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Did Financial Markets React to the Overturning of Roe v. Wade?

An Event Study on the U.S. Stock Market's Response to Legislation Affecting Reproductive Rights

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Abstract

Abortion has remained a contentious issue across the United States for the better part of the last century. On June 24th, 2022, the Supreme Court overturned *Roe v. Wade* which had provided constitutional protection of abortion since 1973. This left access to abortion under the purview of state governments, resulting in a patchwork of laws across the country.

The Supreme Court's decision directly affected thousands, if not millions, of lives, and is hypothesized to have ripple effects throughout all facets of America. This paper attempts to determine whether increasingly stringent abortion legislation has a negative impact on firms' performance. This is done using event study methodology, seeking to detect effects on firms by analyzing their security prices on May 3rd, when a Supreme Court draft opinion indicating the imminent cessation of federal protection was leaked.

Data used for the analysis comprises 990,224 daily return observations for 3,021 firms. We investigate effects on equity prices at increasing levels of granularity, specifically looking at effects at the national- and state-level. Furthermore, we divide the country into four categories based on pre-Roe legality, and whether the legality is likely to change. Our results are scattered, with some results bordering statistically significant support for our hypotheses. Overall, however, we do not find evidence to reject any of the null hypotheses. Confounding events and a market context making effective event study specification difficult affected our results.

Keywords – Abortion, Event Study, Fama-French, Market-Model, Roe v. Wade

Abbreviations

SRI - Socially Responsible Investing

GLI - Gender Lens Investing

ESM - The event study methodology

TRAP laws - Targeted regulations of abortion providers laws

AR - Abnormal return

CAR - Cumulative abnormal return

CAAR - Cumulative average abnormal return

FF5 - Fama-French five-factor

W5000 - Financial Times Wilshire 5000 Index

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1 Introduction

On Friday, June 24, 2022, the Supreme Court of the United States instituted a fundamental change to the reproductive justice system in the United States. In *Dobbs v. Jackson Women's Health Organization*, No. 19-1392, 597 (2022), the U.S. Supreme Court reversed *Roe v. Wade*, 410 U.S. 113 (1973), a 50-year-old law guaranteeing the constitutional right to self-determined abortion (Sun et al., 2022). The accessibility of abortion is now under the purview of individual states and governed by a patchwork of abortion laws, with some states banning abortion in all instances. In response to the decision, President Joe Biden described it as "radical" and a decision that potentially could jeopardize other important rights like the right to use contraception and same-sex marriage (Pettypiece, 2022).

The overturning of *Roe v. Wade* has sparked intense reactions from both opponents and supporters of abortion rights in the months following the decision. While the recent conflict surrounding reproductive health is nothing new, there seems to be an increased presence of the pro-abortion advocates following the U.S. Supreme Court's decision (Politico, 2022). Those directly affected by this change, women are leading the discussions, and, contrary to other polarized subjects, individuals from all social classes are taking part (Graham, 2022). This is backed by the PEW Research Center, which finds that nearly six in ten adults (57%) disapprove of the court's decision, including 43% who strongly disapprove. On the other side of the debate, 41% approve of the court's decision, whereas 25% strongly approve (PEW, 2022).

The controversy surrounding reproductive rights and their potential impact on the economy is a topic of increasing research interest and evidence, with previous studies exploring the social and economic effects of this issue. In this thesis, we aim to investigate whether changes in public opinion and abortion legislation are reflected in financial markets. Potential channels include negative effects on education outcomes, worsened socioeconomic conditions, and difficulty in retaining and hiring talent in anti-abortion states.

Specifically, our research question is: "Does increasingly stringent abortion legislation have a negative impact on firms' performance?" In this study, we incorporate methodologies from multiple disciplines, including financial econometrics, economics, and political science. Our alpha estimation is based on the semi-strong and strong efficiency of markets, which suggests that changes in legislation affecting reproductive rights should be reflected in the stock prices of firms whose cash flows are dependent on real economic activity and factor inputs like human capital affected by reproductive rights. To explore this relationship, we first provide a detailed codification of the legal history of abortion in the United States. Subsequently, we specify and conduct an event-study analysis to examine the financial impacts of these legal changes potentially impacting public companies. Overall, our study aims to provide insight into the potential effects of legislation concerning reproductive rights on financial markets and the broader economy. We find scattered results with a general absence of statistical significance. Some results do border the 5% significance level, though we do not find evidence to reject any of the null hypotheses.

The motivation for this thesis is to develop a novel approach for investigating whether legislation surrounding abortion has social and economic consequences. Restricted access to abortion brings to light ethical questions and issues of personal consequences; we set these aside in our investigation, focusing on broader societal consequences. Part of our motivation is that critical, wide-reaching political and judicial decisions tend to be made without substantial foundation in data and research, or that decisions are made contrary to what empirical evidence would suggest. It is difficult to obtain perfect information in the face of questions whose answers have wide-reaching ramifications, such as whether abortion should be legal. Through our thesis, we aim to contribute to the body of information regarding abortion access by establishing an alternate mechanism of measuring indirect effects on public equity markets.

We use the event study methodology in our attempt to measure equity price effects from abortion legislation. The standard firm-level CAAR aggregation technique is used, in addition to the construction of value-weighted portfolios, which are then subjected to the event study analysis. We use daily observation intervals with an estimation period of 250 trading days, a holdout period of six days, and an event window of three days. The event window covers the event day, the preceding day, and the following day.

To conduct this analysis, we compiled data comprising North American security prices between January 2020 and August 2022. As we opt for an estimation period covering approximately one calendar year, we do not use the entire data set, though it allows us to experiment with different estimation periods. We run several filters on the data, finally obtaining a sample of 3,021 unique firms and 990,224 return-date observations. To facilitate normal return prediction, this data is then combined with Fama-French five-factor data, excess returns of the FT Wilshire 5000 index and MSCI World Index covering the same period. Adding to this dataset, we construct a variable categorizing firms depending on the expectation that abortion laws would increase in strictness. We also construct a data set of firms that publicly responded to the overturn of *Roe v. Wade*, with corresponding returns and event dates.

We develop two hypotheses. The first comprises three sub-hypotheses related to market-wide reactions, with the second hypothesis focusing on firms responding to the overturning of *Roe v. Wade*.

The first sub-hypothesis is that firms' equity prices will fall when faced with increasing restrictions in the legal environment surrounding women's reproductive rights. The analysis does not provide evidence to reject the null hypothesis, with the results being insignificant.

Secondly, we hypothesize that the negative impact on equity prices caused by increasing restrictions will be greater in states potentially facing a transformation of reproductive rights, and insignificant in states where abortion is protected by state constitution, or was already highly inaccessible prior to the overturning of *Roe v. Wade*. We do not find significant results regarding this second sub-hypothesis, although the results pertaining to firms in states likely to experience stricter legislation upon the overturning of *Roe. v. Wade* border statistical significance, with a negative CAAR, as hypothesized.

The third sub-hypothesis pertains to the proportion of states within their assigned categories where a negative market response can be observed. We hypothesize that negative equity price impacts will be present in all states facing increased restrictions pertaining to abortion. This is not evident from the results. Accordingly, we accept the null hypothesis.

Our second hypothesis is that firms will experience a negative shock to their equity price on the event day, but a positive shock of similar magnitude upon publicizing policies securing employees' access to abortion. We do not find conclusive results in this analysis, with the majority of individual firms' cumulative abnormal returns clearly not significant.

Results aggregated cross-sectionally are also insignificant. Consequently, we do not reject the null hypothesis.

To our knowledge, this thesis is the first attempt to offer insight into the financial effect of the transformation of abortion- rights, laws, and access in the United States. It explores the complex interconnection between juridical events and financial markets. This paper contributes to the existing literature on social-, economic-, and financial science. We build on Cook and Luo's (2022) assertion that the perception of social issues affects the financial markets through investors' allocation choices. We further expand on research from Bernhard and Leblang (2006) on the financial effect of legislative and political behavior. We contribute to a limited body of evidence on the causal effects of modern abortion restrictions and the ongoing polarized discussion around reproductive health. Important research on this topic includes Medoff (2016), Miller et al. (2020) and Jones et al. (2021) who evaluate the economic effects of abortion, in addition to Foster's (2020) research in the Turnaway Study, the first study to collect high-quality, longitudinal data on women receiving or being denied a wanted abortion in the United States. Our event study does did not produce conclusive evidence; however, the method shows promise for identifying state-specific reactions to legal changes that may have social and economic effects reflected in the public equity markets. We contribute with a new research angle on the topic of reproductive rights, with suggestions for refinements that might increase the efficacy of the study and provide generalizable results.

Next, in chapter two, we present a brief history on the subject of abortion with key dates for the event study, as well as academic literature on reproductive health and related social and economic impacts. Chapter three comprises our research question and hypothesis, as well as a justification of the event study as the appropriate quasi-experimental approach. Next, chapter four then presents financial theory from the event study literature forming the basis of our methodology. Subsequently, chapter five presents data used in the event study analysis, with chapter six discussing practical considerations of conducting an event study and specifications of the event study conducted in this thesis. In chapter seven, we present our results and corresponding analysis. We discuss limitations regarding our study and provide recommendations for further research in chapter eight, and lastly, conclude the paper in chapter nine.

2 History and Effects of Abortion Legislation

In the landmark case of *Dobbs v. Jackson*, the U.S. Supreme Court ruled that women have no constitutional right to obtain an abortion. The court's decision overturned the previous universal right granted by *Roe v. Wade* and left abortion access to the discretion of individual states. The decision is a response to *Roe v. Wade*, which, since its inception, has been the subject of intense political debate and numerous legal challenges (Beckman, 2017).

To better frame our research question, we start by examining the background of abortion legislation and the event at hand.

2.1 Abortion - A Bird's Eye View

Induced abortion and the intentional termination of pregnancy have existed since antiquity. Before the nineteenth century, abortion was legal and openly advertised in the United States. In the 1820s, anti-abortion legislation was enacted, and criminalization accelerated in the 1860s (Jones et al., 2021). Nonetheless, legalization of abortion is a new phenomenon in a historical context, due to both technological advances in medicine and a more liberal society (West, 1998). In 2022, the majority of countries in the northern hemisphere permit abortion on demand, subject to gestational limits. The majority of African nations, the Middle East, South-Asia, and the United States are regions with stricter policies (Center for Reproductive Rights, 2022). Although the discussions are polarized, the global trend is toward a more permissive abortion policy (Ipsos Group S.A., 2021). In fact, the United States is one of only four nations to have removed legal protections for abortions since 1994, whereas 58 nations have made abortion more accessible (Mayall, 2022).

2.2 The Coming of Dobbs

By the late 1960s, there was a nationwide effort underway to legalize abortion in every U.S. State. In 1970 the state of New York had legalized abortion, and, by 1973, four states had legalized the termination of pregnancy, while 13 enacted reforms (Halfmann, 2003).

In the same year, 1973, the precedent-setting case *Roe v. Wade* took place. the case concerned a Texas law that made it a crime to perform an abortion except on medical advice to save the life of the mother. The plaintiff in the case, Norma McCorvey (using the pseudonym "Jane *Roe*"), argued that the law violated her constitutional right to privacy and filed a lawsuit against the Dallas County District Attorney ("Henry *Wade*"). In its decision, the Supreme Court ruled that the Texas law was unconstitutional because it violated the right to privacy protected by the Fourteenth Amendment to the United States Constitution. The Court held that a woman has a constitutional right to choose to have an abortion, at least until the point of viability[1] and that the state has no right to interfere unless it can demonstrate a compelling interest in doing so (Roe v. Wade, 1973).

Since then, federal and state lawmakers have found ways to make abortion more difficult to obtain. The most notable of these restrictions is the Hyde Amendment first implemented in 1977. This amendment bans the use of federal funds for abortion coverage through the Medicaid program, except in cases of rape, incest, or life endangerment, making abortion inaccessible for many (ACLU, 2017). Converse to the trend of governments making obtaining an abortion more difficult, the federal protection of abortion originally enacted in *Roe v. Wade* was upheld in 1992 when Pennsylvania brought the *Pennsylvania Abortion Control Act* to the Supreme Court (Wharton et al., 2006).

Despite the federal protection of abortion, restrictions on abortion access have intensified over the past 15 years (Guttmacher, 2020). Targeted regulations of abortion providers ("TRAP laws")[2], were the fastest-growing restrictions between 2010 and 2021, with the number of states implementing them increasing by 53% (Jones and Pineda-Torres, 2021). Additionally, various states have implemented "Trigger-Laws" A0.9 ensuring that abortion would be made a felony if *Roe v. Wade* were to be overturned (Texas H.B. No. 1280, 2021).

In 2022, the issue of abortion rights has become a defining line in U.S. politics, with Democratic politicians staunchly supporting the right to abortion and Republican politicians firmly opposing it (Sullivan, 2022). Conversely, the issue was initially non-partisan with 39% of Republicans supporting abortion, compared to 35% of Democrats

[1]Viability: When the fetus is able to survive outside the womb.

[2]TRAP Laws single-out physicians who provide abortion care and impose distinct and more burdensome legal requirements than those imposed on physicians who provide comparable types of care. These laws do not increase patient safety and are contrary to clinical guidelines supported by scientific evidence. A0.12

(Smith and Jaesok, 2013).

2.2.1 The Backlash

2.2.1.1 March 19, 2018 - The Mississippi Case

Access to abortion was becoming scarce in many regions of the United States in 2018, despite the fact that the U.S. Supreme Court had held for half a century that the Constitution protected the right to pre-viability abortion everywhere in the country(Cohen et al., 2022).

On March 19, 2018, the U.S. State of Mississippi enacted a new TRAP law (HB 1510, the Gestational Age Act)(Currie et al., 2018), which bans abortion after 15 weeks gestation after last menstrual period (LMP). The legislation's findings and purpose were that the U.S. was one out of only seven countries in the world that permits nontherapeutic or elective abortion-on-demand after the twentieth week of gestation (Currie et al., 2018). The act was signed the same day by Mississippi's Governor and taken into effect. Jackson Women's Health, the only abortion provider in Mississippi, immediately challenged the law in federal court *(Thomas E. Dobbs v. Jackson Women's Health Organization)*, stating that it breached the constitutional right to abortion given by *Roe v. Wade* (Sobel et al., 2022). The U.S. District Court for the Southern District of Mississippi (2019) and then the 5th Circuit Court of Appeals (2019) both struck the law down as unconstitutional.

The State of Mississippi then appealed to the U.S. Supreme Court in a petition for certiorari[3], which was granted on May 17, 2021. Where the court accepted the case to review "whether all pre-viability prohibitions on elective abortions are unconstitutional" (Staley and Guo, 2021).

2.2.1.2 December 1, 2021 - Arguments in Challenge to Roe v. Wade

At the time of the official review date for *Dobbs v. Jackson*, the U.S. Supreme Court had received a great number of arguments from both sides of the political debate. The court received several Amicus Curiae briefs[4] from professionals of a range of industries

[3]Certiorari is a legal procedure to seek judicial review of a lower court or government agency's decision.

[4]Amicus Curiae briefs - *("Friend of the court briefs")* refers to an individual or organization that is not a party to a legal case, but is permitted to assist the court by providing relevant information, expertise, or insight.

and political standpoints (Ollstein, 2021), all delineating the agitated altercation.

