations by the U.S.
Chamber of Commerce ranking (column 3), the academic ranking (column 4) and the
business attitude measure (column 5) all result in negative and statistically insignificant
coefficients of the geographic footprint on CARs. This result is robust to the exclusion of
states located in the 7th Circuit (columns 6 and 7), with the difference that the measure
weighted by the U.S. Chamber of Commerce ranking is negative and significant. Since
Hypothesis 3 predicts a *positive* coefficient, the negative and insignificant point estimates
are evidence against a general superiority of federal courts for firms. In columns 8 and
9, we only consider operations in the 9th and 7th Circuit, respectively. Firms with large
operations in the 9th Circuit should be particularly positively affected since they were
at risk of being found a citizen of multiple states. On the other hand, operations in the
7th Circuit should not have an impact since firms could not be found a citizen in those
states pre-*Hertz*. Both coefficients are negative and insignificant.

Columns 1 to 5 in Panel B repeat the analyses from Panel A on two-day CARs. All
coefficients remain negative and are generally statistically significant. Columns 6 to 9
add Fama-French 30-industry fixed effects. The estimated coefficients are negative and,
with the exception of the business attitude measure, significant. From these results we
conclude that there is no evidence that improved access to federal courts post-*Hertz*
benefits shareholders. One potential explanation is that the loss in flexibility to forum
shop outweighs any existing benefit.

5   Additional tests

5.1   *Litigation risk and the impact of courts*

In this section, we investigate cross-sectional differences in the impact of courts on firm
value. Courts should be more relevant for firms in industries which face larger legal risk.
There is no well-established method to measure a firm's operational legal risk.[29] We are
interested in litigation which is connected to a company's operations. Areas of interest
include employment, accident and injury lawsuits as well as product liability cases. To
capture operational litigation risk, we use three different industry-level measures. As a
first proxy for operational legal risk, we employ each industry's occupational nonfatal
injuries and illnesses rate by the BLS. We argue that job-related injuries and illnesses are

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[29]Past work has focused on securities lawsuits, either in the context of IPO underpricing or auditor
liability (e.g., Lowry and Shu, 2002; Kim and Skinner, 2012).

likely to lead to lawsuits by affected employees. Second, in the same spirit, we look at labor intensity in manufacturing industries, as measured by the total payroll to total value added ratio. This measure captures the exposure to employment-related lawsuits. Finally, we capture the exposure to product liability suits using industry customer orientation, i.e., we distinguish between industries catering to retail customers (business-to-customer) and those catering to other businesses (business-to-business). We conjecture that firms in business-to-customer industries are more likely to face product liability suits.

All firms headquartered outside the 7th Circuit could claim diversity of citizenship when sued in their headquarter state pre-*Hertz* if operations in that state were small enough. Hence, as in the baseline tests of Hypothesis 1 above, we limit the sample to firms for which operations in their headquarter state, as measured by the count of mentions of this state, constitute less than 15% of their nationwide operations.

Table 6 presents the results for industry tests, in which we interact the U.S. Chamber of Commerce ranking and the court business attitude of a firm's headquarter state with our proxies for litigation risk. In columns 1 and 2, we find that the coefficient on the U.S. Chamber of Commerce ranking is significantly more negative for firms operating in industries with above-median occupational risk and labor intensity, respectively.[30] Interestingly, the effect of the U.S. Chamber of Commerce ranking on ARs seems to be mainly driven by firms from industries with high litigation risk. By contrast, in column 3, we find no significant difference between business-to-customer and business-to-business industries. The results presented above provide support to the channel we propose in Hypothesis 1. Firms in high litigation risk industries are particularly sensitive to the business attitude of courts.

5.2   A second quasi-natural experiment (Wachovia v. Schmidt)

We proceed to test our Hypothesis 2 (forum shopping) using a second quasi-natural experiment, similar to the ruling in *Hertz* but affecting different firms. In the case of *Wachovia v. Schmidt* (*Wachovia*), the U.S. Supreme Court had to decide on the citizenship of nationally-chartered banks. In the U.S., banks have the choice between being nationally- or state-chartered. In the past, nationally-chartered banks used to be exempt from state-level interest rate ceilings. Until today, nationally-chartered banks are being

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[30]There is a reduced number of observations in labor intensity specifications, as we are limited to manufacturing industries from the NBER-CES Manufacturing Database. When using the industry occupational nonfatal injuries and illnesses rate, we have less observations than in Table 3, because some SIC groups (SIC codes ending in zero) cannot be easily assigned to NAICS industries from BLS data, so we prefer to remove such observations to avoid confounding effects.

supervised by the Office of the Comptroller of the Currency rather than by the state regulatory authorities. Most notably, there is no one-to-one relationship between a bank's charter and its geographic footprint. For example, as of 2005, Regions Financial Corporation was state-chartered but operated in 15 states, whereas Texas Capital Bancshares Inc. was nationally-chartered but operated just in Texas.

In *Wachovia*, the question was whether nationally-chartered Wachovia Bank was to be considered a citizen of every U.S. state in which it operated a branch. For the purpose of claiming diversity of citizenship, that reading of the law meant that Wachovia would not be able to diversify any cases in states in which it operated at least one branch. On January 17, 2006, the U.S. Supreme Court ruled that a nationally-chartered bank would be treated like any other corporation, with citizenship either in the state that comprised its principal place of business or in which it was incorporated.[31] For additional details on the case as well as analysis of why it constitutes a valid experiment, see Appendix A.

The ruling in *Wachovia* allows us to independently recreate our test of Hypothesis 2. The ruling reduced banks' ability to chose between different forums on a case by case basis. This reduction mirrors that experienced by firms with strong exposure to the 9th Circuit in the *Hertz* case. Firms with exposure to the 9th Circuit and nationally-chartered banks lost part of their ability to forum-shop on the day of the rulings in *Hertz* and *Wachovia*, respectively. Therefore, we expect nationally-chartered banks with exposure to many states pre-*Wachovia* to experience negative ARs.

We present our findings in Table 7. Panel A provides summary statistics. Our sample consists of 434 banks registered with the FDIC. The 145 nationally-chartered banks (our treatment group) operate branches in on average 3.6 states and an average fraction of 23.4% of branches is located outside of the bank's headquarter state. On average, the 289 state-chartered banks (our control group) have offices in 1.6 states, with 14.9% of them outside of the bank's headquarter state. The average bank in this sample is therefore local in its branch network.

In Panel B of Table 7, we present regressions of CARs on treatment measures. Columns 1 through 5 focus on event-day ARs. In column 1, we find an insignificant coefficient for our treatment indicator. In columns 2 through 4, we estimate regressions of event-day ARs on banks' number of non-headquarter state branches over the whole sample, the treated sample, and the control sample, respectively. We obtain a negative and statistically significant effect over the whole sample and the treatment group, while

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[31]Note that the U.S. Supreme Court did not clarify how to determine the principal place of business, something it did later in *Hertz*.

the coefficient is insignificant over the control group as we would expect, as such banks were not affected by the ruling. Given the coefficient of 0.039 in column 3, a treated bank in the top quartile in terms of states of operations experienced a drop in equity value of 0.16% compared to a bank in the bottom quartile. For the average treated bank in our sample the estimated coefficient implies a decrease in market capitalization of \$15.31 million, using stock prices at the end of 2005. However, when we interact the treatment indicator and the number of states of operations over the whole sample in column 5, we do not find a statistically significant coefficient. Columns 6 through 10 focus on two-day CARs. The results are in line with those for event-day ARs, except for the interaction of the treatment indicator and the number of states of operations, which is negative and significant in this case, as we would expect.

The results from the ruling in *Wachovia* confirm our findings on forum shopping from the ruling in *Hertz*. We find that banks that lose the ability to forum shop post-*Wachovia* experience negative abnormal returns, analogous to corporations in the 9th Circuit post-*Hertz*.

5.3 Real effects

If courts matter for firm value, they are likely to play a role in firms' choice of where to operate. We thus test whether firms indeed shifted their operations as a response to the ruling in *Hertz*. The most affected states by the ruling should lie in the 9th Circuit. The negative CARs exhibited upon the ruling in *Hertz* by firms with significant operations in the 9th Circuit (see Section could be a sign that they were well-suited to operate in that region. One potential explanation is that those firms had an edge in determining corporate citizenship, for example because they employed particularly skilled lawyers. At the same time, firms that chose not to operate in 9th Circuit pre-*Hertz* could have been facing especially high costs to deal with diversity of citizenship issues.

After the ruling in *Hertz*, the firms that originally kept out of the 9th Circuit may have been more inclined to increase operations there. In other words, these firms could have been interested in operating in the 9th Circuit previously, but held back out of fear to be stuck in state court. Therefore, in our baseline analysis, the treatment group consists of all firms that had no operations in 9th Circuit's states before 2010 (*Treated 1*). We also follow two alternative treatment definitions. *Treated 2* (*Treated 3*) assigns treatment to all firms that exhibit less than 15% (less than 15% but strictly positive) state counts in the 9th Circuit before 2010. The control group consists of all other firms. In each case,

we restrict the sample to firms not headquartered in the 9th Circuit, with available data both in the pre- and in the post-*Hertz* period.

Figure 4 plots the mean fraction of 9th Circuit's operations for treatment and control firms. Under each treatment definition, treated firms significantly increase their operations in 9th Circuit's states following the ruling in *Hertz*. Firms in our baseline treatment group increase their exposure from 0% in 2009 to an average of 4% in 2012. By contrast, firms with strictly positive exposure before 2010 slightly reduce their operations in the 9th Circuit. Importantly, visual inspection of the data confirms that there were parallel trends in the size of operations inside the 9th circuit for both treatment and control firms.

We also test whether these findings are statistically significant and survive after the inclusion of control variables. Table 8 reports results from a differences-in-differences design. The dependent variable is our measure of out-of-headquarter operations in the 9th Circuit. We include firm- and year-fixed effects. In columns 1 through 3, we cluster standard errors at the firm-level, whereas in columns 4 through 6 we cluster standard errors at the firm-year level. In each specification, the treatment indicator exhibits a positive and statistically significant coefficient, in line with the graphical analysis above. This is evidence that firms actively moved their operations into the 9th Circuit after the ruling in *Hertz* gave them a greater chance to diversify cases there.

6 Conclusion

We present an analysis of the relation between courts and firm value in the United States. The exact impact of court characteristics, and especially court efficiency, is an open question. Our identification strategy rests on three pillars. First, we exploit the special two-layer court structure in the U.S. that allows the same cases to be tried in different courts, but under the consideration of the exact same laws. Second, our analysis uses the U.S. Supreme Court decision in *Hertz v. Friend* as a shock to the access to different court systems. This exogenous shock allows us to resolve the issue of endogenous selection into courts. Finally, we introduce a novel method to exploit geographic heterogeneity in treatment from U.S. Supreme Court rulings based on so-called circuit splits.

Our first set of results confirms that exposure to courts that are more highly ranked by the U.S. Chamber of Commerce, a pro-business lobby organization, is associated with higher firm value. We find that the economic channel behind this result appears to be courts' business attitude rather than their objective efficiency.

The estimated impact of favorable courts on firm value implies that rational firms and

plaintiffs should profit from steering cases into favorable courts. We test this conjecture and demonstrate that a reduction in corporations' flexibility to cherry-pick favorable courts (forum shopping) is associated with a negative impact on firm value. On the other hand, we find that in cases in which the ruling in *Hertz* reduced plaintiffs' ability to forum shop, firm value increased.

Our results point to a large impact of court quality on firm value. As court quality impacts firm value only indirectly by reducing existing legal uncertainty and expenses, this suggests that the original legal component of firm value is significant. Quantifying the absolute contribution of legal risk, and in particular legal operational risk, to firm value is an open question.

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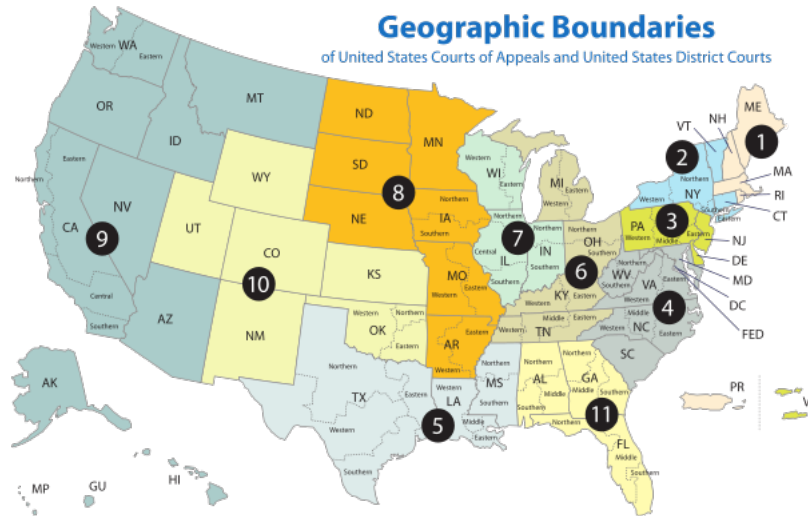
Figure 1: Map of U.S. federal circuits. Source: http://www.uscourts.gov/uscourts/images/CircuitMap.pdf
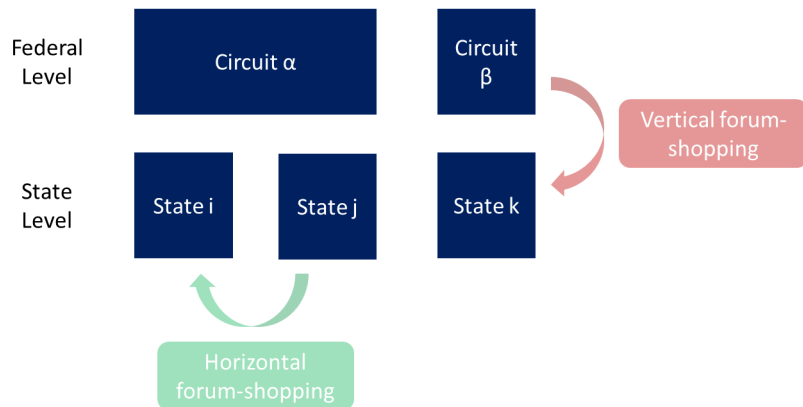
Figure 2: Two-layer structure of the U.S. court system. The U.S. court system features a federal and a state level. Switching between state courts is referred to as horizontal forum shopping. Vertical forum shopping describes the choice between federal and state courts.
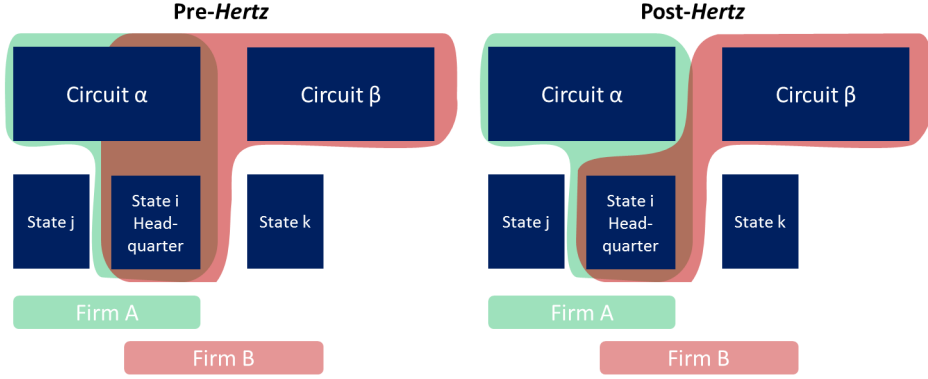
Figure 3: Illustrative example of reduction of forums in which a firm can be sued post-*Hertz*. After the ruling in *Hertz*, plaintiffs trying to sue firm *B* are not able to sue in federal circuit α, as firm *B*'s only exposure to this circuit is through its headquarter state i. Firm *A*, on the other hand, has exposure to circuit α through its operations in $State_j$ both before and after the ruling in *Hertz*. Therefore plaintiffs suing firm *A* do not lose access to a forum.
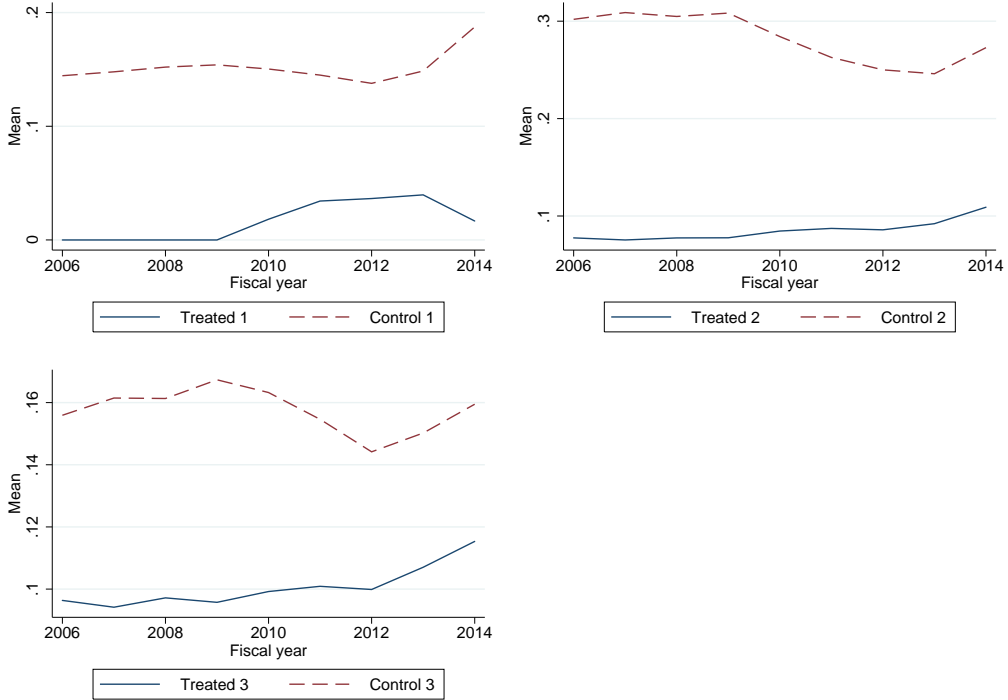
Figure 4: Out-of-headquarter state operations in the 9th Circuit (%). *Treated 1* assigns treatment to firms that have no operations in the states comprising the 9th Circuit before 2010, based on *Out of HQ state operations in 9th Circuit (%)*. *Treated 2* assigns treatment to firms for which *Out of HQ state operations in 9th Circuit (%)* is below 15% before 2010. *Treated 3* assigns treatment to firms for which *Out of HQ state operations in 9th Circuit (%)* is below 15% but strictly positive before 2010.