The architect of Texas' abortion laws, Jonathan F. Mitchell 2021b, strongly condemned *Roe v. Wade*: "*Roe v. Wade* is a lawless and unconstitutional act of judicial usurpation, that flagrantly disregards Article III's case-or-controversy requirement and that the U.S. Supreme Court has no right to invent constitutional rights" with the overall conclusion that the judgment of the court of appeals should be reversed.

On the contrary, 154 economists filed a Brief of Amici Curiae (2021a) that summarizes economic research findings on the effects of abortion availability, and that reads in part:

> Abortion legalization has had downstream impacts on women's social and economic lives. Economists have also used the tools of causal inference to measure the effect of abortion legalization on women's social and economic outcomes more broadly. . . Studies show that in addition to impacting births, abortion legalization has had a significant impact on women's wages and educational attainment, with impacts most strongly felt by Black women.

During the oral arguments for the case in 2021, the Justices' comments foreshadowed the eventual verdict. The liberal Justices emphasized the need for compromise, while the conservative Justices made it clear that they did not agree with the "undue burden" standard. Justice Samuel Alito also stated that the viability line does not make sense if the fetus has an interest in life.

2.2.1.3 May 2 - Leak of the U.S. Supreme Court's Decision

On May 2, 2022 at 8:27 PM Eastern Daylight Time[5], Politico, a newspaper that covers politics and policies in the United States and internationally, posted the breaking news: **"Supreme Court has voted to overturn abortion rights, draft opinion shows"** (Politico, 2022). The obtained draft was an 'initial draft majority opinion' written by Justice Samuel Alito (2022), to be circulated inside the court. The draft included statements such as: "Roe was egregiously wrong from the start", and "We hold that Roe and Casey must be overruled."

The leak of the draft sparked a public uproar, with news agencies and individuals voicing

[5]First Event date, see (6)

their concerns. When the authenticity of the draft was confirmed the following day, Chief Justice John Roberts called it an “egregious breach” of the courts’ trust Politico (2022). The certification sparked public protests outside the Supreme Court and various state courts (Griffith, 2022). President Joe Biden (Biden, 2022b) issued an official statement in which he strongly opposed the draft, making three clear statements to the Supreme Court.

2.2.1.4 June 24 - Reversed

Friday, the 24th of June, the U.S. Supreme Court affirmed the decision to overrule the policies of the U.S. reproductive justice system in a five-to-four vote. In *Dobbs v. Jackson*, the U.S. Supreme Court withdrew *Roe v. Wade* and *Planned Parenthood v. Casey*, holding that there is no longer a federal constitutional right to abortion. The weeks of public statements and international recognition did not change the opinion of the Court. What was earlier a ubiquitous national right has now become a state-by-state patchwork of laws Cohen and Joffe (2020). The accessibility of abortion is now in the hands of individual states and governed by different political parties, with half of U.S. states hostile to abortion access (Center for Reproductive Rights, 2022). The following statement was published by the White House (2022a):

> Today is a — it’s not hyperbole to suggest a very solemn moment. Today, the Supreme Court of the United States expressly took away a constitutional right from the American people that it had already recognized. They didn’t limit it. They simply took it away. That’s never been done to a right so important to so many Americans. But they did it. And it’s a sad day for the Court and for the country.

2.2.2 Post Roe v. Wade

By the time of writing, the U.S. landscape for reproductive rights is still unclear from the individual level up to the federal justice system. There are perplexing legal conflicts across state borders and inside the states itself Cohen et al. (2022). By the 23rd of November, 14 states have banned access to abortion, and the states where abortion is currently unavailable accounted for 125,780 abortions in 2020 Kirstein et al. (2022). Individuals who can no longer obtain an abortion from a clinic in these states are now forced to travel to another state for abortion care (Jones and Jerman, 2022).

At the midterm elections in November 2022, the U.S. Supreme Court's decision to overturn *Roe v. Wade* brought abortion to the forefront, with approximately 27% of voters naming it as their top issue. Approximately 6 in 10 voters were dissatisfied with the decision, with nearly 4 in 10 expressing anger. When it came to which party voters trusted to handle abortion issues, Democrats had approximately an 11-point advantage over Republicans (Edwards-Levy, 2022). The midterm elections provided an opportunity for voters to approve or reject these policies and the politicians who support them. In at least nine states, the outcome of key midterm races had the potential to impact abortion laws directly Kitchener et al. (2022). Abortion rights advocates experienced a number of victories, winning over Republican voters and protecting access to abortion in several states where it had been at risk. These results suggest that public opinion on reproductive rights remains complex and divided, emphasizing the need for research on the topic.

2.3 Effects of Abortion Legislation

2.3.1 Reproductive Health and Societal Effects

There are numerous economic studies that have examined the effects of abortion access and public funding for abortion on various medical and public health indicators. Many of these studies focus on the use of abortion[6], childbirth[7], and the impact on other forms of contraception[8], pregnancy, and the timing of the abortion in a woman's life[9]. Some studies also take a more social perspective, looking at the impacts of abortion on factors such as marriage and social life.[10] More recently, there has been increased attention on the effects of abortion on women who are considering the procedure, as well as on future generations in terms of infant mortality, growing up with a single parent, living in poverty,

[6] Blank et al. (1996); Levine et al. (1996); Haas-Wilson (1996); Meier et al. (1996); Joyce and Kaestner (1996); Ellertson (1997); Haas-Wilson (1997); Cook et al. (1999); Morgan and Parnell (2002); Levine (2003); Joyce et al. (2006); Gius (2007); Colman et al. (2008); New (2011); Medoff (2014); Myers (2017); Grossman et al. (2017); Fischer et al. (2018); Lindo et al. (2020)

[7] Kane and Staiger (1996); Levine et al. (1996); Haas-Wilson (1997); Levine et al. (1996);Cook et al. (1999); Angrist and Evans (1996); Morgan and Parnell (2002); Levine (2003) Joyce et al. (2006); Ananat et al. (2007); Guldi (2008); Colman et al. (2008); Borelli (2011); Lahey (2014); Medoff (2016); Myers (2017); Myers and Ladd (2020); Fischer et al. (2018)

[8] Sabia and Anderson (2016); Fischer et al. (2018)

[9] Levine (2003); Colman et al. (2008); Medoff (2010)

[10] Colman and Joyce (2009); Foster (2020)

and relying on social services,[11] and further into adulthood, including teen or unwed birth, educational attainment, criminality, imprisonment, profession, poverty, and public assistance [12].

These studies suggest that access to abortion can lead to a decrease in child poverty, indicating that it also reduces the number of poor mothers. However, as numerous studies on child outcomes have shown, selection effects are mostly responsible for the consequences on the following generation (Jones et al., 2021). That is, even if no one's circumstance has improved, the cohort as a whole does better on average since fewer children are born to underprivileged women (Levitt and Dubner, 2014).

Most studies assessing the effects of abortion look at the topic with regard to a universal constitutional right to abortion. The following paragraphs will highlight relevant literature considering inter-state differences and regulations leading up to the overturning of *Roe v. Wade* with takeaways from converging disciplines of social, economic, and financial effects of abortion policies in the United States.

2.3.2 Social

A recent study by Jones and Pineda-Torres (2021) researched the effects of the targeted regulations of abortion providers (TRAP laws)(A0.12). Consistent with earlier studies, they found robust evidence that restrictions on abortion impact young black women: U.S. States that implemented TRAP laws saw a three percent increase in black teen births relative to states without these limitations. The study also found strong evidence that the TRAP laws had a downstream impact on education, where women affected by TRAP laws before the age of 18 are one to three percentage points less likely to start and finish college education.

This is comparable to the new findings of Jones et al. (2021). When studying how abortion affects educational attainment, they find even greater results than previous estimates provided by (Angrist and Evans, 1996). While Angrist and Evans documented sub-population-level increases of 3.7% in college entrance, 9.6% in college graduation, and 1.6% in employment status for women having an abortion, Jones et al. (2021) finds

[11] Gruber et al. (1999); Myers (2017)
[12] Donohue III and Levitt (2001); Donohue III et al. (2009); Ananat et al. (2009); Whitaker (2011); Ozbeklik (2014); Levitt and Dubner (2014); Jones and Pineda-Torres (2021)

sub-population-level estimates indicate a 100% increase in college entrance, a two to three-fold increase in college graduation, and a 44% increase in employment status.

Jerman et al. (2017), investigated the effects of a lack of uniformity in abortion services across U.S. states. They examined the scope of barriers beyond those related to individual state-level abortion restrictions that such women encounter and any associated consequences. Listing 15 barriers women encountered while crossing state borders to obtain abortion care. Concluding in line with earlier research that it profoundly affects poor individuals the most.

2.3.3 Economic

The economic works investigate economic impacts on an individual and aggregate level. Notably, there is uncertainty as to whether access to abortion can improve the economic well-being of women.

Only a small body of literature has examined the impact of abortion access on women's personal economic outcomes. Amador (2017) presents a dynamic life-cycle model of women's decisions regarding abortion use, finding that eliminating abortion will lower lifetime earnings by 2%. Extending on this research, Jones et al. (2021) finds that for females with a pregnancy before age 20, abortion access increases a woman's earnings later in life by $11,000 to $15,000/year as measured in 2018 USD, about a 37% increase, and increases family income by $6,000 to $10,000/year, a 10% increase. While Foster (2020) in the Turnaway study, found that credit reports showed that not being able to terminate an unwanted pregnancy increases the amount of debt past due for 30 days or more by 78%. Miller et al. (2020) took advantage of the success of the Turnaway Study in identifying and recruiting this hard-to-reach population and linked the study participants to ten years of credit report data. These data contained high-quality, administratively-collected details making it possible to study financial health. Following the encounter, Miller et al. found that women who were denied an abortion experience a large increase in financial distress that is sustained for several years. In addition to evidence of a short-term reduction in credit access but no change in measures of borrowing.

On the contrary, the Joint Economic Committee Republicans (JEC Republicans, 2022) argue that the real economy yields more than what individual women gain from abortion.

They estimate that the economic cost of abortion in 2019 due to the loss of nearly 630,000 unborn lives, was at least $6.9 trillion, or 32 percent of U.S. GDP. Lee (2022)'s arguments for this economic cost calculation are based on methods commonly used by federal government agencies to calculate the benefits of regulations that impact mortality risks. By applying this same methodology to abortion, which increases the risk of mortality to unborn babies, JEC Republicans estimate that the economic cost of abortion due to the loss of unborn lives is 425 times greater than the earnings loss mothers would be expected to incur when having a child. Earnings of the average mother fall by approximately $26,000 over the first six years of her first child's life. If each abortion prevents maternal earnings from falling, all abortions in 2019 could save mothers $16.2 billion in earnings over the next six years. However, the JEC's $6.9 trillion cost of abortion estimate far outweighs these projected earnings benefits (Lee, 2022).

2.3.4 Investment Decisions and the Financial Market

The literature on the effects of abortion on financial markets is non-existent to our knowledge. Literature that encompasses the topic of abortion in the abortion process does exist, however, including research on how the perception of social issues affects personal and professional investment choices.

The recent focus on impact investing in both retail- and professional investors is of note. Camilleri (2020) describes the field of socially responsible investing (SRI) and its sub-field of gender lens investing (GLI). GLI is a strategy that incorporates gender-based concerns into the investment process in order to promote gender equality and make more informed investment decisions. This approach is particularly relevant to the topic of reproductive health and abortion, which have significant impacts on women's lives. By considering gender-based factors throughout the investment process, GLI aims to support women's rights and improve outcomes for women and their families. Global Impact Investing Network (2022) and Smucker and Angela (2022) provide extensive work geared towards supporting investors to implement GLI and describe it as investing in enterprises that offer products or services that substantially improve the lives of women and girls.

The work of Cook and Luo (2022) provides novel evidence that fund managers tilt their top holdings to pro-feminism companies during the period of heightened perception of gender equity issues by employing a difference-in-difference framework while managing endogeneity and measurability issues using the breakout of the *MeToo* movement in 2017 as a quasi-natural experiment issue. Relatedly, shaming in the court of public opinion has been found to have significant negative effects on public equity prices (Rusina, 2020), which may have transferable implications to firms' stance on reproductive rights.

3 Research Question and Hypotheses

Founded in the above literature summarizing the effects of restrictions on reproductive laws on the economy and factor inputs for business, our research question is:

Does increasingly stringent abortion legislation have a negative impact on firms' performance?

Assessing social and economic impacts of abortion legislation is difficult due to the long time frame between the implementation of new rules and downstream effects. It is equally, if not more, challenging to assess the effects of abortion legislation on firm performance through production inputs and income potential in relation to the research question at hand.

Current equity valuations in a rational market are purely a function of perpetual future income to equityholders. Consequently, to assess the effects of increasingly stringent abortion legislation on the economic performance of corporations, it is possible to look at changes in equity prices surrounding the event of interest through an event study. This approach also proves to be more practical than assessing input factors and the firm's general economic environment, as changes in these types of variables are likely to manifest over long time horizons. Confounding variables, and the presence of omitted variable bias are some of the challenges in long-horizon regression studies (MacKinlay, 1997).

Channels of changes in current equity prices in relation to abortion comprise extensions of relevant literature in 2.3 and conjecture on our part. Firstly, limited access to abortion can drive worsened economic outcomes on an individual level as well as poverty on aggregate. We postulate that this may negatively affect overall economic activity due to lowered individual spending power, which in turn ought to negatively affect corporations through decreased income. Furthermore, worsened education outcomes naturally lead to a less educated workforce. Here, we put forward that overall worker productivity should correspondingly decrease, with corporations then susceptible to this effect as well. Followingly, we present conjectures based on the assumption that a rational actor would, ceteris paribus, choose a pro-abortion state as it gives them more rights. Here, we theorize that the skilled workforce in anti-abortion states may weaken as a result of decreased out-of-state college attendance, thus lowering the candidate pool for hiring firms. Similarly, it may be difficult for firms in anti-abortion states to attract female senior managers. Regarding market dynamics, asset managers and individual investors alike may veer away from firms in anti-abortion states, or firms that are not actively pro-abortion on either ethical or optical grounds, decreasing share demand with resulting drops in the price.

Having concluded that the event study methodology is the most apt approach for capturing potential effects on firms, we develop the following hypotheses regarding impacts on financial markets:

Hypothesis 1a: Firms' equity prices will fall when faced with increased restrictiveness in the legal environment surrounding women's reproductive rights.

Hypothesis 1b: The negative impact on equity prices caused by increased restrictiveness will be larger in states that were traditionally more liberally oriented and smaller in states more conservatively oriented pertaining to reproductive rights.[13]

Hypothesis 1c: Negative equity price impacts will be present in all states facing increased restrictiveness pertaining to abortion.

Further, we take a more granular look at companies that responded to the abortion ban by implementing policies facilitating employees' access to abortion. We hypothesize that these firms will experience a negative shock to their equity prices on the date when news of the abortion ban were released to the market, and a positive return of similar magnitude on the date the companies' responses became public knowledge.