Table 1: U.S. Supreme Court rulings involving circuit splits

This table reports several circuit splits resolved by the U.S. Supreme Court and the corresponding potential area of interest for researchers.

Ruling	Year	Area
388 U.S. 395	1967	Arbitration
421 U.S. 723	1975	Securities fraud
441 U.S. 677	1979	Title IX rights of action
480 U.S. 421	1987	Asylum
485 U.S. 224	1988	Fraud on the M&A market
499 U.S. 554	1991	Tax effect asset swap
501 U.S. 157	1991	Personal bankruptcy Chapter 11
503 U.S. 79	1992	M&A accounting
505 U.S. 88	1992	Health and safety regulation
506 U.S. 447	1993	Monopoly antitrust
509 U.S. 155	1993	Asylum
511 U.S. 93	1994	Out of state discrimination
517 U.S. 735	1996	Banking
526 U.S. 434	1999	Bankruptcy
543 U.S. 50	2004	Truth in lending maximum penalty
552 U.S. 148	2008	Securities fraud
568 U.S. ___	2013	Securities fraud

Table 2: Summary statistics

This table reports summary statistics of the variables employed in the analysis of the U.S. Supreme Court's ruling in *Hertz Corp. v. Melinda Friend* on February 23, 2010. The sample includes U.S. public firms with available stock price data on the event-day, excluding financial institutions and utilities. Accounting and daily stock return data are from the CRSP-Compustat merged database. Data on firms' headquarter and incorporation states are taken from CRSP's COMPHIST table. Panel A presents the mean of several corporate geographic dispersion measures by quartile. Panel B presents the mean of event-day ARs by quartile of the same corporate geographic dispersion measures. Panel C presents the summary statistics of the main variables used in our analysis as of the event-day. All variables are explained in Table D.1.

Panel A: Geographic dispersion measures

	No. states		Out of HQ state op. (%)		Bus. att. (out of HQ state)	
	Mean	Obs.	Mean	Obs.	Mean	Obs.
Low	3.080	615	0.185	576	-0.262	577
2	5.911	628	0.471	580	-0.022	575
3	9.673	539	0.674	572	0.106	576
High	23.128	522	0.854	576	0.424	576

Panel B: Abnormal returns (event day)

	No. states		Out of HQ state op. (%)		Bus. att. (out of HQ state)	
	Mean	Obs.	Mean	Obs.	Mean	Obs.
Low	-0.124	615	-0.308	576	-0.112	577
2	-0.266	628	-0.119	580	-0.335	575
3	-0.515	539	-0.388	572	-0.416	576
High	-0.627	522	-0.660	576	-0.610	576

(Continued)

Table 2: – *Continued*

Panel C: Summary statistics for main variables

	Mean	Std.Dev.	Q1	Med.	Q3	Obs.
CAR[−10, −5]	1.038	8.027	-3.426	0.461	5.219	2304
CAR[−2, −1]	0.303	6.243	-1.485	0.024	1.577	2304
CAR[0, 0]	-0.368	3.091	-1.689	-0.216	0.932	2304
CAR[0, 1]	-0.387	4.463	-2.011	-0.232	1.054	2304
CAR[−1, 1]	-0.136	6.900	-1.938	-0.229	1.286	2304
CAR[−2, 2]	-0.084	8.044	-2.504	-0.203	1.774	2304
CAR[−3, 0]	-0.268	8.895	-3.379	-0.283	2.452	2304
Headquarter 7th Circuit	0.070	0.256	0.000	0.000	0.000	2304
Headquarter 9th Circuit	0.248	0.432	0.000	0.000	0.000	2304
Chamber of Commerce ranking (HQ state)	29.229	13.605	20.000	30.500	42.000	2304
Academic ranking (HQ state)	20.142	15.887	6.000	14.000	35.000	2304
Business attitude (HQ state)	0.258	0.939	-0.381	0.346	1.143	2304
No. states	9.936	9.111	4.000	7.000	12.000	2304
Out of HQ state operations (%)	0.546	0.260	0.337	0.579	0.761	2304
Out of HQ state operations (HHI)	0.194	0.295	0.025	0.070	0.183	2269
Chamber of Commerce ranking (out of HQ state)	14.804	8.411	7.932	14.714	21.314	2304
Academic ranking (out of HQ state)	12.735	7.460	6.924	12.649	18.456	2304
Business attitude (out of HQ state)	0.061	0.279	-0.087	0.022	0.207	2304
Size	5.674	1.875	4.220	5.545	6.942	2304

Table 3: Tests of Hypothesis 1

This table analyzes the relation between firm value and measures of court efficiency and business attitude by estimating cross-sectional regressions of CARs on several measures of court system quality in firms' headquarter state. CARs are from an event study of the U.S. Supreme Court's ruling in *Hertz Corp. v. Melinda Friend* of February 23, 2010. Panel A presents the baseline results using event-day ARs, $CAR[0,0]$, as dependent variable. The sample is restricted to firms headquartered outside the 7th Circuit and with a fraction of out-of-headquarter state operations above 85%, according to our measure of geographic dispersion, *Out of HQ state operations (%)*. Panel B presents additional results. Columns 1 through 3 restrict the sample to firms headquartered outside the 7th Circuit and with a fraction of out-of-headquarter state operations above 80%, according to our measure of geographic dispersion, *Out of HQ state operations (%)*. Columns 4 through 6 include Fama-French 30-industry fixed effects. Columns 7 through 9 use two-day CARs, $CAR[0,1]$, as dependent variable. t-statistics calculated with robust standard errors clustered by Fama-French 30-industry are reported in ( ). Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively. Refer to Table D.1 for variable definitions.