Hypothesis 2: Firms will experience a negative shock to their equity price on the event day, but a positive shock of similar magnitude upon publicizing policies securing employees' access to abortion.

Notably, hypothesis 2 will only hold if it is the company adherence and not state location that affects firm productivity. It is of interest to look at company-specific dates because this eliminates the issue of identifying which state the company's employees are based in.

[13]Note that we develop categorizations in 5.3 that allow us to test for this hypothesis.

Table 3.1: Summary of Hypotheses

Hypotheses	
Hypothesis 1a:	Firms' equity prices will fall when faced with increased restrictiveness in the legal environment surrounding women's reproductive rights.
Hypothesis 1b:	The negative impact on equity prices caused by increased restrictiveness will be larger in states that were traditionally more liberally oriented and smaller in states more conservatively oriented pertaining to reproductive rights.
Hypothesis 1c:	Negative equity price impacts will be present in all states facing increased restrictiveness pertaining to abortion.
Hypothesis 2:	Firms will experience a negative shock to their equity price on the event day, but a positive shock of similar magnitude upon publicizing policies securing employees' access to abortion.

4 Event Study Literature

To test our hypotheses empirically, we utilize the event study methodology (ESM). The basic concept behind ESM is to compare the performance of a security or portfolio before and after a either an internal or external event, such as the announcement of a company's earnings or a change in government policy (Nguyen, 2022). Using financial market data, the ESM measures the impact of information on a security or sample of securities. A key assumption is capital market efficiency as put forth by Fama (Fama, 1970,9).

The ESM in use today was developed by Ball and Brown (1968) and Fama et al. (1969) as a statistical tool for empirical accounting and finance (Binder, 1998). The ESM has since then emerged in a multitude of different disciplines expanding the literature and methodology MacKinlay (1997), (Bhagat and Romano, 2002a,0,0). The literature classifies ESM into two sorts of event studies: short- and long-term. The choice of whether to conduct a short- or long-term event study depends on the research question and the nature of the event being studied. Both event studies have strengths and limitations and can provide valuable insights into the impact of events on financial markets. Short-term event studies are often used to evaluate the immediate reaction of the market to a specific event, such as the release of earnings results or the announcement of a new product 4.2. These studies can provide valuable insights into the market's response to the event and can help inform investment decisions. On the other hand, long-term event studies are useful for studying the long-term effects of an event on the value of an asset or portfolio. These studies can help researchers understand the persistence of the event's impact and can provide important information about the underlying drivers of asset prices 4.3. The ESM has over the last decade, become particularly popular in the analysis of political events. In contrast to previous research, which assumed that legislative politics had the greatest impact on economies with fragile institutions, new research shows that political transformation also inflicts developed nations like the United States (Acemoglu et al., 2016). Overall, building an event study involves collecting and analyzing data on a security or market's returns before and after a specific event and comparing these returns to a benchmark or control group in order to determine the event's impact.

The ESM follows fundamentals laid out in the Brown and Warner (1985) seminal paper on event studies. This seminal paper extends earlier research on event studies and their efficacy, examining the properties of studies based on daily stock returns. Brown's assertion includes the following three critical assumptions:

- Capital markets are efficient (EMH), with stock returns in the estimation and event period accurately reflecting the economic impact of the event. Meaning that as soon as information is available to the market, it is incorporated into asset prices.
- The event is unexpected and has not yet been factored into the stock price.
- There are no other events during the event window, which could be responsible for the stock price change.

4.1 Event Study - Practicalities

At the outset of the analysis, it is useful to briefly discuss the structure of the ESM. This will serve as the foundation for later examination of the overruling of *Roe v. Wade.* While no unique structure of the ESM exists, there is a general flow of analysis.

4.1.1 Identifying the Event

The first step in an event study is defining the event of interest and determining the time period over which the security prices of firms involved in the event will be examined. This is called *Event window* (4.1), and it is the time span in which the event of interest occurred. MacKinlay (1997) asserts that the period of interest is usually expanded to multiple days, including at least the day of the announcement and the day after the announcement. The event window is used to calculate the actual return or index level associated with the event, which is then compared to the expected return or index level calculated during the *Estimation period* (4.1).

The estimation period, which is the period of time used to estimate the expected return or index level in the absence of the event, is an essential consideration for evaluating the effect of the event. The estimation window should be long enough to provide a good estimate of the expected return or index level, but not so long that it includes other events that could confound the analysis. The specific length and starting point of the estimation window will depend on the data available and the specific research question being studied.

The choice of the estimation window is important because it can affect the reliability and accuracy of the event study results. A common approach is to use a relatively long estimation window (e.g., several years) and then perform statistical tests to ensure that the estimated expected return or index level is not significantly affected by other events.

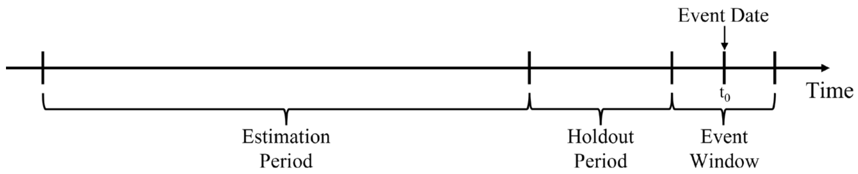

Figure 4.1: Archetype Event Study

4.1.2 Understanding Price Movements

The next step is to collect data on the security or market's price or returns. This could involve gathering daily or weekly closing prices or returns from a financial database or from the security's own financial statements. Brown and Warner (1985) demonstrates that utilizing the ESM requires some precaution when measuring the impact of a corporate event. Thompson (1995); MacKinlay (1997). The most evident precaution is that correlation does not imply causation when evaluating abnormal returns. If one observes the stock price behavior in figure 4.2 around the *Announcement day*, one may assume that the market interpreted this statement positively. However, there might be other reasons for the price fluctuation. To account for this, it is expected to take an average of numerous firms because unrelated causes of price changes should be "averaged out", resulting in an outcome with only the effect of the relevant event. This is done by selecting a benchmark or control group: This could be a market index, such as the S&P 500, or a group of securities that are similar to the security being studied.

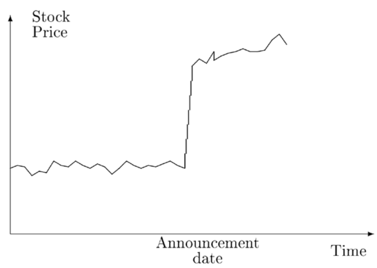

Figure 4.2: Stock Behaviour of Information Short Term

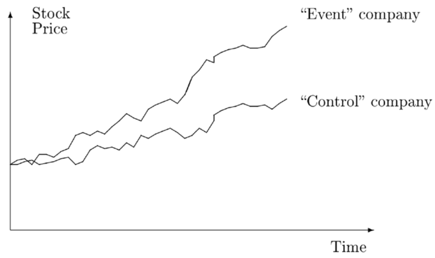

Figure 4.3: Stock Behaviour of Information Long Term

Figure 4.2 shows a typical short-term event, while figure 4.3 shows that some events might be more intricate and take more time to go into effect for involved securities. In these cases, there may be a limited immediate reaction to the securities or portfolios under evaluation, and it will be more natural to test for a long-term reaction to a specific event as the event's aftermath will become apparent over time. In such circumstances, the long-term return on the company's stock can also be compared to that of a control company as a benchmark 4.3. This control company is otherwise equivalent to the event company but did not execute the specific action of interest (Thompson, 1995). However, as MacKinlay (1997) points out, the longer the "post drift" period of an event, the more difficult it is to measure.

The purpose of this benchmarking is to test the impact of information on the event relative to Fama (1970) semi-strong efficiency, which states that markets react rationally to the release of public information. Dissecting this theory to the core, Ødegaard (2020) outlines the foundation of ESM, and illustrates how ESM measures the impact of information on price and firm value;

$$\begin{aligned} P_0 = Stockprice &= E[\sum_t \frac{Cflow_t}{(1+r)^t}] \\ P_0(new) &= E[\sum_t \frac{Cflow_t}{(1+r)^t}] \end{aligned} \tag{4.1}$$

Where t represents new and old information at time t, explicit information can be about; future cash flows, the discount rate (i.e., riskiness), or both. The objective is to measure the change in price:

$$P_0(new) - P_0 \tag{4.2}$$

To increase the likelihood of the event being causal, an empiricist will aggregate $P_0(new) - P_0$ over many similar securities to test for its abnormal returns, (outlined below4.1.4). Hence, they utilize expected returns and the normalized price change while controlling for any confounding effects.

$$R_{it} = \frac{P_0(new) - P_0}{P_0} \tag{4.3}$$

4.1.3 Normal Return Generating Process (NRGP)

In an event study, the goal is to detect deviations in actual returns from "normal" returns. Thus, a security's normal return over the event window must be estimated. This can be done using a range of different models, both statistical and economic, usually reaping somewhat similar results but based on different assumptions (MacKinlay, 1997). Notably, the selection of the model is shown not to have a great impact on return predictability when compared to other input factors like estimation period and choice of an appropriate counterfactual (Brown and Warner, 1985) 4.2. Importantly, the choice of model must be considered in context of the research question and challenges unique to the study at hand (Merton, 1980; Fama, 1990). Parameters are estimated using ordinary least squares (OLS) regression, minimizing the sum of the squared differences between the predicted values and the actual values.

4.1.4 Calculating and Aggregating the Abnormal Return

Once the parameters of the model of choice are estimated, the model is used to predict the expected return on the asset for each day in the period of interest. By comparing the predicted returns to the actual returns, we then evaluate the impact of the event on the stock's value. If the actual returns are significantly different from the predicted returns, the event had a significant impact on the stock's value. The abnormal return (AR) is calculated by: $AR_{it} = R_t - R_t^e$; where, the AR_{it} term represents the abnormal return for period t, and the R_t and R_t^eterms represent the actual and expected returns for period t, respectively. The expected return for period t is determined using the selected expected return model. If the stock deviates from the normal return, one may analyze if the abnormal return is caused by the event.

Regardless of whether the event of interest is a single security or a portfolio, the AR must be aggregated in order to draw conclusions about the event as a whole (MacKinlay, 1997). By aggregating the abnormal returns, the impact of any potential biases or outliers will be diminished, providing a more accurate representation of the event's effect on the company's stock price. This is known as the Cumulative Abnormal Returns (CAR) of the event, and is a measure of the event's financial impact on the firm. The concept of cumulative abnormal return is necessary to accommodate a multiple-period event window and is simply the sum of the individual abnormal return for each period. The CAR for a security over a time period t can be expressed as:

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{it} \tag{4.4}$$

The associated variance is calculated by $\sigma_i^2(t_1, t_2) = (t_2 - t_1 + 1)\sigma_{\epsilon}^2{}_i$.

Subsequently, in the event study procedure, one must aggregate returns cross-sectionally. This is done by aggregating the observations in the event window across firm observations. Here it is assumed that there is no clustering which causes cross-sectional' aggregation (MacKinlay, 1997, Bernard, 1987). The cumulative average abnormal return (CAAR) can be aggregated over the event window using the following formula:

$$CAAR(t_1, t_2) = \frac{1}{N} \sum_{i=1}^{N} CAR_i(t_1, t_2) \tag{4.5}$$

with the variation calculated by:

$$\sigma_*^2 = \frac{1}{N^2} \sum_{i=1}^{N} \sigma_i^2(t_1, t_2) \tag{4.6}$$

To determine whether results are statistically significant, the t-value is calculated using the equation:

$$tval = \frac{CAAR(t_1, t_2)}{\sqrt{(t_2 - t_1)\sigma_*^2}} \tag{4.7}$$

At the 5% significance level, ($\alpha = 0.05$), the two-sided critical t-values is are -1.96 and 1.96 (MacKinlay, 1997).

4.2 Issues and Limitations

Besides becoming a well-established statistical method in finance and economics, the limitations and potential issues with this method have been discussed in many academic papers and books. The works of Brown and Warner (1985), Peterson (1989), and Brooks and Mulherin (1995) extend the methodology and test for its limitation at a more profound level. As a consequence, these papers provide a detailed overview of the issues and limitations of ESM.

Totaling up the limitations, the aforementioned work claims three limitations are the most significant. The first issue with the ESM is that it relies on the assumption of efficient markets (EMH). However, this assumption may not hold in practice, and any deviations from it can lead to incorrect conclusions in the event study. Another limitation of event studies is that they are based on observed data, which may be subject to various forms of bias and other sources of error. For example, the event in question may be correlated with other factors that affect the asset's price, making it difficult to disentangle the true impact of the event. In addition, event studies are typically based on a relatively small sample of data, which can make it difficult to draw robust conclusions. As a result, event studies should be interpreted with caution and may not always provide a reliable measure of the impact of an event on an asset's price.

Furthermore, the issue of selecting the correct expected return model for finding predicted returns was tested by Brown and Warner (1985). They conclude that the choice of model does not significantly impact the efficacy of an event study, and that variables such as event window and correct event date specification are crucial.

5 Data

5.1 Data Sources

To obtain a data set for the analysis at hand, we extract all available daily security prices for North America from "Compustat Daily Updates" from Wharton Research Data Services (WRDS). For factor-model return prediction, the Fama-French five factor data set is downloaded from WRDS. For market-model return prediction, the FT Wilshire 5000 and MSCI World index data is downloaded from Refinitiv Datastream (Refinitiv, 2022). Data regarding state-specific abortion legislation is input based on government documentation from Centers for Disease Control and Prevention (Kortsmit et al., 2020), and policy analysis from the Guttmacher Institute (2022a) and Center for Reproductive Rights (2022). Event dates for firm-specific events are based on news searches using Refinitiv Eikon Refinitiv (2022) to attain a comprehensive list of potential news sources, with event dates concerning abortion legislation from the original sources, for instance, Politico and the United States Supreme Court (Politico, 2022; Ollstein, 2021; Supreme Court of The United States 597 U.S. , 2022).

5.2 Sample Construction

First, the security data set is filtered to exclude non-trading day observations by excluding data on stock market holidays based on the New York Stock Exchange and NASDAQ calendars (NYSE, 2022; Freytas, 2022). Subsequently, mutual and investment trust funds, exchange-traded funds (ETFs) are removed as their prices are not likely to be a product of input factors like human capital as "traditional" corporations tied to the real economy, rather reflecting purely financial strategies with assets comprised of other firms' securities, and magnified movements through leverage. Structured products are excluded as they are linked to derivatives (WRDS, 2014).

The study's scope is limited to the United States. Thus, non-U.S. firms are excluded. For the same reason, we also drop all depositary receipts. We also filter the sample based on the securities' main stock exchange, excluding the Toronto Stock Exchange (TSX) and the TSX Venture Exchange, as some observations remain in the sample despite the prior filters. Lastly, as we are investigating the state-specific effects of abortion legislation, we drop observations with no state variable (indicating a company's main address) in Compustat.

Securities within the energy and utility industries and metals & mining sub-industries are excluded from the sample due to their returns being closely correlated with commodity prices. Financial firms and REITs are excluded because, in the sample, it is evident that there is a prevalence of firms whose main activity is security- and/or asset-holding within these categorizations. As we set out to determine the effect of abortion on firms' equity prices and, by this, deduce whether stricter abortion legislation has a negative impact on firm performance through a "black box" of intermediary economic and social factors, we conclude that these firms' price drivers stray away from the scope of our analysis. As research on abortion through a financial econometric lens is virtually nonexistent, there does not exist an empirical foundation for this exclusion in the literature; however, we believe it to be rational with a similar foundation as the exclusion of index- and sector-tracking exchange-traded funds.