Panel A: Baseline regressions					
	(1)	(2)	(3)	(4)	(5)
Chamber of Commerce ranking (HQ state)		-0.029***			
		(-2.91)			
Academic ranking (HQ state)			0.011		
			(1.01)		
Business attitude (HQ state)				-0.409***	-0.416***
				(-3.05)	(-3.08)
Ort. academic ranking (HQ state)					0.199
					(1.15)
Constant	-0.646***	0.125	-0.943**	-0.623***	-0.647***
	(-2.92)	(0.43)	(-2.60)	(-2.86)	(-2.97)
Observations	267	267	267	267	267
R^2	0.00	0.02	0.00	0.02	0.03

(Continued)

Table 3: *– Continued*

Panel B: Additional tests

	Out. 7th Circ. & Out of st. op.> 80%			Outside 7th Circuit & Out of state op.> 85%					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
								CAR[0, +1]	
Chamber of Commerce ranking (HQ state)	-0.023**			-0.030**			-0.056**		
	(-2.60)			(-2.42)			(-2.72)		
Academic ranking (HQ state)		0.002			0.009			-0.003	
		(0.19)			(0.80)			(-0.18)	
Business attitude (HQ state)			-0.320**			-0.418**			-0.779**
			(-2.67)			(-2.49)			(-2.67)
Constant	-0.035	-0.687***	-0.617***	0.077	-1.095***	-0.705***	0.442	-0.937**	-0.978***
	(-0.14)	(-2.86)	(-3.51)	(0.20)	(-3.31)	(-14.25)	(0.80)	(-2.10)	(-3.14)
Industry F.E.	No	No	No	Yes	Yes	Yes	No	No	No
Observations	430	430	430	267	267	267	267	267	267
R^2	0.01	0.00	0.01	0.18	0.16	0.17	0.04	0.00	0.03

Table 4: Tests of Hypothesis 2

This table analyzes the relation between firm value and forum shopping by using the Abadie and Imbens (2002) matching technique. The outcomes variables are CARs from an event study of the U.S. Supreme Court's ruling in *Hertz Corp. v. Melinda Friend* of February 23, 2010. Panel A estimates the bias-adjusted ATT on CARs of the negative shock to plaintiffs' ability to forum shop provided by *Hertz* by matching treated firms to control firms. Treatment is assigned to firms whose headquarter state is the only state in the corresponding circuit. The control group is comprised of firms operating in at least a second state in the same circuit as the firm's headquarter state. Matching is performed on a set of continuous covariates including *No. states*, *Out of HQ state operations (%)* and *Size*. In addition, exact matching is imposed on the headquarter state. *Matching 1* excludes firms with headquarter state in the 7th Circuit. *Matching 2* excludes firms with headquarter state in the 7th Circuit and imposes exact matching also on the incorporation state. *Matching 3* excludes firms with headquarter state in the 7th Circuit or the 9th Circuit. *Matching 4* does not impose restrictions on the sample. Panel B estimates the bias-adjusted ATT on CARs of the negative shock to firms' ability to forum shop provided by *Hertz* by matching treated firms to control firms. *Matching 1* assigns treatment to firms with an above median *Out of HQ state operations in 9th Circuit (HHI)*, while considering the other firms as part of the control group. Matching is performed on a set of continuous covariates including *Out of HQ state operations (%)*, *Out of HQ state operations (HHI)*, and *Size*. In addition, exact matching is imposed at the 2-digit SIC industry-level. *Matching 2* and *Matching 3* assign treatment to firms with an above median *Out of HQ state operations (HHI)*, while considering the other firms as part of the control group. *Matching 2* (*Matching 3*) imposes exact matching at the 2-digit SIC (Fama-French 30-) industry-level. In both panels, odd columns use event-day ARs, $CAR[0,0]$, as outcome variable, whereas even columns use two-day CARs, $CAR[0,1]$, as outcome variable. The significance of ATTs is computed using heteroskedasticity-consistent standard errors. Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively. Refer to Table D.1 for variable definitions.

Panel A: Plaintiffs' flexibility

	Matching 1		Matching 2		Matching 3		Matching 4	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ATT	0.724*	0.810*	1.018**	1.108**	1.188**	0.810*	0.681*	0.727*
	(1.67)	(1.86)	(2.27)	(2.55)	(2.23)	(1.86)	(1.69)	(1.79)
No. treated firms	1804	1804	1804	1804	1337	1337	1951	1951

Panel B: Firms' flexibility

	Matching 1			Matching 2			Matching 3	
	(1)	(2)		(3)	(4)		(5)	(6)
ATT	-0.319*	-0.500**		-0.241	-0.459*		-0.307*	-0.444*
	(-1.72)	(-2.18)		(-1.39)	(-1.95)		(-1.89)	(-1.87)
No. treated firms	1134	1134		1134	1134		1134	1134

Table 5: Tests of Hypothesis 3

This table analyzes the relation between firm value and exposure to state vs. federal courts by estimating cross-sectional regressions of CARs on several measures of corporate geographic dispersion (also weighted by state court system quality). CARs are from an event study of the U.S. Supreme Court's ruling in *Hertz Corp. v. Melinda Friend* on February 23, 2010. Panel A presents the baseline results using event-day ARs, $CAR[0,0]$, as dependent variable. Panel B presents additional results. Columns 1 through 5 use two-day CARs, $CAR[0,1]$, as dependent variable. Columns 6 through 9 include Fama-French 30-industry fixed effects. Columns 7 through 9 use two-day CARs, $CAR[0,1]$, as dependent variable. *t*-statistics calculated with robust standard errors clustered by Fama-French 30-industry are reported in ( ). Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively. Refer to Table D.1 for variable definitions.

Panel A: Baseline regressions									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Out of state operations (%)	-0.545	-0.812							
	(-1.39)	(-1.58)							
Out of state operations (HHI)		-0.507							
		(-1.54)							
Chamber of Commerce ranking (out of state)			-0.021						
			(-1.61)						
Academic ranking (out of state)				-0.016					
				(-1.62)					
Business attitude (out of state)					-0.512				
					(-1.62)				
Ch. of Comm. rank. (out of state, 7th Circ. excluded)						-0.024*			
						(-1.71)			
Academic rank. (out of state, 7th Circ. excluded)							-0.015		
							(-1.48)		
Out of state operations in 9th Circuit (%)								-0.382	
								(-0.68)	
Out of state operations in 7th Circuit (%)									-0.474
									(-0.45)
Constant	-0.073	0.175	-0.054	-0.171	-0.339*	-0.041	-0.190	-0.324	-0.355*
	(-0.24)	(0.42)	(-0.19)	(-0.89)	(-2.00)	(-0.15)	(-1.02)	(-1.43)	(-1.95)
Observations	2273	2238	2273	2273	2273	2273	2273	2273	2273
R^2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

(Continued)

Panel B: Additional tests

	CAR[0, 1]					CAR[0, 0]			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Out of state operations (%)	-1.167*					-0.473*	-0.698**		
	(-2.04)					(-1.72)	(-2.05)		
Chamber of Commerce ranking (out of state)		-0.040**						-0.018*	
		(-2.22)						(-1.92)	
Business attitude (out of state)			-0.716*						-0.375
			(-1.86)						(-1.46)
Out of state operations in 9th Circuit (%)				-1.130					
				(-1.56)					
Out of state operations in 7th Circuit (%)					-0.624				
					(-0.48)				
Out of state operations (HHI)							-0.414		
							(-1.31)		
Constant	0.247	0.199	-0.346**	-0.253	-0.369**	0.394**	0.586**	0.415**	0.155***
	(0.64)	(0.57)	(-2.43)	(-1.21)	(-2.45)	(2.39)	(2.51)	(2.63)	(5.20)
Industry F.E.	No	No	No	No	No	Yes	Yes	Yes	Yes
Observations	2273	2273	2273	2273	2273	2273	2238	2273	2273
R^2	0.00	0.01	0.00	0.00	0.00	0.05	0.05	0.05	0.05