Stocks with a minimum price of less than USD 1 or equity values below USD 10 million across the period of interest are also excluded, as these are prone to high volatility and tend to be thinly traded across our sample.

We remove duplicate firm observations by keeping only primary issue stocks. Thereafter, as we still observe duplicate firm-date observations, we keep one security (represented by CUSIP identifiers) per firm observation based first on average market capitalization over the period of interest, thereafter, average trading volume over the same period as the market capitalization is identical for separate share classes are identical for some firms. The logic is that we are looking to evaluate the most liquid security per firm, as the most liquid security will more readily have public information incorporated into the price.

To calculate stock returns, adjusted closing prices ($PRCCD_{adj.}$) are first calculated taking into account stock splits and dividend payments by use of Compustat's daily adjustment factor (ADJEXI) and daily total return factor (TRFD) following prior research using the same database (Davis et al., 2020). The daily adjustment factor accounts for stock splits, while the daily total return factor adjusts stock prices, mimicking dividend reinvestment. We follow Compustat's recommended approach, which formula follows(Wharton Research

Data Services, 2020):

$$Total\ Return = \frac{(PRCCD_t/AJEXDI_t) * TRFD_t}{(PRCCD_{t-1}/AJEXDI_{t-1}) * TRFD_{t-1}} - 1$$

These adjustments are important as any firm that pays dividends or has undertaken a stock split in the estimation period or event period would be prone to inaccurate normal return prediction. Should the adjustments not be done, return predictions would have a downward bias for dividend-paying stocks Notably, the TRFD factor is undefined for a large proportion of the sample. To combat losing observations at this step, we set the TRFD factor to 1 for companies that do not pay dividends across the time period of the study, thus dropping only observations with an undefined TRFD only if the firm pays dividends that cannot be adjusted for in the return calculation.

Following the cleaning of the data set, we are left with 3,021 unique firm observations across the period of interest, with a total of 990,224 return-date observations. Summary statistics for the sample are shown below:

Table 5.1: Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Pctl. 25	Pctl. 75	Max
Price	993245	74.18	417.98	1	9.95	68.31	27300
Adjusted Price	993245	134.85	2191.33	1	10.67	91.96	341525.72
Market Capitalization	993245	13298.96	82119.6	10	333.94	5245.29	2986128.32
Daily Total Return	990224	0	0.05	-0.98	-0.02	0.02	5.7

Notably, the ranges of distributions above variables are extensive. This is a natural product of the sample covering a large number of U.S. firms, nearly 16% of all securities listed on Compustat. Of particular interest, is the daily total return variable's distribution: It ranges from -98% to 570%, which could potentially induce errors in predictive models as well as in the measurement of abnormal returns. Upon closer inspection, however, we note that the large deviations are driven mainly by highly volatile biotechnology firms, in addition to companies experiencing price changes not linked to fundamentals, such as Kodak and Gamestop. We choose not to winsorize nor exclude the firms prior to the research, as the accumulation of cross-sectional returns should, from a mathematical perspective, eliminate the effects of outliers when the sample size is large.

Moreover, the density of return observations demonstrates that returns are clustered around the mean of zero and that the distribution is long-tailed. This supports not winsorizing and dropping variables as there are limited outliers. Thus, the correcting effects of cross-sectional return aggregation limit the potential for erroneous results.

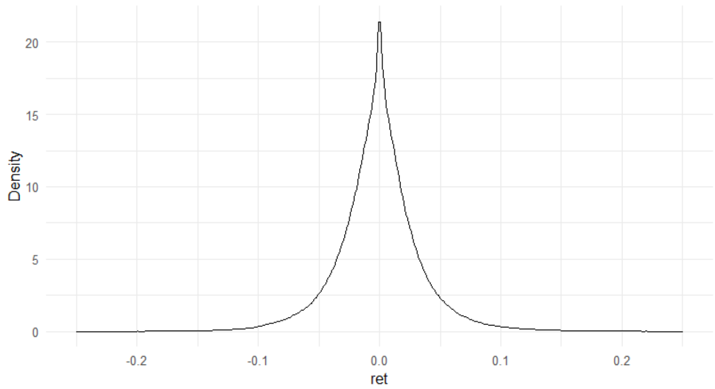

Figure 5.1: Distribution of Returns

We also lay out firm characteristics for the sample in the table below based on the most recent firm-year observations from Compustat's Annual Fundamental data set (WRDS, 2014). Not all firms with price data are covered by the data set with firm fundamentals. We do not exclude non-observations from the fundamental data set from the constructed sample with return information, as the event study analysis is purely based on location and abnormal equity returns.

Table 5.2: Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Pctl. 25	Pctl. 75	Max
Revenue	2872	5090.57	23837.32	0	62.54	2329.38	569962
Total Assets	2875	6678.86	26800.71	0.30	232.70	3299.89	551622
Common Equity	2873	2179.68	9969.11	-14999	83.68	1124.40	251635
Long-Term Debt	2867	2152.77	8601.13	0	9.31	1095.173	174081
Debt-to-Assets	2867	0.25	0.26	0	0.04	0.37	3.11

There are long tails with respect to firm fundamentals as well. For instance, there are observations of firms with no revenues. Again these are mostly biotech firms and recently founded firms. We do not exclude these firms as the fundamental observation is aggregated only once a year, and we are interested in current equity prices, not prior years' revenue data. We require that firms are active for associated returns to be considered in the analysis, but focus rather on assets to exclude non-operating firms. In the originally filtered sample, there existed one firm with zero assets, "Born Inc.", which observations were dropped due to inactivity. Negative common equity is driven by high leverage, notably with Boeing comprising the left-tail outlier. We look at debt to ensure that high-leverage firms do not drive returns; however, we do not find values out of the ordinary, likely due to the prior exclusion of financial firms and products. The long right-tail is dominated by biotechnology and start-up firms with low revenue and asset values, and includes outliers like Domino's Pizza.

5.3 State Categorization

For categorizations of states' likelihood to ban abortion, we use data from the Guttmacher Institute[14], a non-profit research and policy organization dedicated to improving sexual and reproductive health and rights around the world. (Guttmacher Institute, 2022a). On the 19. of April 2022, two weeks before the leak of the U.S. Supreme Court's decision to overturn *Roe v. Wade*, Guttmacher found that 26 states had laws or constitutional amendments already in place that would make them certain to attempt to ban abortion as quickly as possible[15] The full list of states can be found in (Table A0.8).

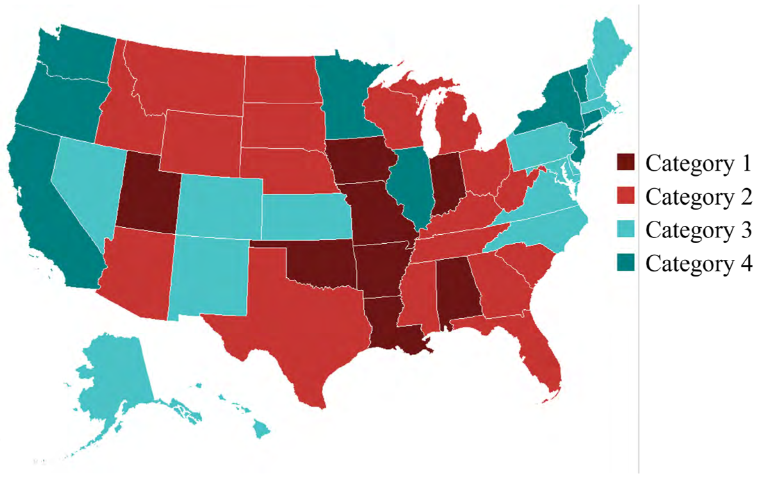

Figure 5.2: States that have enacted Trigger-Laws to be implemented if Roe v. Wade was overturned

[14]Guttmacher's Abortion Provider Census is the most comprehensive data collection effort on abortion providers in the U.S. based on data collected from more than 1,600 facilities.

[15]By the time the U.S. Supreme Court concluded on the oral arguments in *Dobbs v. Jackson*, there were nine states that still have an abortion ban in place from before *Roe v. Wade*, 13 states with a trigger ban tied to Roe being overturned, five states with a near-total abortion ban enacted after Roe, 11 states with a six-week ban not in effect and one state (Texas) with a six-week ban in effect, one state with an eight-week ban that is not in effect and four states whose constitutions specifically bar a right to abortion. Some states have multiple types of bans in place (Guttmacher Institute, 2022a).

Table 5.3: Example of Categorized States

This table exemplifies the categorization of U.S. States, with two states per category. The table is set to demonstrate how states have been categorized with relevant metrics. *TB = "Trigger ban", PB = "Pre-Roe ban" HR = "High-Risk of enforcing ban", SCB = "State constitutional Ban", SCB =* *Alabama Constitution amended to prohibit any protection for abortion rights **New York- and California's constitutions protect abortion.

		By State of Occurrence					By State of Residence	
Category	State	Population of women aged 15–44	Number of abortion facilities	Number of Abortions	Mean travel distance (miles)	Policies	Number of Abortions	Abortion Out of State (%)
1	Alabama	949,949	5	5,700	31	SCB*, *PB*, *HR*	9,060	47%
	Missouri	1,171,775	1	170	62	TB, HR	11,710	99%
2	Florida	3,828,199	58	77,400	15	HR	73,830	1%
	Texas	5,885,855	19	58,020	40	PB, HR	61,500	8%
3	Massachusetts	1,381,812	18	17,060	13		17,460	6%
	Pennsylvania	2,383,721	12	32,260	25		34,950	14%
4	California	8,104,632	150	154,060	7	SCP**	152,400	0%
	New York	4,001,053	93	110,360	5	SCP**	105,990	1%

We use the Guttmacher data to categorize states based on the likelihood of an outright ban on abortion, mirroring Guttmacher's classification (Guttmacher Institute, 2022a). This makes for two overarching categories (note that these pertain to abortion and not political orientatoin): (a) Conservatively tilted, and (b) Liberally tilted.

Further, we subdivide these two categories into two further subcategories each, for a total of four categories. The subcategories for states likely to ban abortion are: **(1)** States where abortion was highly restricted even before the overturn of *Roe v. Wade*, and **(2)**, States that had relatively liberal access to abortion but that were likely, after May 3rd, to ban abortion.

Notably, concerning **(1)**, abortion was pseudo-illegal even prior to the overturn of *Roe v. Wade* in states like Alabama and Missouri (see Table A0.13 and Table 5.3. For this reason, we predict there to be negligible effects of the overturn. In sum, if abortion is already pseudo-illegal in a state, then the overturning of *Roe v. Wade* will not make abortion less accessible. Hence, the market in these states will not be impacted. This is because no new information is introduced. Take, for instance, Missouri: In this state, 99% of abortions are performed out of state, with a total of only 170 abortions performed in state A0.13. Clearly, it is difficult to make abortion less accessible.

Concerning **(2)**, the overturn of *Roe v. Wade* represents a deviation from the public expectation of the legal environment. Thus, we predict a significant negative movement in the market. For example, in Texas, 6.2% of total abortions in the United States take place for a total of 58,020 abortions, with only 8% of abortions performed out of state A0.13. Consequently, if abortion is to be completely banned, it will have a significant impact on the population (Myers et al., 2019) through the channels described.

The second category is split into a third and fourth category, respectively, namely: **(3)** States that were liberal and where abortion is likely to be protected, and **(4)** States with constitutional protection of abortion. In **(3)**, we expect to see a negative effect as there is a potential for increased restrictiveness surrounding abortion. In **(4)**, we do not expect any impact from *Roe v. Wade* as the legal environment is not likely to change. This type of categorization is inspired by research on social and political science, with a ranking of strictness based on the number of restrictive laws and affirming indicators like the fraction of out-of-state abortions (exemplified in Table 5.3)(Pollock III and Edwards, 2022).

To summarize, we here further specify our state-specific hypothesis, taking into account the above categorizations. The sub-hypotheses are as follows:

- **Category 1** | There will be no effect.
- **Category 2** | There will be a negative effect.
- **Category 3** | There will be a negative effect.
- **Category 4** | There will be no effect.

5.4 Data for Testing Hypothesis 2

To empirically test the second hypothesis H_2 3[16], we compile a list of corporations that responded to the issue of abortion bans by supporting employees' access to abortion regardless of location. This is done manually, resulting in the sample in A0.1. The sample is naturally limited by access to information and precision concerning the time information became public. Hence, we err on the side of caution and choose firm-events where the event date can be inferred with reasonable confidence. The final sample includes 23 firms

[16] H_2, that firms will experience a negative shock to their equity price on the event day but a positive shock of similar magnitude upon publicizing policies securing employees' access to abortion

with response dates, and is merged with relevant price and factor data. We do not perform the same sector exclusions as with our overall event study, in order to obtain a larger sample. As we analyze on the security-level for a relatively small sample, any anomalous observations will be obvious.

6 Methodology

6.1 Event Study Fundamentals

Our methodology follows the literature summarized in section 4 and the structure outlined by MacKinlay (1997), motivated as well by observations made by Kothari and Warner (2007). Resultingly, the steps of the study can be summarized by the following steps:

1. Definition of Event and Window
2. Sample selection
3. Forecasting normal return
   (a) Model selection
   (b) Selection of counterfactual proxy (for statistical models), and factors (for economic models)
   (c) Regression of stock returns on proxy and factors separately
4. Computing abnormal returns across event period
5. Estimation error computation: Calculating estimation period variance
6. Accumulating abnormal returns across event window and firm observations to form CAR and CAAR
7. Testing significance of cumulative (average) abnormal returns being different from 0 (null hypothesis)

Choices regarding the above-listed elements of the event study are covered below.

6.1.1 Definition of Event and Window

Daily observations are used in the event study. We choose this level of temporal aggregation because investors in today's market consume information quickly, making weekly or monthly return estimation intervals less apt for separating the effects of the event at hand. Lastly, the use of daily returns reduces the potential negative effects of correlation in the cross-section (Brown and Warner, 1985; Bernard, 1987).

6.1.1.1 Hypothesis 1

Events of interest are outlined in 2.2.1. It is evident that more stringent legislation surrounding abortion has become increasingly likely in many states in recent years (Guttmacher Institute, 2022a). Despite this, it is apt to define May 2nd, 2022, at 8:32 pm eastern daylight time (EDT) as the specific time of the event (2.2.1.3); this was the exact time Politico leaked the draft opinion of the Supreme Court (2.2.1.3). With the market closing at 4 pm EDT, the corresponding event date is May 3rd, 2022.

6.1.1.2 Hypothesis 2

The approach to event date specification pertaining to the firm-specific hypothesis 2 (3.1), study is outlined in A0.1. In brief, we look at various news sources using Refinitiv Eikon and firm press releases, setting the event data as the earliest public mention of a firm's response we can find. We only include firms that publicize a response to the increased strictness in abortion laws *after* the draft opinion from the Supreme Court was leaked.

6.1.1.3 Defining the Event Window and Estimation Period

The event window is defined to be three days, centered on the event date, $t = 0$. The extension one day beyond the event date allows for post-market closing movements to be captured, while including the day prior to the event in the window allows for the capture of potential information leakage and the market's incorporation of this information. Furthermore, the extension of the event window accounts for the event dates being manually collected from press publications (MacKinlay, 1997). Notably, the extension one day beyond the event day is especially relevant for the event on May 3rd, as the leaked draft we base our analysis on, was confirmed legitimate on May 4th (see paragraph 2.2.1.3). Note that we do repeat our category-focused study with a one day event window following our initial results generation, to gain additional insight into effects of confounding events.

Following MacKinlay (1997), return models are estimated over the commonly used interval of 250 trading days. Further, we include a holdout period of six days between the event date and the estimation period in order to avoid event predrift affecting the predictive models (Rohrer, 2021).

6.1.2 Sample Selection

The sample selection is covered in subsection 5.1. In sum, to detect any potential effect on firms' equity prices, we aim to compile an unbiased sample encompassing as large a representation of the corporate environment in the United States as possible.

6.1.2.1 Value-Weighted Portfolios

In addition to performing a standard event study aggregating abnormal returns cross-sectionally following 4.6, we construct value-weighted (VW) portfolios based on the categorizations outlined in subsection 5.3, the state-level, and on the country-level. We do this because we wish to gain a perspective on the effects of increased strictness in abortion legislation with a return metric accounting for firm size. The portfolios represent subsamples as single entities, reflecting effects of stricter abortion legislation proportionate to size. Notably, this deviates from the standard cross-sectional aggregation in calculating CAAR which is simply an arithmetic mean of CARs, as shown in equation 4.6. We believe results may differ, thus, we include this moderately unorthodox approach. We recognize that aggregating returns in this manner may not yield statistically significant results when using factor models, if the value-weighted portfolio significantly overlaps the market proxy. We take this into consideration in our results analysis, increasing our focus on statistical models not prone to this weakness.

6.2 Model Selection

In selecting an applicable model for return prediction, we focus on demonstrated robustness in the literature.

Below, we outline the benefits and drawbacks of; (1) the market model, (2) the Fama-French five-factor model, and (3) the constant mean return model. We use all three models in our analysis, as it is wise to employ several approaches to ensure robustness, avoiding type I- and II errors.

6.2.1 The Market Model

The market model describes the relationship between the expected return on an asset, R_i, and the market return, R_m (MacKinlay, 1997). This can be summarized with the following equation:

$$R_i = \alpha + \beta R_m + \epsilon \tag{6.1}$$

where α is the intercept term, β is the sensitivity of the asset's returns to the market's returns, and ϵ is the error term.

Specifically, the market model, being a statistical model, is reliant on fewer assumptions than economic models like the Capital Asset Pricing Model (CAPM) and extensions like the Fama-French models Brown and Warner (1985); MacKinlay (1997). Further, the market model is parsimonious, with the market factor explaining only equity price variation driven by general market conditions. Rather than opting for complexity, we start our analysis with this simple prediction model, supporting it with repetition using additional models as elaborated upon below.

6.2.1.1 Selecting an Appropriate Market Return for the Model

The market model has the benefit that it is simple; however, it does present the key question of which proxy to use for the market return. Indices frequently used for U.S.-focused studies include the S&P500 and the CRSP value- and equal-weighted indices (MacKinlay, 1997). The goal is to find an index yielding adequate predictive power. The associated challenge lies in that the proxy cannot be too closely related to the subject of analysis at the level of single-security normal return prediction.

This becomes an issue with our approach using value-weighted portfolios. When measuring at the state level, this is not likely to pose a problem as state portfolios are comprised of fewer constituents leading to deviation from the market proxy. This makes the index method viable to test Hypothesis 1c (3.1). In evaluating Hypothesis 1a, however, the use of a U.S.-based index is illogical as it does not make sense to benchmark one market-wide performance measure (the value-weighted portfolio) against another (the market proxy).

Possible proxy choices for our study include the FT Wilshire 5000 (henceforth referred to as "Wilshire" or "W5000") representing a diverse set of U.S. firms, in addition to the MSCI World index, with 1,507 constituents covering 85% of market capitalization in each of 23 developed markets, including the United States. The Wilshire5000 serves as a solid benchmark for general equity performance in the United States. The MSCI World index serves as a solid benchmark for equity performance in developed global markets. Using the MSCI World in place for the Wilshire5000 for country and category-level portfolios should solve the problem described above, of excessive overlap obscuring any effects.

Table 6.1: Regression of Sample-Wide Returns on Market Indices

This table shows results from regressing value-weighted excess returns and mean excess average returns of our entire sample on excess returns of the Wilshire 5000 and MSCI World indices. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	Dependent Variable: Excess Return			
	Value-Weighted		Arithmetic Average	
	(1)	(2)	(3)	(4)
Wilshire 5000	1.0591***		1.2068***	
	t = 101.2110		t = 29.1256	
MSCI World		1.1778***		1.3059***
		t = 38.4776		t = 21.1204
Constant	0.0003***	0.0004	−0.0007	−0.0007
	t = 3.0586	t = 1.3921	t = −1.6364	t = −1.2213
Observations	250	250	250	250
Adjusted R^2	0.9763	0.8559	0.7729	0.6412
Residual Std. Error (df = 248)	0.0017	0.0042	0.0068	0.0085

In the table above, we regress the excess returns of our sample to gain insight into the market proxies. It is evident that the Wilshire and the value-weighted market portfolio overlap significantly, with a t-stat of 101.2110 and 97.63% R^2. Predictive power here is high with the drawback that one cannot use the Wilshire as the counterfactual for the country-wide value-weighted portfolio in an attempt to detect the presence of an event and related price reactions for the overall market. High correlation is also observed between the MSCI World and the value-weighted portfolio ($R^2 = 85.59\%$). Interestingly, explanatory power falls when looking at the arithmetic mean of excess returns, more closely mimicking the method of calculating average abnormal return. Consequently, the standard cross-sectional aggregation is more suited pertaining to larger subsamples, guiding the analysis of our results.

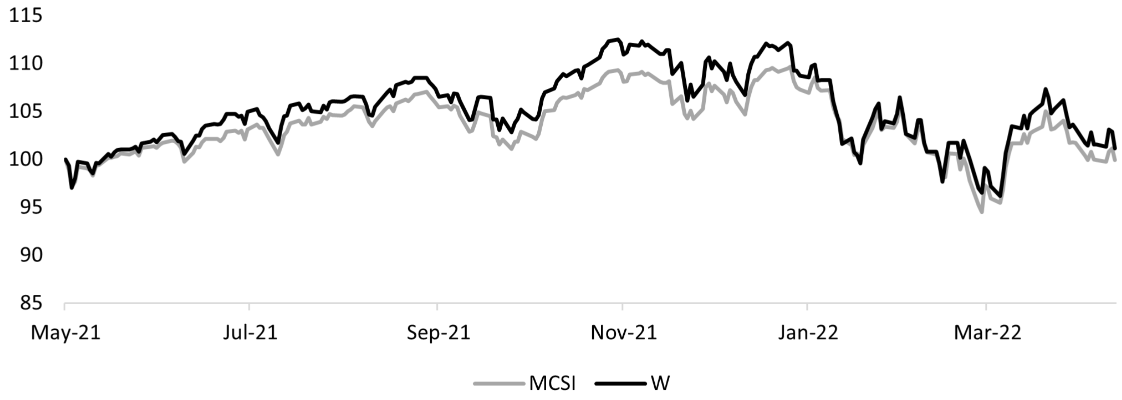

Figure 6.1: Wilshire5000 (W) vs. MSCI World (MSCI) Across Estimation Period

As seen in Figure 6.1, the Wilshire and MSCI World predominantly move in lockstep. Furthermore, the correlation coefficient in the estimation period 94.89% with comparable volatilities of 0.85% (MSCI) and 1.02% (Wilshire).

The takeaway here is that one may be able to detect U.S.-wide impacts with the MSCI World as the market proxy, testing H1a, if the impact of the event is strong enough.

6.2.1.2 Fama-French Five-Factor Model

We also conduct the event study using the Fama-French five-factor model (FF5). The FF5 is an economic model building on the CAPM originally developed by (Fama and French, 2004). It is an economic model differing from the statistical market model described above (MacKinlay, 1997). The choice to use the FF5 is motivated by the event study analysis conducted by Kothari and Warner (2007), where they note that "it is essential to use [the Fama-French factors] when measuring abnormal performance." Multi-factor models like the FF5 have the possibility of yielding more accurate return predictions because the additional factors may be able to "explain more of the variation in the normal return" (MacKinlay, 1997).

The Fama-French five-factor model can be represented with the following formula Fama and French (2015):

$$R_{ti} - R_{Ft} = \alpha_i + \beta_i(R_{Mt} - R_{Ft}) + s_i SMB_t + h_i HML_t + r_i RMW_t + c_i CMA_t + \epsilon_{it} \quad (6.2)$$

where β_i is the market factor; SMB_t is the difference between small and big firms' returns;

HML_t accounts for the outperformance of high book-to-market firms; RMW_t is the difference between the returns on diversified portfolios of stocks with robust and weak profitability; and CMA_t is the difference between the returns on diversified portfolios of the stocks of lower and higher investment firms, categorized by Fama and French (2015) as conservative and aggressive. If all variation in expected returns is captured by the exposures to the five factors, b_i, s_i, h_i, r_i, and c_i, the intercept a_i in Eq. (6.2) is zero for all securities and portfolios i.

6.2.1.3 Constant Mean Return Model

In the market model and FF5 model, volatility across the estimation window decreases confidence in normal return predictions, as the market return is a key input (Kothari and Warner, 2007). In an attempt to tackle this issue, we use the constant mean return model. This model is the simplest prediction model where normal returns are assumed to be equal to the mean return over the estimation period:

$$R_{it} = \mu_i + \epsilon_i \tag{6.3}$$

In this equation, R_{it} represents the return on an asset or portfolio in period i, μ_i is the expected or mean return, and ϵ_i represents the error or deviation from the mean return in period i.

6.2.2 Methodology to Test Hypothesis 2

We test H2 (3.1) by assessing the effect of increased restrictions on reproductive rights across the United States by looking at the firm-level effect on well-known companies that publicly responded to the decreased access to abortion. Further, we calculate cumulative abnormal returns when the Supreme Court leaked its draft opinion, and when the firms' responses became public. Lastly, we aggregate CAAR as tests on one observation "are not likely to be useful" (MacKinlay, 1997).

Our approach is rooted in the assumption that if a state implements measures to counteract the effect of abortion on its employees, the firm has assessed that the abortion restriction indeed has a negative effect on the firm's performance. Caveats to this logic are that firms can implement countermeasures to support employees on ethical grounds, or for optical reasons, with a positive public view potentially having positive impacts on, for instance, sales and talent attraction.

For this study, we choose to employ the market model with the Wilshire index as the market proxy due to its ease of implementation and the assertion that model choice does not matter largely (Brown and Warner, 1985). We use standard cross-sectional aggregation, with event study specifications equal to those used for testing Hypothesis 1.

7 Results and Analysis

In this chapter, we present the results of the conducted event studies, noting potential drivers of specific results, and commenting on statistical and economic significance. We start by looking at the country-level response to the change in abortion legislation disclosed to the public on May 2nd, with an impact on the market on May 3rd (**??**. Subsequently, we review results at increasing levels of granularity, looking at category- and state-level event study results. Finally, we present the results of the case study on firms disclosing policies aiding employees. In light of the confounding FOMC event on May 4th, we repeat the category-specific event studies with a one day event window, thus only looking at price changes on May 3rd.

We conduct all event studies using four normal return prediction methods: (1) the market model benchmarked on the Wilshire5000; (2) the market model benchmarked on the MSCI World; (3) the Fame-French five-factor model; and (4) the constant mean return model. Although some models are inherently effective at generating useful results in all analyses, we include these results to illustrate this challenge. For instance, regressing our entire sample as a value-weighted portfolio on the Wilshire5000 will not produce viable results. We accept results as statistically significant if t-values exceed an absolute value of 1.96 and they pass robustness tests, like another effective model yielding similar results.

7.1 Sample-Wide Results

The Wilshire5000 benchmarked market model (RHS of panel A) gives a statistically significant negative CAAR of 0.37% (t-stat = -3.524), across the event window using standard CAAR aggregation. This is in line with hypothesis 1a (3.1). As the standard CAAR aggregation is based on normal return predictions at the security level, this result is legitimate, though we cannot reject the null hypothesis without robustness in the result. As reasoned in paragraph 6.2.1.1, the CAAR of the value-weighted portfolio is expendable, with its statistical insignificance illustrating the issue of excessive overlap of portfolio and benchmark.

The Fama-French five factor model (LHS of panel B) with standard CAAR aggregation yields a statistically insignificant near-zero positive CAAR. This differs from the result

Table 7.1: Event Study Results - Entire U.S. Sample

In this table, we present results for the entire sample for the event window centered on May 3rd, the date of the draft leak. Results from the market model with both the MSCI world and Wilshire5000 as market proxies are presented in *panel A*, and results using the FF5- and the constant mean return model are shown in *panel B*. Results using both standard CAAR aggregation and the value-weighted sample portfolio.

Panel A: Market Models

	MSCI World			*Wilshire5000*			
	CAAR	var	t-value	CAAR	var	t-value	n
Trad. CAAR Model	0.0128	0.000001	11.945	-0.0037	0.000001	-3.524	2376
VW Portfolio	0.0113	0.000017	1.570	-0.0029	0.000003	-0.995	3043

Panel B: Other Models (FF5, CMR)

	FF5			*Constant Mean Return*			
	CAAR	var	t-value	CAAR	var	t-value	n
Trad. CAAR Model	0.0008	0.000001	0.803	0.0442	0.000001	38.983	2376
VW Portfolio	-0.0006	0.000000	-0.615	0.0404	0.000123	2.106	3043

obtained with the Wilshire5000 benchmarked market model with standard CAAR aggregation, probably because the FF5 model has greater explanatory power due to its additional factors. For this reason, we do not to reject the H1a null hypothesis. The results of the value-weighted index are, as with the Wilshire5000 benchmarked market model, inconsequential, again with statistical insignificance supporting our point.

The MSCI World benchmarked market model with standard CAAR aggregation (LHS of panel A) yields a positive CAAR of 1.28% with a t-value of 11.945. Similarly, the model applied to the VW portfolio of the entire sample indicates a positive response in the U.S. market with a CAAR of 1.13%, though not statistically significant. This suggests that the national United States market responded positively to the information released regarding stricter abortion legislation. Motivated by the unexpected magnitude of the test statistic, we investigate the returns of the indices across the estimation, as seen in Figure 7.1.