Table 6: Industry tests of Hypothesis 1

This table analyzes the relation between firm value, court system quality and litigation risk by estimating cross-sectional regressions of CARs on several measures of court system quality in firms' headquarter state and their interaction with litigation risk measures. CARs are from an event study of the U.S. Supreme Court's ruling in *Hertz Corp. v. Melinda Friend* on February 23, 2010. The sample is restricted to firms headquartered outside the 7th Circuit and with a fraction of out-of-headquarter state operations above 85%, according to our measure of geographic dispersion, *Out of HQ state operations (%)*. Columns 1 through 3 (4 through 6) interact the Chamber of Commerce ranking (court business attitude) with an indicator variable equal to one for industries with above-median occupational risk, an indicator variable equal to one for industries with above-median labor intensity (only manufacturing firms), and an indicator variable equal to one for business-to-customer industries. t-statistics calculated with robust standard errors clustered by Fama-French 30-industry are reported in ( ). Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively. Refer to Table D.1 for variable definitions.

	Outside 7th Circuit & Out of state op.> 85%					
	(1)	(2)	(3)	(4)	(5)	(6)
Ch. of Comm. rank (HQ state) × High occup. risk	-0.064** (-2.47)					
Ch. of Comm. rank (HQ state) × High lab. int.		-0.224*** (-3.43)				
Ch. of Comm. rank (HQ state) × Custom. or.			-0.002 (-0.10)			
Bus. att. (HQ state) × High occup. risk				-0.979** (-2.45)		
Bus. att. (HQ state) × High lab. int.					-3.278*** (-3.39)	
Bus. att. (HQ state) × Custom. or.						0.064 (0.20)
High occupational risk	2.096*** (3.65)			0.455 (1.02)		
High labor intensity		3.687 (1.58)			-2.136 (-1.72)	
Customer orientation			0.655 (1.13)			0.605 (1.56)
Chamber of Commerce ranking (HQ state)	-0.010 (-0.80)	0.005 (0.23)	-0.029** (-2.28)			
Business attitude (HQ state)				-0.087 (-0.50)	0.076 (0.23)	-0.469** (-2.71)
Constant	-0.492 (-1.55)	-0.762* (-1.96)	-0.188 (-0.45)	-0.735** (-2.13)	-0.629* (-1.81)	-0.941** (-2.70)
Observations	192	44	267	192	44	267
R^2	0.03	0.25	0.04	0.03	0.24	0.04

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Table 7: Alternative tests of Hypotheses 2

This table analyzes the relation between firm value and forum shopping in the banking sector. CARs are from an event study of the U.S. Supreme Court's ruling in *Wachovia v. Schmidt* on January 17, 2006. Panel A reports summary statistics of the variables employed in this analysis distinguishing between nationally- and state-chartered banks. The sample includes U.S. banks with available stock price data on the event-day, based on the CRSP-FRB link file made available by the Federal Reserve Bank of New York. Accounting and daily stock return data are from the CRSP-Compustat merged database. Branch-level data on banks' locations and deposits are taken from the 2005 FDIC's Summary of Deposits. Panel B estimates cross-sectional regressions of CARs on a treatment indicator variable and measure of corporate geographic dispersion, *No. states (FDIC)*. Treatment is assigned to nationally-chartered banks operating in at least one state outside of their headquarter state. Columns 1 through 5 use event-day CARs, $CAR[0,0]$, as dependent variable. Columns 6 through 10 use two-day CARs, $CAR[0,1]$, as dependent variable. Columns 3 and 8 (4 and 9) restrict the sample to treated (control) banks. Firm- and year-fixed effects are included in all specifications. t-statistics calculated with robust standard errors are reported in ( ). Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively. Refer to Table D.1 for variable definitions.

Panel A: Summary statistics

	Nationally-chartered banks					State-chartered banks				
	Mean	Std.Dev.	Q1	Q3	Obs.	Mean	Std.Dev.	Q1	Q3	
CAR[0,0]	-0.103	1.406	-0.830	0.370	145	-0.138	1.357	-0.843	0.542	289
CAR[0,1]	0.214	1.827	-0.655	0.785	145	0.018	1.682	-0.804	0.967	289
No. states (FDIC)	3.559	4.863	1.000	4.000	145	1.571	1.512	1.000	2.000	289
Out of HQ state offices (%, FDIC)	0.234	0.304	0.000	0.399	145	0.149	0.290	0.000	0.176	289
Out of HQ deposits (%, FDIC)	0.198	0.277	0.000	0.328	145	0.135	0.284	0.000	0.092	289
Out of HQ state offices (HHI, FDIC)	0.591	0.331	0.338	1.000	78	0.808	0.302	0.641	1.000	96
Out of HQ deposits (HHI, FDIC)	0.620	0.311	0.365	1.000	78	0.848	0.265	0.761	1.000	96
Size	7.816	1.923	6.389	8.962	145	6.707	1.252	5.857	7.358	289

Panel B: Regression analysis

	CAR[0,0]					CAR[0,1]				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			Treated	Control				Treated	Control	
Treated	0.054				0.246	-0.028				0.338
	(0.34)				(1.08)	(-0.12)				(1.04)
No. states (FDIC)		-0.023**	-0.039**	-0.026	-0.026		-0.029*	-0.055**	0.029	0.029
		(-2.05)	(-2.39)	(-1.03)	(-1.03)		(-1.68)	(-2.13)	(0.73)	(0.73)
Treated × No. states (FDIC)					-0.013					-0.084*
					(-0.43)					(-1.77)
Constant	-0.136*	-0.075	0.148	-0.098	-0.098	0.088	0.148	0.383	0.046	0.046
	(-1.83)	(-0.94)	(0.71)	(-1.01)	(-1.01)	(0.97)	(1.49)	(1.27)	(0.38)	(0.38)
Observations	434	434	76	358	434	434	434	76	358	434
R^2	0.00	0.00	0.03	0.00	0.01	0.00	0.00	0.03	0.00	0.01

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Table 8: Real effects

This table estimates panel regression of the fraction of out-of-headquarter state operations in the 9th Circuit, *Out of HQ state operations in 9th Circuit (%)*, on several treatment indicators identifying firms with low exposure to the 9th Circuit before the U.S. Supreme Court's ruling in *Hertz Corp. v. Melinda Friend* on February 23, 2010. The sample is restricted to firms which are not headquartered in the 9th Circuit and with data available both before and after the ruling. The sample covers the period from 2006 to 2014. In columns 1 and 4, the treatment group (*Treated 1*) consists of all firms that have no operations in states comprising the 9th Circuit before 2010, based on our measure of geographic dispersion, *Out of HQ state operations in 9th Circuit (%)*. In columns 2 and 5, the treatment group (*Treated 2*) consists of all firms for which *Out of HQ state operations in 9th Circuit (%)* is below 15% before 2010. In columns 3 and 6, the treatment group (*Treated 2*) consists of all firms for which *Out of HQ state operations in 9th Circuit (%)* is below 15% but strictly positive before 2010. *t*-statistics calculated with robust standard errors clustered by firm are reported in ( ) in columns 1 through 3. *t*-statistics calculated with robust standard errors clustered by firm-year are reported in ( ) in columns 4 through 6. Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively. Refer to Table D.1 for variable definitions.