The figure shows cumulative returns of the MSCI World and Wilshire5000 across the event window. As the Wilshire5000 is 94.89% correlated with the VW sample portfolio (see paragraph 6.2.1.1), the comparison is equivalent between the Wilshire5000 and our sample. It is evident that the positive CAAR is driven by a relative outperformance of equities in the U.S. on the 2nd and 4th of May, and not on the event date where performance is nearly equal. Thus, the cumulative excess return across the event window centered on May 3rd

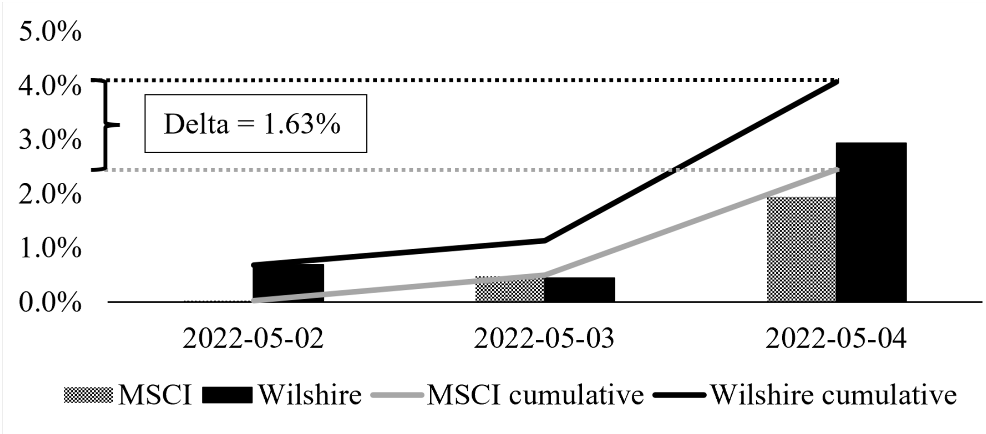

Figure 7.1: Comparison of Wilshire5000 and MSCI World in Event Window

of 1.63% cannot be attributed to the transformation of abortion legislation. Investigating further, we notice that the Federal Reserve's Federal Open Market Committee (FOMC), on May 4th, decided against increasing the central bank rate greater than 50 basis points (Wang and Jain, 2022). Looking at data from Refinitiv (2022), we confirm this notion, seeing Wall Street soaring with the DJIA, S&P500, and Nasdaq Composite closing up 2.8%, 3.0%, and 3.2%, respectively. Because of this confounding event, we conclude that the MSCI World is unfit as a market proxy for the specific event window. Clearly, the deviation between markets' returns, characterized by uncertainty regarding central bank policy, distorts the results (Nazareth, 2022). Further, because there is a time difference between the United States and the non-U.S. markets in the MSCI world, the MSCI World appears to fully incorporate U.S. events with global systematic effects the following day. Specifically, when comparing the indices, the MSCI World has similar returns to the Wilshire5000 throughout the week of May 2nd, only lagged by one day.

The constant mean return model (RHS of panel B) shows significant outperformance of 4.42% (t-stat = 38.983) and 4.04% (t-stat = 2.106) for the standard CAAR aggregation and value-weighted portfolio, respectively. This can again be explained by market volatility induced by the uncertainty regarding monetary policy. The constant mean return model does not account for systematic events, thus proves to be unfit for measurement when market-moving events are present.

7.2 Category-Level Results

As described in 5.3, we aggregate states into portfolios based on the public expectation of increased restrictiveness pertaining to abortion laws. The table below summarizes these results.

Table 7.2: Category-Level CAARs

This table reports CAARs and associated statistics on the level of categories explained in subsection 5.3. Panel A reports results obtained using standard CAAR aggregation, and panel B shows results obtained using category-based value-weighted portfolios.

Standard CAAR Agg.

Panel A: Market Models

	MSCI World			*Wilshire5000*			
Category	CAAR	var	t-value	CAAR	var	t-value	n
1	0.0213	0.000007	5.503	0.0070	0.000007	1.831	115
2	0.0105	0.000002	5.200	-0.0046	0.000002	-2.301	658
3	0.0124	0.000002	5.670	-0.0040	0.000002	-1.844	589
4	0.0136	0.000001	8.131	-0.0043	0.000001	-2.571	1014

Panel B: Other Models (FF5, CMR)

	FF 5-factor			*Constant Mean Return*			
Category	CAAR	var	t-value	CAAR	var	t-value	n
1	0.0092	0.000006	2.567	0.0486	0.000008	11.784	115
2	-0.0036	0.000002	-1.859	0.0402	0.000002	18.988	658
3	0.0007	0.000002	0.331	0.0434	0.000003	18.846	589
4	0.0028	0.000001	1.773	0.0467	0.000002	26.295	1014

Value-Weighted Portfolio Agg.

Panel C: Market Models

	MSCI World			*Wilshire5000*			
Category	CAAR	var	t-value	CAAR	var	t-value	n
1	0.0042	0.000034	0.419	-0.0034	0.000032	-0.347	144
2	0.0130	0.000029	1.391	-0.0005	0.000017	-0.065	812
3	0.0151	0.000020	1.958	0.0026	0.000009	0.505	738
4	0.0106	0.000027	1.174	-0.0047	0.000010	-0.844	1349

Panel D: Other Models (FF5, CMR)

	FF 5-factor			*Constant Mean Return*			
Category	CAAR	var	t-value	CAAR	var	t-value	n
1	-0.0048	0.000025	-0.556	0.0215	0.000071	1.474	144
2	-0.0006	0.000014	-0.101	0.0410	0.000127	2.101	812
3	0.0030	0.000007	0.639	0.0406	0.000101	2.333	738
4	-0.0010	0.000002	-0.403	0.0415	0.000146	1.982	1349

The discussion of Table 7.2 is structured by category, as defined in subsection 5.3, as opposed to by model. This is done to facilitate examining inferences regarding our hypotheses. Further, results using the MSCI World benchmarked market model, and constant mean return models are omitted as the results are obscured by the lower-than-expected rate hike driving equity outperformance not accounted for without a U.S. based market factor as part of the model.

Category 1 comprises firms where abortion was already highly inaccessible prior to *Dobbs v. Jackson*. Here, the Wilshire5000 benchmarked market model with standard CAAR aggregation (RHS of Panel A) yields a CAAR of 0.70% bordering statistical significance with a t-value of 1.831. The FF5 model with standard CAAR aggregation (LHS of Panel B) is also positive, with a CAAR of 0.92%, which is statistically significant with a t-value of 2.567. This outperformance may be driven by the monetary policy changes not totally captured by the model, though it is difficult to conclude a definite driver for the magnitude and significance of this market response. Turning to the value-weighted portfolio analyses, we do not observe statistical significance for either the Wilshire5000 benchmarked market model or the FF5 model. We again encounter the issue that the market proxy and the constructed portfolios overlap excessively, resulting in high explanatory power. Table A0.6 reports that the explanatory power of the market factor is 59% for Category 1 and above 90% for categories 2 through 4, illustrating the magnitude of the issue with our specification of the test.

With standard CAAR aggregation, both the Wilshire5000 benchmarked market model and FF5 model produce negative results: the former -0.46% with a t-value of -2.301, and the latter -0.36% with a t-value of -1.859. This borders our requirement for a rejection of the null hypothesis (H1b, 3.1), but the FF5 result falls short of providing robustness. The signs of the CAARs produced by the Wilshire5000 market model and the FF5 model are negative, though these value-weighted portfolios are affected by a high correlation with the market proxy, see (Table A0.6), making these results statistically insignificant and negligible.

Category 3, illustrates states unlikely to ban abortion but with a higher risk of increased restrictiveness. These states show no results are statistically significant. The result from the Wilshire benchmarked market model does border statistical significance with a t-value of -1.844 for the CAAR of -0.40%, lending support to Hypothesis 1b (3.1), though, without corroborating results produced by other models, no definite conclusion can be drawn.

Regarding Category 4, comprising firms in states where abortion is legally protected, results are incongruent across models. The Wilshire5000 benchmarked market model with standard CAAR aggregation gives a statistically significant negative CAAR of -0.43% (t-value = -2.571), yet the FF5 model with the same aggregation mechanism produces a CAAR of 0.28% though not statistically significant. A possible explanation here is again that the FF5 model has greater explanatory power regarding normal return due to additional factors explaining more of the individual securities' returns. No conclusions are drawn; the negative market-model CAAR is not robust. Neither model produces significant results on the value-weighted portfolios.

A final noteworthy observation from Table 7.2 is that CAARs of smaller magnitude are observed for Category 2- and 3 compared to Category 1- and 4, when looking at the MSCI World benchmarked market model on the left-hand side of Panel A. We have not tested whether the difference in CAAR between the categories is statistically significant; however, this indicates that there may be a relative underperformance in categories 2 and 3, as hypothesized.

The most notable observations produced from our category-focused event study are the Wilshire5000 market model's negative and significant CAAR for Category 2, with the model bordering significance for Category 3. Evidently, the results are scattered, with low robustness overall. Though, the approach shows promise, especially with standard cross-sectional aggregation of cumulative abnormal returns.

7.3 State-Level Results

Followingly, Table 7.3 and Table 7.4 report state-level CAARs produced with the Wilshire5000 benchmarked market model and the Fama-French five-factor model. We base our analysis on these models as the constant mean return model and MSCI World benchmarked market model fall victim to confounding events in the event window, limiting effectiveness. Table 7.3 reports results produced with standard cross-sectional aggregation, and Table 7.4 on state-based value-weighted portfolios. As only categories 2 and 3 are the foci of Hypothesis 1c (3.1), the tables included in this section reflect this. Full results for all models and states can be found in the Table A0.2, Table A0.3, Table A0.4, and Table A0.5. The discussion is structured in terms of categories as defined in subsection 5.3.

Table 7.3: CAAR per State with Standard Aggregation

This table reports CAARs, model- and test-statistics per state obtained using the Wilshire5000 benchmarked market model and the FF5 model. CAARs are produced using standard cross-sectional aggregation. Only categories 2 and 3 are included to save space, as these include the states of interest regarding Hypothesis 1c (3.1). The full table, including all states in the sample, can be found in Table A0.2.

		Market Model (W5000)			*FF Five-Factor*			
	State	CAAR	var	t-value	CAAR	var	t-value	n
Category 2	AZ	-0.0062	0.000034	-0.751	0.0001	0.000032	0.016	44
	FL	-0.0194	0.000014	-3.654	-0.0184	0.000013	-3.567	129
	GA	0.0076	0.000011	1.627	0.0085	0.000009	1.958	72
	ID	-0.0198	0.000125	-1.251	-0.0167	0.000111	-1.119	6
	KY	-0.0308	0.000055	-2.942	-0.0303	0.000049	-3.060	13
	MI	0.0160	0.000017	2.732	0.0141	0.000015	2.617	40
	MS	0.0125	0.000101	0.880	0.0133	0.000099	0.946	2
	MT	-0.0914	0.000428	-3.122	-0.0816	0.000391	-2.917	3
	ND	0.0143	0.000276	0.608	0.0038	0.000201	0.191	2
	NE	-0.0079	0.000058	-0.737	-0.0088	0.000050	-0.878	8
	OH	-0.0036	0.000010	-0.791	-0.0051	0.000009	-1.201	64
	SC	-0.0455	0.000074	-3.729	-0.0434	0.000064	-3.849	9
	SD	0.0040	0.000372	0.147	0.0047	0.000313	0.186	1
	TN	0.0187	0.000026	2.570	0.0220	0.000023	3.213	38
	TX	-0.0024	0.000010	-0.536	-0.0010	0.000009	-0.223	186
	WI	-0.0054	0.000017	-0.926	-0.0071	0.000015	-1.308	40
	WV	-0.0458	0.000615	-1.307	-0.0430	0.000575	-1.267	1
Category 3	CO	-0.0073	0.000013	-1.450	-0.0066	0.000011	-1.414	66
	DE	0.0271	0.000075	2.211	0.0255	0.000065	2.242	8
	HI	0.0154	0.000152	0.883	0.0118	0.000130	0.734	4
	KS	-0.0468	0.000114	-3.100	-0.0507	0.000101	-3.562	6
	MA	0.0006	0.000009	0.145	0.0109	0.000008	2.673	202
	MD	-0.0030	0.000052	-0.289	0.0041	0.000048	0.421	35
	ME	-0.0284	0.000140	-1.699	-0.0253	0.000130	-1.571	4
	NC	0.0002	0.000013	0.044	0.0019	0.000011	0.403	55
	NH	-0.0156	0.000068	-1.331	-0.0090	0.000059	-0.824	9
	NM	0.2828	0.002689	3.857	0.3084	0.002443	4.412	1
	NV	-0.0384	0.000039	-4.337	-0.0378	0.000035	-4.536	32
	PA	-0.0039	0.000018	-0.648	-0.0019	0.000017	-0.330	96

In the Category 2 panel, there are four states (Florida - FL, Kentucky - KY, Montana - MT, South Carolina - SC) that have negative and statistically significant CAARs corresponding to Hypothesis 1c (3.1). Of particular significance is the result in Florida, where the sample size is substantial at 129 observations. Here, the Wilshire5000 benchmarked market model gives a return of -1.94% with a t-value of -3.653. Substantiating, this result, the FF5 model produces a CAAR of -1.84% with a t-value of -3.567. This indicates that the equity market experienced a negative shock due to the potential tightening of abortion laws. Converse to our hypothesis, we see positive results in Michigan (MI) and Tennessee (TN) across both models. Michigan's market model CAAR is 1.60% and Tennessee's 1.87% with t-values of 2.732 and 2.570, respectively. Overall we cannot draw a definite conclusion with respect to our hypothesis with respect to states within this category.

Category 3 results reveal negative market returns in Kansas (KS) and Nevada (NV) of -4.68% (t-value = -3.100) and -3.83% (t-value = -4.337), produced by the Wilshire5000 benchmarked market model. It should be noted that the sample size in Kansas is particularly small, with only six observations, making economic inference invalid despite statistical significance. There are positive market returns in Delaware (DE) and New Mexico (NM) of 2.71% (t-value = 2.211) and 28.28% (t-value = 3.857), although the New Mexico results can be disregarded due to a sample size of one, meaning the CAAR represents returns from one firm only. In conclusion, a definite answer cannot be drawn with respect to Hypothesis 1c (3.1), regarding firms within Category 3 either, with widely dispersed results, a lack of statistical significance, and small sample sizes.

Notable results in Category 1 include statistically significant CAARs of 2.15% and 1.97% in Indiana (IN) produced by the W5000 market model and FF5 model, respectively. Arkansas (AR) borders on statistical significance, but with a sample size of ten, results can be disregarded. Interestingly, CAARs in Category 4 are negative for eight of ten states. Nonetheless, the abnormal return variance across the estimation window is large, leading to little statistical significance. In fact, the only state with statistically significant results in Category 4 is New York, with a CAAR of -0.94% (t-value -2.606) produced by the Wilshire5000 benchmarked market model. The FF5 model result falls short of significance with a t-value of -1.556. It is possible that the negative response from investors in a state with codified protection of abortion can be attributed to the fact that the firms in question operate outside of the state, leading to a negative view from investors regardless of the location of the firm's headquarters. This limitation of our analysis will be further discussed in limitations.

Table 7.4: CAAR per State on State-Based Value-Weighted Portfolios

This table reports CAARs, model- and test-statistics per state obtained using the Wilshire5000 benchmarked market model and the five-factor model. CAARs are calculated on state-based value-weighted portfolios. Only categories 2 and 3 are included to save space, as these include the states of interest regarding Hypothesis 1c (3.1).

		Market Model (W5000)			*FF Five-Factor*			
	State	CAAR	var	t-value	CAAR	var	t-value	n
Category 2	AZ	-0.0210	0.000043	-1.863	-0.0143	0.000028	-1.559	55
	FL	0.0164	0.000029	1.749	0.0139	0.000020	1.808	168
	GA	0.0122	0.000038	1.141	0.0100	0.000022	1.222	85
	ID	-0.0241	0.000237	-0.903	-0.0236	0.000218	-0.921	8
	KY	0.0034	0.000062	0.248	0.0024	0.000054	0.189	17
	MI	-0.0030	0.000095	-0.176	-0.0102	0.000058	-0.772	45
	MS	0.0604	0.000117	3.226	0.0612	0.000111	3.353	2
	MT	-0.0562	0.000696	-1.231	-0.0427	0.000497	-1.107	3
	ND	0.0356	0.000149	1.679	0.0268	0.000097	1.568	4
	NE	0.0017	0.000118	0.090	-0.0060	0.000085	-0.374	12
	OH	-0.0072	0.000036	-0.692	-0.0089	0.000023	-1.070	82
	SC	-0.0289	0.000110	-1.589	-0.0281	0.000091	-1.705	10
	SD	-0.0116	0.000950	-0.217	-0.0096	0.000895	-0.186	2
	TN	-0.0121	0.000059	-0.914	-0.0139	0.000040	-1.267	44
	TX	-0.0311	0.000109	-1.722	-0.0285	0.000098	-1.657	232
	WI	-0.0269	0.000039	-2.490	-0.0277	0.000033	-2.802	42
	WV	-0.0458	0.000615	-1.067	-0.0430	0.000575	-1.034	1
Category 3	CO	-0.0311	0.000029	-3.309	-0.0311	0.000020	-4.070	78
	DE	-0.0114	0.000115	-0.615	-0.0116	0.000113	-0.630	11
	HI	-0.0219	0.000404	-0.628	-0.0267	0.000318	-0.864	5
	KS	-0.0544	0.000163	-2.457	-0.0612	0.000128	-3.127	9
	MA	-0.0281	0.000037	-2.684	-0.0239	0.000025	-2.762	265
	MD	0.0234	0.000054	1.834	0.0226	0.000047	1.907	47
	ME	-0.0257	0.000157	-1.183	-0.0144	0.000123	-0.749	4
	NC	-0.0019	0.000028	-0.204	-0.0023	0.000020	-0.300	70
	NH	0.0067	0.000086	0.416	0.0108	0.000070	0.745	9
	NM	0.2830	0.002692	3.149	0.3086	0.002447	3.602	3
	NV	-0.0396	0.000240	-1.477	-0.0444	0.000155	-2.058	37
	PA	0.0186	0.000025	2.163	0.0173	0.000022	2.145	114

The results of the event study utilizing state-based value-weighted portfolios differ from the conventional CAAR metric due to the greater contribution of larger firms to the results. This distinction allows for a different perspective on market responses, as larger firms are more likely to employ a larger number of input actors and thus be impacted to a greater extent by the social and economic consequences of an increase in abortion restrictions. Table 7.4 is organized in the same manner as table 7.3, with only Category 2 and Category 3 included above.

In Category 2, a statistically significant negative market response is only observed in Wisconsin (WI). The Wilshire5000 benchmarked market model gives a CAAR of -2.69% (t-value = -2.490), with the FF5 corroborating the result. Looking closely at the portfolio composition and security-specific market returns over the event window, it is clear that Rockwell Automation, the second largest firm in the state-sample is driving the negative result as it fell 14.2%. The collapse was due to an earnings update (Brewer, 2022). Thus, we conclude that the result is obscured by a confounding event. Arizona (AZ) and Texas (TX) are close to significance, yet, they do not pass the threshold t-value. A positive market response is observed in Mississippi only with a CAAR of 6.04% and a t-value of 3.226, though the sample size of two makes the result negligible.

Regarding Category 3, there are negative returns in Colorado (CO), Kansas (KS), and Massachusetts (MA) of -3.11% (t-value = -3.309), -5.44% (t-value = -2.458) and -2.81% ((t-value = -2.684) respectively as can be seen on the left-hand-side in Table 7.4. The significance and magnitude of negative return are similar in the FF5 results, thus corroborated. Although this is a small number of states, the number of firms represented within the category is large at nearly 54%, driven by the large sample size in Massachusetts predominantly. There are no obvious confounding events for the largest firms based in these states across the event window, thus the results are potentially indicative of a real effect. Notably, though the results are not corroborated by CAARs found using standard cross-sectional aggregation thus we are weary of a type I error. Positive significant CAARs are observed in New Mexico (NM) and Philadelphia (PA) with CAARs of 28% and 1.86%, with New Mexico's results driven by Array Technologies, which experienced a price surge across the event window in relation to quarterly earnings results (Refinitiv, 2022).

Within Category 1, negative CAARs are observed for Alabama (AL) with a CAAR of

-6.15% (t-value = -3.360), and Missouri (MO) with a CAAR of -2.43% (t-value = -2.316) using the Wishire5000 benchmarked market model. Corresponding results are produced by the FF5 model, providing robustness. Statistically significant positive CAARs are estimated in Indiana (IN) using both models, though the sample size makes the result expendable. The magnitude of the abnormal return relative to that obtained using standard cross-sectional aggregation demonstrates the sensitivity to the performance of the largest firms, like Eli Lilly & Co, when the sample size is small.

Category 4 depicts positive CAARs in New Jersey (NJ), New York (NY), and Washington (WA), with CAARs of 3.02% (t-value = 2.760), 2.93% (t-value = 3.902), and 3.11% (t-value = 2.300), respectively with the Wilshire5000 benchmarked model. Results are also similar here when using the FF5 model. A negative CAAR of -9.62% (t-value = -4.099) is observed in Vermont when using the Wilshire5000 based market model, but again driven by small sample size and high individual security volatility. Notably, California borders statistical significance with a t-value of -1.811 for the -1.73% CAAR. Interestingly, the value-weighted portfolio aggregation yields more consistent results for California relative to the traditional CAAR approach in the table. This is most likely driven by the presence of mega-cap stocks driving the state-based portfolio returns A0.4

7.4 Firm Study

The results of our focused study on firms that responded to the overturning of *Roe v. Wade* with support for their employees' access to abortion are reported in table 7.5.

Table 7.5: Firm CAARs

This table reports firm-level CARs using the Wilshire5000 benchmarked market model around May 3rd, the date of the leak of the Supreme Court opinion, as well as the dates of the firms' responses to the overturning of *Roe v. Wade*.

	Draft Leak			*Firm Response*		
Firm	CAR	var	t-value	CAR	var	t-value
American Express	-0.0309	0.000248	-1.133	-0.0093	0.000260	-0.333
JPMorgan Chase	0.0305	0.000158	1.401	-0.0214	0.000165	-0.959
Comcast	0.0188	0.000162	0.853	0.0021	0.000182	0.089
Disney	0.0045	0.000163	0.203	-0.0025	0.000163	-0.114
IBM	0.0222	0.000161	1.010	-0.0003	0.000175	-0.015
Johnson & Johnson	-0.0114	0.000089	-0.702	0.0252	0.000093	1.511
Bank of America	0.0410	0.000200	1.675	-0.0452	0.000203	-1.833
Wells Fargo	0.0085	0.000319	0.275	0.0515	0.000315	1.675
Walmart	-0.0017	0.000102	-0.100	-0.0248	0.000220	-0.966
Microsoft	-0.0042	0.000091	-0.257	0.0211	0.000097	1.240
Adobe	0.0090	0.000251	0.327	0.0107	0.000260	0.383
Paramount	0.0059	0.000668	0.131	0.0266	0.000759	0.557
Paypal	0.0012	0.000583	0.029	0.0940	0.000615	2.187
Starbucks	0.0566	0.000152	2.654	0.0147	0.000167	0.656
Airbnb	-0.0498	0.000684	-1.099	-0.0520	0.000665	-1.165
Amazon	-0.0381	0.000242	-1.415	-0.0381	0.000242	-1.415
Goldman Sachs	0.0180	0.000159	0.822	0.0192	0.000155	0.890
Netflix	0.0225	0.000937	0.424	0.0054	0.001007	0.099
Mastercard	-0.0315	0.000222	-1.219	0.0343	0.000230	1.305
Alphabet	0.0139	0.000105	0.781	-0.0531	0.000111	-2.904
Meta	0.0455	0.000434	1.263	0.0219	0.000525	0.551
Tesla	0.0132	0.000818	0.267	-0.0342	0.000819	-0.691
Zillow	0.0590	0.001235	0.969	0.0342	0.001348	0.538
Total	**0.0088**	**0.000015**	**1.583**	**0.0035**	**0.000017**	**0.603**

The results show that there are no firms in the sample that experienced a statistically significant negative return on the event date as hypothesized in H2, (3.1). Conversely, Starbucks experienced a positive and significant cumulative abnormal return from May 2nd to May 5th due to a positive earnings release (Refinitiv, 2022). The lack of power of single-observation event studies is well documented in the event study literature (MacKinlay, 1997), though there is interest in looking at individual firms' specific abnormal returns in response to the event to attain an idea of the sign of CARs, and the variance across observations as an indicator of the presence of confounding events. On the response date, only Paypal has a statistically significant positive CAR with a value of 9.40% (t-value = 2.187), lending little support for Hypothesis 2. Due to the lack of significant results, it is impractical to compare the magnitude and sign of the firm-specific CARs. Hence, we draw no conclusions on the firm level.

The CAARs presented in the bottom *Total*-row, also demonstrate a lack of statistically significant results, with a positive sign of CAAR on both the event and response date. In conclusion, we do not reject the null hypothesis regarding firm-specific responses. Our comparative study on the event and response date falls short, also pertaining to the cumulative average abnormal returns, with a lack of significance on both dates investigated.

7.5 Repeated Analysis With 1-day Event Window

The results associated with the repeated event study can be found in Table A0.7 in the appendix. We first discuss results using standard-cross sectional aggregation. Looking at the MSCI World results in the LHS of Panel A, the removal of the confounding FOMC announcement becomes immediately obvious: outperformance has vanished, with negative significant CAAR of -0.45% (t-value = -3.732) for Category 4. This negative and statistically significant CAAR is also found using the Wilshire reporting a value of -0.36% with a t-value of -3.025. We see also that the market model returns are similar, which makes sense given the near-equal returns on May 3rd. The FF5 model, however, produces no significant results meaning the abnormal return from the market models is captured by its additional factors. Again, the constant mean return model shows outperformance. This can also be explained by Figure 7.1 showing positive market-wide return, which here is reflected across all four categories.

When looking at the value-weighted portfolios, statistical significance is negligible for all observations. Again, this illustrates the issue of excessive correlation with the market proxy and an aggregation that levels out returns making events difficult to detect.

8 Discussion

The implications of the results presented in section 7 are discussed in this chapter. In addition, we attempt to explain any inconsistencies, and limitations of our event study.

8.1 Main Results

The following table summarizes our hypotheses and corresponding results. It is important to note that we did not find evidence to reject any of the hypotheses. This does not necessarily imply that reduced access to abortion has no negative social and economic consequences, which we hypothesized negatively impact firms' performance. Rather, it means that we are unable to discern any such effects with confidence.

Table 8.1: Summary of Hypotheses - With Results

Hypotheses		H_0
Hypothesis 1a:	Firms' equity prices will fall when faced with increased restrictiveness in the legal environment surrounding women's reproductive rights.	Not Rejected
Hypothesis 1b:	The negative impact on equity prices caused by increased restrictiveness will be larger in states that were traditionally more liberally oriented and smaller in states more conservatively oriented pertaining to reproductive rights.	Not Rejected
Hypothesis 1c:	Negative equity price impacts will be present in all states facing increased restrictiveness pertaining to abortion.	Not Rejected
Hypothesis 2:	Firms will experience a negative shock to their equity price on the event day, but a positive shock of similar magnitude upon publicizing policies securing employees' access to abortion.	Not Rejected

There is one result closely bordering significance in our study. In panels A and B of Table 7.2 it does appear that security prices of firms headquartered in Category 2 states (the ones that are likely to ban abortion following the overturning of *Roe v. Wade*) respond negatively to the event. Here, the Wilshire market model and FF5 model with standard cross-sectional aggregation produce CAARs of -0.46% and -0.36%. Associated t-values are -2.301 and -1.859, respectively, indicating significance at the 5% and 10% levels. Although we do not reject the H1b null hypothesis at this level, the result is of note as the direction, magnitude and test-statistic are similar across the models, which is not consistently observed for other factors, except for Category 1. The sample size of Category 2 of 658 states and the inclusion of states of particular interest such as Texas and Florida is interesting. For instance, in Florida, there is a distinct political divide mirroring the dichotomy between a highly urbanized and liberal population and a more conservative rural population. We reason that should abortion become illegal in the state, cities like Miami will be significantly impacted. This is supported by only 1% obtaining abortions out-of-state (Table 5.3). Texas has a similar situation with the liberally oriented Houston nested in an otherwise conservative state.

8.2 Limitations, Challenges and Research Suggestions

8.2.1 Erroneous Event Study Specification

In section 6, we discuss choices made during the event study design.

As with any research, it is difficult to be aware of analytical flaws resulting in a lack of generalizable results ex-ante. Below we outline potential factors limiting the efficacy of our event study.

8.2.1.1 Choice of Event Date

It is possible that the likelihood of increased legislation and any related impacts were already reflected in market prices to some extent before May 3rd.

In our hypotheses, we assumed that the release of information relating to the overturning of *Roe v. Wade* should be reflected in security prices, with changes materializing over specific dates.

After all, the trend of increasingly strict legislation has been ongoing for several years, and the government made remarks surrounding *Dobbs v. Jackson* already in December 2021 (2.2.1.2) that were negative toward abortion. Our suggestion here would be to perform longer-term event studies, opting to look at security price responses over a long holding period rather than cumulative returns over a short time period. This would not yield the benefit of being able to discern long-term future effects from a short-span of prices; however, the method might be more suited to detect any effects.

Another potential solution to the above problem is to collect more event dates, both federal and state-specific, to create an extensive sample of dates on which abortion legislation changed. Categorizing this data set into events where abortion laws became more strict and relaxed, then calculating CAARs on a larger sample of dates across several years would allow for a capture of the cumulative price response to changes in abortion regulation. This is akin to the example study presented by MacKinlay (1997), comparing good vs. bad news events. This extension of our study would require significant data processing and manual work. However, the approach would likely result in improved magnitude and confidence in the results. Note that this design does fall victim to selection bias and potential data snooping.

8.2.1.2 Estimation-, Event Window, and Temporal Aggregation

The estimation period used in this study is a potential source of error. It is an interesting period in historical context due to the lingering impacts of the COVID-19 pandemic and related policy responses. The resulting market volatility, particularly manifested in inflation-sensitive stocks, has had a significant impact on the price volatility of tech-heavy states such as California during the estimation period. The financial market is characterized by frequent monetary policy changes across our estimation window. This unique market environment provides a difficult setting for constructing a well-specified event study. Specifically, heightened variance in abnormal returns across the estimation period, driven by market volatility, resulted in low-confidence predictions. Naturally, confidence falls correspondingly in our abnormal return estimation, the main variable of interest in our study.