	St. err. clustered by firm			St. err. clustered by firm-year		
	(1)	(2)	(3)	(4)	(5)	(6)
Treated 1×Post-2010	0.038***			0.038***		
	(9.12)			(5.42)		
Treated 2×Post-2010		0.054***			0.054***	
		(8.70)			(4.50)	
Treated 3×Post-2010			0.016***			0.016***
			(3.75)			(3.36)
Size	0.012***	0.010**	0.011**	0.012**	0.010**	0.011**
	(2.66)	(2.34)	(2.56)	(2.49)	(2.23)	(2.40)
Market-to-book	0.000	0.001	0.001	0.000	0.001	0.001
	(0.15)	(0.34)	(0.31)	(0.13)	(0.29)	(0.26)
Cash flow	-0.024**	-0.025**	-0.026**	-0.024*	-0.025*	-0.026**
	(-2.08)	(-2.20)	(-2.24)	(-1.84)	(-1.89)	(-1.96)
Firm F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8992	8992	8992	8992	8992	8992

Appendix for

"Do Courts Matter for Firm Value?
Evidence from the U.S. Court System"

A Background and description of the U.S. Supreme Court rulings

A.1 Hertz Corp. v. Friend

In the ruling of the case *Hertz Corp. v. Friend* (*Hertz*) on February 23, 2010, the U.S. Supreme Court ruled on how to determine the citizenship of a corporation for the purpose of establishing diversity of citizenship. Whereas citizenship is easily determined for a "natural person" (i.e., a human being), it is less clear for a legal person such as a corporation.[32] The law reads that a firm is a citizen in both the state it is incorporated in and the state where its "principal place of business" lies.[33] Before the ruling in *Hertz* there was no unanimous interpretation as to what "principal place of business" meant. Some courts interpreted the principal place of business to mean a corporation's nerve center, the (physical) place in which the firm's executives steer its day to day activities. Proponents of this interpretation understood the nerve center to generally be located at the firm's headquarters, and hence corporations were found to be citizens of the state in which their headquarter was located. Throughout the paper, we refer to this as the "nerve center test". The nerve center test was adopted by the courts of the 7th Circuit of the federal court system.

Other courts interpreted "principal place of business" to mean the state in which a firm conducts a significant fraction of its operations. Throughout the paper, we refer to this interpretation of the law as the "operations test". Among the courts which applied the operations test there was again no consensus as to how to measure the size of "operations". Different courts used different indicators such as assets, sales or employees. Both the choice of indicators and their relative weighting varied between courts. Finally, there was no consensus as to what fraction of either indicator would cross the threshold of making a state a corporation's "principal" place of business.

In *Hertz v. Friend*, the car rental operator Hertz Corporation was sued by employees in California state court over an alleged breach of labor law. Hertz tried to claim diversity of jurisdiction and move the case to the federal level. But the 9th circuit court found Hertz to be a citizen of California. The decision was based on the fact that between 16% and 20% of Hertz's locations, employees, revenue and transactions were located in California.[34] The court therefore denied federal jurisdiction to Hertz.

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[32] The details for the case are filed as Case 559 U.S. 77.

[33] "A corporation shall be deemed to be a citizen of every State and foreign state by which it has been incorporated and of the State or foreign state where it has its principal place of business" (see 28 U.S. Code 1332).

[34] https://www.law.cornell.edu/supct/pdf/04-1186P.ZS, retrieved on April 19, 2015.

Shortly thereafter, in a similar case, the same court ruled that the retailer Best Buy was not a citizen of California, despite the state contributing 11% of its locations and 13% of both its revenues and employees.[35] This arbitrary interpretation of the law caused significant uncertainty as to the applicability of federal jurisdiction. Hertz appealed the decision to deny its removal to the federal court. The U.S. Supreme Court decided to accept the case and, on February 23, 2010, decided in favor of Hertz: Since the corporation's headquarter was located in New Jersey rather than California, Hertz was found not to be a citizen of California and therefore had the right to remove the case to federal court.

With the ruling in *Hertz*, the U.S. Supreme Court came down on the side of the nerve center interpretation and ruled that, in most cases, a corporation's principal place of business was to be found in its headquarter state.[36] The U.S. Supreme Court's ruling established binding precedent for all lower courts. The decision opened the doors to federal courts for corporations under some circumstances and closed it under others. After the ruling, firms would (almost) always be able to claim diversity of citizenship and move cases to federal court when sued in a state which was neither their headquarter nor their incorporation state. At the same time, firms with few assets or revenues in their headquarter state lost the ability to move cases into federal court. Before *Hertz*, those firms were able to claim diversity when sued in their headquarter state under the majority of operations rule.

What makes the decision in *Hertz* a powerful natural experiment to assess the relevancy of court quality is that it affected firms differently based on their geographic footprint. The reason is that the nerve center test and the operations test were consistently favored by different U.S. circuits. Circuits are the geographic regions of organization for the federal judiciary (see Figure 1 for a map of circuits and corresponding states). There are 11 circuits in the U.S., each containing multiple federal states.[37] The issue of corporate citizenship constituted a so-called "circuit split" in which different circuits interpret the law consistently in different ways. Importantly, a corporation sued in a state can only remove the case to the circuit of that state. Hence for any lawsuit brought in a specific state, only a single circuit's interpretation was binding. The 9th Circuit, covering the West Coast of the U.S., was most extreme in applying the operations test. Its interpretation allowed a firm to be found a citizen of not just one but multiple states each contained significant operations. On the opposite side of the split stood the 7th Circuit containing Illinois, Indiana and Wisconsin. The 7th Circuit's courts were proponents of the nerve center rule. The remaining circuits fell somewhere between those two extremes. Most applied either the nerve center or the operations test on a case by case basis, although none would consider a firm a citizen of more than two states like the 9th Circuit did. Because of this split, the U.S. Supreme Court's ruling had no effect for lawsuits brought

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[35]See http://www.jonesday.com/hertz_v_friend/, retrieved on April 19, 2015

[36]"The phrase 'principal place of business' in 1332(c)(1) refers to the place where a corporation's high level officers direct, control, and coordinate the corporation's activities, i.e., its 'nerve center', which will typically be found at its corporate headquarters."

[37]Washington, D.C. is a stand-alone circuit.

in the 7th Circuit, a large effect for lawsuits in the 9th Circuit, and an intermediate effect for all other circuits. Throughout our analysis we exploit this geographic variation in treatment.

We now turn to the question whether this ruling constitutes a valid experiment for an event study. To qualify as a valid experiment, the ruling may not have been fully anticipated prior to its announcement. At the same time, the actual decision should have been widely disseminated by the press upon announcement. The ruling in *Hertz* was unanimous, which might prompt fears that the ruling was anticipated. U.S. Supreme court cases proceed in multiple steps, with an oral argument as the last stage before the actual ruling is made and announced. The oral argument is the last time the supreme court judges publicly discuss a case. Hence, if the public anticipates the ruling, this is the time it would be reported. If the oral argument revealed that the court was leaning towards the nerve center test, the actual announcement of the ruling might have been anticipated. We therefore conduct a news search in the week following the oral argument.[38] We find only one mention of the case on the day of the oral argument from a law blog article describing the case. This blog entry features no indication whether the court is leaning one way or another.[39] The lack of media mentions does not rule out that the decision was at least somewhat anticipated, but, to the degree that this attenuates the market reaction on the announcement day, it will bias us against finding an effect.

We then repeat the news search for the day of the announcement to test whether it was noticed by the market. We limit the search to the day of the announcement and the following day since those are the days we focus on in our event study. We find 209 articles on Google News mentioning the decision in *Hertz*, including reports on Reuters and in the Wall Street Journal. Hence, we conclude that the U.S. Supreme Court's ruling in *Hertz* was not anticipated by market participants ex ante and had significant recognition on announcement. It therefore constitutes a valid setting for an event study.

Finally, we check whether there were any other big announcements on the day of the ruling. There was a report of a drop in U.S. consumer confidence.[40] As a result, the aggregate stock market declined by roughly 1%. To reduce concerns about this confounding event, we estimate regressions controlling for industry-fixed effects, as different industries arguably have heterogeneous exposure to consumer confidence shocks. Moreover, in unreported tests, we rule out that the consumer confidence shock was worse in the 9th Circuit by estimating regression of ARs on an indicator for firms headquartered or incorporated in the 9th Circuit. We find insignificant results, which suggests that the shock was not worse in the 9th Circuit than elsewhere and is not responsible for our finding of negative abnormal returns for firms present in the 9th Circuit.

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[38]We carry out the news search on Google News, Financial Times, and Wall Street Journal on the day of the argument, November 10, 2009, and the following week. In particular, we search for the following expressions: "Supreme Court", "Hertz", and "Hertz v. Friend".

[39]See https://www.law.cornell.edu/supct/cert/08-1107, retrieved on April 19, 2015.

[40]See, e.g., http://money.cnn.com/2010/02/23/markets/markets_newyork/.

A.2 *Wachovia v. Schmidt*

Hertz was not the only U.S. Supreme Court decision concerning diversity of citizenship. In *Wachovia v. Schmidt* (*Wachovia*), the U.S. Supreme Court had to decide about a similar case concerning the banking industry. The U.S. banking system comprises two types of banking corporations: Nationally- and state-chartered banks. Nationally-chartered banks are under the supervision of the federal Office of the Comptroller of the Currency. State-chartered banks are registered with the local state authorities. This dual system was established through the National Bank Act in 1863. The main advantage of nationally-chartered banks was that they were exempt from state level caps on interest rates in the past.

For the purpose of this second experiment, it is crucial that national-chartering is not identical to national presence. Not all nationally-chartered banks have operations in all states, and there exist state-chartered banks with a presence in multiple states. The level of charter is a formal and regulatory issue. Whereas state chartered banks were considered citizens of their state of incorporation and the state in which their main office was located, some courts had ruled that nationally chartered banks should be considered citizens of every state in which they operated a physical branch. In *Wachovia*, the question was whether national banks were to be treated the same way as state-chartered banks. Courts in the 2nd Circuit had considered national banks to be citizens of any state in which they had a physical presence. This interpretation of the law effectively banned nationally-chartered banks from federal courts.

On January 17, 2006, the U.S. Supreme Court decided in an unanimous vote to treat nationally-chartered bank the same as state-chartered banks for the purpose of establishing citizenship.[41] This ruling had an effect on nationally-chartered banks similar to that of *Hertz* on non-bank corporations with significant operations in the 9th Circuit. It made removal to federal courts easier in all states but the headquarter state. It had no effect on state-chartered banks or other corporations.

As in the *Hertz* case, it is necessary to establish that the ruling was both unanticipated and received the market's attention upon announcement. The oral argument of the case took place on November 28, 2005. As in *Hertz*, we fail to find any mainstream or financial news media picking up the argument.[42] Contrary to the oral argument, the actual ruling caught attention in financial markets and was mentioned, among others, in the Wall Street Journal.[43]

Importantly, there is a confounding event that overlaps with our estimation window:

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[41]This is different from the *Hertz* ruling regarding the nerve center test. The U.S. Supreme Court explicitly mentions in its decision that nationally-chartered banks will be treated like ordinary corporations with respect to their principal place of business, but abstains from a decision about how to determine that ruling: "While corporations ordinarily rank as citizens of at most 2 States, Wachovia, under the Court of Appeals' novel citizenship rule, would be a citizen of 16 States" (see https://www.law.cornell.edu/supct/pdf/04-1186P.ZO, retrieved on April 19, 2015).

[42]Again, the only mention is in a law blog without an indication of the court's expected decision. See https://www.law.cornell.edu/supct/cert/04-1186, retrieved on April 19, 2015.

[43]http://blogs.wsj.com/law/2006/01/17/supreme-court-issues-wachovia-decision-banking-industry-breathes-sigh-of-relief/, retrieved on April 19, 2015.

One day after the ruling in *Wachovia*, the U.S. Supreme Court heard oral arguments in the case of *Merrill Lynch v. Dabit*. Since *Merrill* also concerned banks, this event might confound any estimates for the *Wachovia* case. As a consequence, the decision in *Wachovia* provides us with a second valid experiment as long as we focus on the announcement day, whereas returns in the following days may potentially reflect the market's assessment of the argument in *Merril* as well.

B Measures of corporate geographic dispersion

Our measure of geographic dispersion is built on corporate filings with the Securities and Exchange Commission (SEC). The Securities Exchange Act of 1934 mandates U.S. corporations with publicly traded securities to file an annual form containing information on both the business itself and its financial situation.[44] We use this information to determine the geographical scope of the firm. As Garcia and Norli (2012) and Bernile, Kumar, and Sulaeman (2015), we use text search to count the number of occurrences of each U.S. state's name in critical items of discussion in the report. In our analysis we focus on the information provided in Items 1,2,3,6 and 7, which detail general information on the firm's business, property and financial situation.

Item 1 contains reports on the corporation's business activities as well as those of any subsidiaries. Item 2 contains information on the location of the corporations most important physical properties, such as plants. In an important deviation from Garcia and Norli (2012) and Bernile, Kumar, and Sulaeman (2015), we also use information from Item 3, which details legal proceedings. Since our paper deals specifically with legal risk and exposure to different court systems, this section is relevant for our measure. Item 3 provides information on legal proceedings which exceed the firm's normal scope, including the name of the court in which the action is pending. Item 6 covers financial information of the firm. Item 7 contains the management's discussion and analysis of the company's performance.[45]

A firm can file more than one type of annual report. Small businesses submit Form 10-KSB which is a reduced version of Form 10-K. Otherwise firms can submit amended versions of their annual reports. We use only a single filing for each firm and year. As Garcia and Norli (2012) we use the standard form 10-K whenever it is available. When no such filing is available, we search for an amended filing 10-K/A. Only if neither a normal nor an amended form is present we search for small business reports 10-KSB and 10-KSB/A.

As an example for the mention of states in Item 3, consider the following excerpt from Ford Motor Co.'s 10-K filing for the year 2014. State names are underlined.

Excerpt from Item 3 of Ford Motor Co's 10-K 2014
"[...] Medium/Heavy Truck Sales Procedure Class Action. This action pending in the Ohio state court system alleges that Ford breached its Sales and Service Agreement

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[44]Available at https://www.sec.gov.

[45]For a detailed description of each item, see Regulation S-K http://www.ecfr.gov.

with Ford truck dealers by failing to publish to all Ford dealers all price concessions that were approved for any dealer. The trial court certified a nationwide class consisting of all Ford dealers who purchased from Ford any 600-series or higher truck from 1987 to 1997, and granted plaintiffs motion for summary judgment on liability. During 2011, a jury awarded \$4.5 million in damages to the named plaintiff dealer and the trial court applied the jurys findings with regard to the named plaintiff to all dealers in the class, entering a judgment of approximately \$2 billion in damages. We appealed, and on May 3, 2012, the <u>Ohio</u> Court of Appeals reversed the trial courts grant of summary judgment to plaintiffs, vacated the damages award, and remanded the matter for a new trial. The retrial in September 2013 resulted in a verdict in Fords favor. On February 7, 2014, the trial court granted plaintiffs motion for a new trial, but on December 11, 2014, the <u>Ohio</u> Court of Appeals reversed the order granting a new trial and reinstated the verdict in Fords favor. Plaintiffs have sought further review in the <u>Ohio</u> Supreme Court. [...]"

We verify our measure of state exposure in several ways. First, we find that on average, the corporation's headquarter state accounts for 45% of all states mentioned in the report. This makes it the most mentioned state for almost all corporations. The second most mentioned state on average accounts for 41% of all state mentions. Finally, we find a strong positive and statistically correlation between a state's population and the firm-level mentions of that state in form 10-Ks.

For our second experiment in the ruling of *Wachovia*, we obtain high-quality data on geographic dispersion of commercial banks' branches from the Federal Deposit Insurance Corporation (FDIC). In Table B.1, we validate our text-based measures against the 2005 FDIC data on bank branches we use for the *Wachovia* experiment. In Panel A, we find that both the fraction of non-headquarter state offices and deposits of banks exhibits a roughly 50% correlation with our *Out of HQ state operations (%)* measure based on banks' annual reports. Panel B repeats the same analysis for the Herfindahl index of non-hoemstate operations as a measure of concentration (rather than spread) .The results are similar with a roughly 40% correlation between the bank branch data and our measure constructed from annual reports.

We conclude that our measures of geographic dispersion obtained from annual reports work reasonably well. The reason why the correlation with the FDIC branch data is not higher could be that FDIC data only covers retail branches. Since most loans in the U.S. are in fact syndicated (e.g., Armstrong, 2003; Gadanecz, 2004), a bank can gain significant exposure to states of the U.S. without operating a brick and mortar branch in that state.

C   Court rankings

Table C.1 reports ordinal rankings of state court systems according to the 2010 edition of the U.S. Chamber of Commerce ranking and the academic ranking proposed by Choi, Gulati, and Posner (2009) in their Table 8.

D   Variable definitions

See Table D.1.

Table B.1: Validation of measures of corporate geographic dispersion

This table validates the text-based measures of corporate geographic dispersion obtained from Form 10-Ks filed with the SEC's EDGAR database against similar measures based on data from the 2005 FDIC's Summary of Deposits. The bank sample includes U.S. banks with available stock price data on the event-day, based on the CRSP-FRB link file made available by the Federal Reserve Bank of New York. Pairwise correlation among the different measures are estimated. Panel A focuses on measures describing a bank's fraction of operations outside its main office state. Panel B focuses on measures of concentration (Herfindahl index) of operations outside a bank's main office state. Refer to Table D.1 for variable definitions.

Panel A: Fraction of operations			
	(1)	(2)	(3)
(1) Out of HQ state operations (%)	1		
(2) Out of HQ state offices (%, FDIC)	0.5129	1	
(3) Out of HQ state deposits (%, FDIC)	0.4754	0.9745	1

Panel B: Herfindahl index			
	(1)	(2)	(3)
(1) Out of HQ state operations (HHI)	1		
(2) Out of HQ state offices (HHI, FDIC)	0.4261	1	
(3) Out of HQ state deposits (HHI, FDIC)	0.4006	0.9033	1

Table C.1: State court system rankings

This table ordinal rankings of state court systems based on the 2010 Chamber of Commerce ranking (see http://www.instituteforlegalreform.com/states) and the academic ranking in Table 8 of Choi, Gulati, and Posner (2009).

U.S. state	Abbreviation	Chamber of Commerce ranking (2010)	Academic ranking
Alabama	AL	47	17
Alaska	AK	33	29
Arizona	AZ	13	36
Arkansas	AR	44	2
California	CA	46	1
Colorado	CO	8	34
Connecticut	CT	24	31
Delaware	DE	1	32
Florida	FL	42	20
Georgia	GA	27	6
Hawaii	HI	35	46
Idaho	ID	18	42
Illinois	IL	45	11
Indiana	IN	4	30
Iowa	IA	5	23
Kansas	KS	14	16
Kentucky	KY	40	44
Louisiana	LA	49	40
Maine	ME	12	37
Maryland	MD	20	14
Massachusetts	MA	9	9
Michigan	MI	30	50
Minnesota	MN	11	35
Mississippi	MS	48	7
Missouri	MO	37	49
Montana	MT	43	4
Nebraska	NE	3	10
Nevada	NV	28	45
New Hampshire	NH	16	18
New Jersey	NJ	32	28
New Mexico	NM	41	43
New York	NY	23	12
North Carolina	NC	17	48
North Dakota	ND	2	3
Ohio	OH	29	5
Oklahoma	OK	31	38
Oregon	OR	21	33
Pennsylvania	PA	34	8
Rhode Island	RI	38	15
South Carolina	SC	39	24
South Dakota	SD	10	26
Tennessee	TN	19	19
Texas	TX	36	39
Utah	UT	7	22
Vermont	VT	25	27
Virginia	VA	6	41
Washington	WA	26	13
West Virginia	WV	50	21
Wisconsin	WI	22	47
Wyoming	WY	15	25

Table D.1: Definition of variables

Variable	Definition
CAR$[n1, n2]$	Cumulative abnormal returns $n1$ days to $n2$ days around the event-day. Abnormal returns are obtained by computing the residuals of separate regressions of individual CRSP daily stock returns on the three Fama and French (1993) risk factors and a momentum factor, with the factor loadings estimated in the pre-event period. For the bank sample, the market model is used to obtain such residuals.
Headquarter 7th Circuit	Indicator equal to one if a firm is headquartered in the 7th Circuit.
Headquarter 9th Circuit	Indicator equal to one if a firm is headquartered in the 9th Circuit.
Chamber of Commerce ranking (HQ state)	Chamber of Commerce ranking of a firm's headquarter state.
Academic ranking (HQ state)	Academic ranking of a firm's headquarter state.
Business attitude (HQ state)	State court system's business friendliness of a firm's headquarter state. Obtained by orthogonalizing the Chamber of Commerce and t he academic ranking.
No. states	The number of unique U.S. states for which state count is at least one for a firm.
Out of HQ state operations (%)	A firm's sum of non-headquarter state counts divided by the total sum of state counts.
Out of HQ state operations (HHI)	A firm's Herfindahl index of non-headquarter state counts.
Chamber of Commerce ranking (out of HQ state)	Average Chamber of Commerce ranking of states a firm operates in, weighted by state counts.
Academic ranking (out of HQ state)	Average academic ranking of states a firm operates in, weighted by state counts.
Business attitude (out of HQ state)	Average state court systems' business friendliness of states a firm operates in, weighted by state counts.
Chamber of Commerce ranking (out of HQ state, 7th Circuit excluded)	Defined same as *Chamber of Commerce ranking (out of HQ state)* but excluding firms headquartered or incorporated in the 7th Circuit's states.
Academic ranking (out of HQ state, 7th Circuit excluded)	Defined as *Academic ranking (out of HQ state)* but excluding firms headquartered or incorporated in the 7th Circuit's states.
Out of HQ state operations in 9th Circuit (%)	Defined as *Out of HQ state operations (%)* but based just on 9th Circuit's states.
Out of HQ state operations in 7th Circuit (%)	Defined as *Out of HQ state operations (%)* but based just on 7th Circuit's states.
High labor intensity	Indicator variable equal to one if a firm belongs to an industry with above-median labor intensity. We define industry labor intensity as the 2009 total payroll to total value added ratio from the NBER-CES Manufacturing Industry Database.
High occupational risk	Indicator variable equal to one if a firm belongs to an industry with an above-median nonfatal occupational injuries and illnesses rate. Nonfatal occupational injuries and illnesses rate data are from the 2008 issue of the Injuries, Illnesses, and Fatalities (IIF) program of the Bureau of Labor Statistics (BLS). 2008 BLS data follow the 2002 North American Industry Classification System NAICS, so we use the 2002 NAICS to 1987 SIC concordance table from the U.S. Census Bureau, and the concordance table for SIC groups from the BLS.
Customer orientation	Indicator equal to one if a firm belongs to an industry oriented to customers (business-to-customer) rather than other businesses (business-to-business), following the classification of Table 1 of Lev, Petrovits, and Radhakrishnan (2010).
No. states (FDIC)	Number of states a bank operates offices in according to the 2005 FDIC's Summary of Deposits.
Out of HQ state offices (%, FDIC)	A bank's fraction of offices outside the main office state according to the 2005 FDIC's Summary of Deposits.
Out of HQ state deposits (%, FDIC)	A bank's fraction of deposits outside the main office state according to the 2005 FDIC's Summary of Deposits.

(Continued)

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Table D.1: *– Continued*

Out of HQ state offices (HHI, FDIC)	A bank's state-level Herfindahl index of offices outside the main office state according to the 2005 FDIC's Summary of Deposits.
Out of HQ state deposits (HHI, FDIC)	A bank's state-level Herfindahl index of deposits outside the main office state according to the 2005 FDIC's Summary of Deposits.
Treated 1	Indicator equal to one for firms for which *Out of HQ state operations in 9th Circuit (%)* is equal to 0% before 2010.
Treated 2	Indicator equal to one for firms for which *Out of HQ state operations in 9th Circuit (%)* is below 15% before 2010.
Treated 3	Indicator equal to one for firms for which *Out of HQ state operations in 9th Circuit (%)* is below 15% but strictly positive before 2010.
Size	Firm size defined as the natural logarithm of `at` in Compustat.
Market-to-book	Market-to-book ratio defined as `(at-ceq+prccf×csho)/at` in Compustat.
Cash flow	Internal cash flow defined as `(oibdp)/at` in Compustat.