Similarly, the event window specification affected our results our results. We opt for a three-day event window, starting the day prior to event dates, and ending the day following (CAR aggregated across $t-1,\ t,\ t+1$). Though there exist benefits of extending the event window as discussed in section 6 based largely on the recipe for event studies from MacKinlay (1997), the extension increases the risk of related problems. Expanding the event window gives increased confidence that the event is indeed included in the window across which CAR is aggregated; however, it also increases the likelihood that confounding events influence the results. Worth mentioning is the May 4th FOMC announcement causing outsized market movements, making it particularly difficult to isolate effects of the change in abortion legislation.

In this regard, we suggest testing event windows of different lengths, as well as repeating the study with different temporal aggregations, elaborated upon in the next paragraph.

Alternate temporal aggregation may ameliorate abnormal return measurements. We approached the research question with a short-term event study methodology (4.2), leading us to conclude that daily data observations were optimal with the logic that markets adjust rapidly in today's market and investors' easy access to information. A longer time horizon for the study may be advantageous. Combining this with observation aggregation of a higher temporal level, such as weekly, may also reduce some of the noisiness in the stock market observed throughout both the estimation and event period. A caveat to increasing the level of temporal aggregation is the induction of test statistic inflation through cross-sectional correlation. This is more likely to occur as the event window in weekly and monthly study naturally covers a greater number of dates, and is thus more likely to overlap.

8.2.2 Data Limitations

A key limitation of our study is that we effectively use headquarter location from WRDS as a proxy for the location of the entirety of a firm's operations. By assigning firms a singular state, we are not accounting for the fact that firms frequently operate across state and even country borders. This is problematic for several reasons. Firstly, our hypotheses are linked to abortion legislation's effect on firms' factor inputs and assumed geographic markets. It is generally false that a firm's entire workforce is located in a single state, which makes this assessment inaccurate and prone to distorting the analysis. Optimally, we would separate state-specific operations for all firms to identify state-specific effects. A problem here is that constructing such a data set of scale is impractical due to the lack of public data.

The lack of publicly traded firms with input factors rooted in the real economy and their distribution across states is another limitation. In the results section, it is evident that small sample sizes affect the results. It is unwise to make inferences about the real world with unrepresentative samples, and there are several instances where we observe that statistically significant cumulative average abnormal returns are driven by single firm observations.

When cleaning the data set, we encountered the trade-off between limiting our data set to streamline it for the event study, versus maintaining a large sample. This presents a source of selection bias, as we are free to limit our sample to attain as representative a data set of the population as possible. We construct our data set following literature and reasoning laid out in section 6, but the risk of a bias in the sample construction remains.

8.2.3 Confounding Events

In our sample, we observe specific cases where it is evident that confounding events affect our results. Despite cross-sectional return aggregation accounting for this issue to some extent (Ødegaard, 2020), we cannot rule out that informational noise in the event window affecting the reliability of our analysis. We propose that the event study be repeated with the removal of confounding events. According to relevant literature[17], there are three common methods for removing confounding events from event studies. These include the difference-in-differences method, propensity score matching, and instrumental variable analysis.

The first method is through the use of the difference-in-differences approach with either panel data or pooled cross-sectional data (Wooldridge, 2015). This technique involves comparing the change in the outcome variable of interest between the treatment and control groups before and after the intervention while controlling for pre-existing differences between the groups. This method is apt to be applied to state-specific data, comparing a treatment group in affected states with control groups in protected states.

Another method is utilizing propensity score matching. This involves identifying control group members who are similar to the treatment group in terms of their observed characteristics and using these matched controls to estimate the treatment effect. This can help to control for potential confounders by ensuring that the treatment and control groups are directly comparable (Li and Zhao, 2006).

Instrumental variable analysis is another method that can be used to control for confounding events in financial event studies (Martens, 2007). This involves using an exogenous variable as an instrumental variable to identify the causal effect of the

[17] (Ashley, 1962), (Bowman, 1983), (Martens, 2007), (Borusyak et al., 2021)

intervention on the outcome. This can help to control for potential confounding events by isolating the effect of the intervention from other factors that may be influencing the outcome. The difficulty in our specific situation, of course, is identifying an appropriate instrumental variable which oftentimes presents a challenge.

8.2.4 Model Specification in the NRGP

A limitation of our study is that the selected prediction models produced inconsistent results. The main challenge was in testing Hypothesis 1a: Assigning an appropriate proxy for overall market return proved challenging when using the market model, and the alternative model unrelated to market returns (the constant mean return model) was of little use due to large systematic variations in the financial market.

8.2.5 Broadening the Scope of Analysis

We further recommend expanding markets used in the analysis. This thesis focuses solely on the public equity markets of the United States. For a larger sample size and understanding of the effect, abortion may have on different markets, future research could investigate financial markets of countries undergoing similar changes in reproductive health legislation. This would allow for conclusions to be drawn in countries with different economic conditions, religious backgrounds, and cultural influences. It is likely that the effects observed in developed countries would differ from those in less developed countries. Conducting this research on a global scale would provide valuable insights into the impact of governmental legislative events on market behavior across a range of contexts. Furthermore, conducting a nation-based study may allow for a more apt specification of the location variable, increasing the efficacy of the study.

8.2.5.1 Financial and Socioeconomic Variables of Interest

In parallel with the analysis of financial markets, we suggest looking at specific financial, economic, and social variables that may link abortion legislation to financial markets (outlined in 3). We provide a brief list of examples below.

Investment Flows

Foreign Direct Investments An additional research angle is to analyze the effect of *Dobbs* *v. Jackson* on foreign direct investments (FDI). Research shows that policy changes can have a variety of effects on foreign direct investments, depending on the specific nature of the policy change (Crozet et al., 2004). Changes that create uncertainty, instability, or increased costs for businesses may discourage FDI. An example is legislation that undermines what is seen as ethically sound for foreign investors, with a similar rationale to subsubsection 2.3.4. The rationale for investigating FDI is that policy changes that significantly alter the political, or social environment in a geographic area may also affect the perceived risk and attractiveness of investing in that area. An example is the European Union's focus on a social framework in its regulation (Kvist, 2015).

Capital Flows Across State Borders

It would likewise be interesting to evaluate capital flows and portfolio allocation across state lines. Has there been a change in the portfolios of managers in pro-abortion states, such as New York and California, compared to states with more anti-abortion policies? As pension funds and other asset managers are increasing their focus on ESG, we posit that they may also react to state-specific legislation and companies' responses to such external factors (Global Impact Investing Network, 2022). Capital flows on a firm level, meaning cross-border capital expenditures, may also change as a result of the legislation. Corporations may consider the legal environment concerning abortion when choosing where to construct factories or other PPE.

Will Anti-Abortion States Suffer a Brain Drain?

Some critics have predicted that the passage or reinstatement of abortion restrictions in certain states may result in a "brain drain." Research could look at migration patterns of senior leaders and turnover data in companies located in anti-abortion states. This build on the rationale that women consider reproductive rights when deciding where to live. Relatedly, out-of-state college attendance could be a variable of interest. According to a Best Colleges survey conducted in August (2022), 39% of prospective college students expect the Supreme Court decision to affect their choice of college. Although, not an active emigration of talent, a smaller population of highly educated individuals in the future talent pool may weaken productivity in the state.

9 Conclusion

This thesis investigates the effect of transformations in abortion legislation on financial markets. Specifically, it investigates whether increasingly strict laws and decreased access to abortion negatively affects prices of public equities on an aggregate level. There is limited relevant literature on the topic, which we contribute to by offering a novel econometric lens.

We apply event study techniques in an attempt to detect abnormal returns caused by changes in abortion legislation. This is done by analyzing abnormal returns at increasing levels of granularity. We use both standard cross-sectional aggregation in addition to performing event studies on value-weighted portfolios. Starting at the country-level, we attempt to detect whether the overall United States public equity market reacted to the risk that a large part of its population may lose an important reproductive right. Further, founded in current state-specific legislative frameworks and expected changes contingent on the overturn of Roe v. Wade, we assign states to categories, seeking to detect aggregate reactions in the financial markets to risks of increased stringency pertaining to abortion legislation. The thesis, moreover, investigates effects on the state-level in an effort to understand deviations in effects between states. We compile a data set of 3,021 US firms comprising 990,224 return observations to conduct these analyses. Lastly, we look at firms that publicly responded to the transformation of the federal abortion law with support for their employees' access to abortion, and whether this resulted in abnormal equity returns.

The analysis did not produce evidence that the U.S. market experienced negative equity returns on the public release of information that abortion legislation would no longer be federally protected. Nor did we find evidence on the category-level, though results for Category 2 states (where abortion was legal, but likely to be banned following Roe. v. Wade) bordered our condition of significance at the 5% level. We see scattered results pertaining to state-level studies, with some results yielding significance; however, outliers and confounding events obscure the results. This hinders any definite conclusions from being drawn. Finally, we do not find significant cumulative average abnormal returns for firms responding publicly to the legislative transformation with company-wide policies on either the event date, nor the date of firms' responses.

We met challenges in our analysis, including a challenging context for performing efficacious event studies. The presence of a variety of confounding events, and high market volatility made accurate estimation of cumulative average abnormal returns difficult. The extraordinary volatility in the week of May 3rd driven by monetary policy changes made it especially hard to isolate any potential effects directly related to the event in question.

Overall, the application of a financial study on a legal transformation proved challenging, yet showed promise for future application with some results bordering significance. As abortion continues to be a contested issue, it is critical that the research effort regarding social, economic, and financial effects continues, contributing to forming a solid foundation for wide-reaching legislative decisions.

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Appendix

Table A0.1: States With Restrictive Abortion Policies at April 19, 2022

This table reports the sample of companies that made a public statement in regard to *Roe v. Wade* after the overruling. *Data from Refinitiv (2022)

Company	Ticker	HQ State	Exchange	Statement Date
Amazon.com	AMZN	Washington	NASDAQ	2022-05-02
Tesla	TSLA	Texas	NASDAQ	2022-05-06
Microsoft	MSFT	Washington	NASDAQ	2022-05-09
Starbucks	SBUX	Washington	NASDAQ	2022-05-16
Mastercard	MA	New York	NYSE	2022-05-18
PayPal Holdings	PYPL	California	NASDAQ	2022-05-19
Alphabet	GOOGL	California	NASDAQ	2022-05-24
JPMorgan Chase & Co	JPM	New York	NYSE	2022-06-24
Bank of America	BAC	North Carolina	NYSE	2022-06-24
Walt Disney	DIS	California	NYSE	2022-06-24
Meta Platforms	META	California	NASDAQ	2022-06-24
Goldman Sachs Group	GS	New York	NYSE	2022-06-24
Paramount Global	PARA	New York	NASDAQ	2022-06-24
Netflix	NFLX	California	NASDAQ	2022-06-24
Comcast	CMCSA	Mississippi	NASDAQ	2022-06-24
Johnson & Johnson	JNJ	New Jersey	NYSE	2022-06-24
Zillow Group	Z	Washington	NASDAQ	2022-06-24
Airbnb	ABNB	California	NASDAQ	2022-06-24
Wells Fargo & Co	WFC	California	NYSE	2022-06-27
IBM	IBM	New York	NYSE	2022-06-28
Adobe	ADBE	California	NASDAQ	2022-06-30
American Express Company	AXP	New York	NYSE	2022-06-30
Walmart	WMT	Arkansas	NYSE	2022-08-20

Table A0.2: CAAR per State with Standard Aggregation

CAARs, model- and test-statistics per state obtained using the Wilshire5000 benchmarked market model and the FF5 model. CAARs calculated with standard aggregation.

	Market Model (W5000)			*FF Five-Factor*			
State	CAAR	var	t-value	CAAR	var	t-value	n
AL	-0.0010	0.000068	-0.090	0.0006	0.000060	0.058	7
AR	0.0217	0.000067	1.867	0.0197	0.000059	1.807	10
IA	-0.0143	0.000091	-1.057	-0.0133	0.000082	-1.040	8
IN	0.0216	0.000022	3.281	0.0197	0.000018	3.253	25
LA	0.0011	0.000066	0.092	0.0042	0.000060	0.387	9
MO	-0.0006	0.000046	-0.064	-0.0011	0.000042	-0.124	23
OK	-0.0177	0.000198	-0.890	-0.0154	0.000162	-0.853	5
UT	0.0094	0.000041	1.036	0.0190	0.000035	2.272	28
AZ	-0.0062	0.000034	-0.751	0.0001	0.000032	0.016	44
FL	-0.0194	0.000014	-3.654	-0.0184	0.000013	-3.567	129
GA	0.0076	0.000011	1.627	0.0085	0.000009	1.958	72
ID	-0.0198	0.000125	-1.251	-0.0167	0.000111	-1.119	6
KY	-0.0308	0.000055	-2.942	-0.0303	0.000049	-3.060	13
MI	0.0160	0.000017	2.732	0.0141	0.000015	2.617	40
MS	0.0125	0.000101	0.880	0.0133	0.000099	0.946	2
MT	-0.0914	0.000428	-3.122	-0.0816	0.000391	-2.917	3
ND	0.0143	0.000276	0.608	0.0038	0.000201	0.191	2
NE	-0.0079	0.000058	-0.737	-0.0088	0.000050	-0.878	8
OH	-0.0036	0.000010	-0.791	-0.0051	0.000009	-1.201	64
SC	-0.0455	0.000074	-3.729	-0.0434	0.000064	-3.849	9
SD	0.0040	0.000372	0.147	0.0047	0.000313	0.186	1
TN	0.0187	0.000026	2.570	0.0220	0.000023	3.213	38
TX	-0.0024	0.000010	-0.536	-0.0010	0.000009	-0.223	186
WI	-0.0054	0.000017	-0.926	-0.0071	0.000015	-1.308	40
WV	-0.0458	0.000615	-1.307	-0.0430	0.000575	-1.267	1
CO	-0.0073	0.000013	-1.450	-0.0066	0.000011	-1.414	66
DE	0.0271	0.000075	2.211	0.0255	0.000065	2.242	8
HI	0.0154	0.000152	0.883	0.0118	0.000130	0.734	4
KS	-0.0468	0.000114	-3.100	-0.0507	0.000101	-3.562	6
MA	0.0006	0.000009	0.145	0.0109	0.000008	2.673	202
MD	-0.0030	0.000052	-0.289	0.0041	0.000048	0.421	35
ME	-0.0284	0.000140	-1.699	-0.0253	0.000130	-1.571	4
NC	0.0002	0.000013	0.044	0.0019	0.000011	0.403	55
NH	-0.0156	0.000068	-1.331	-0.0090	0.000059	-0.824	9
NM	0.2828	0.002689	3.857	0.3084	0.002443	4.412	1
NV	-0.0384	0.000039	-4.337	-0.0378	0.000035	-4.536	32
PA	-0.0039	0.000018	-0.648	-0.0019	0.000017	-0.330	96
RI	-0.0076	0.000084	-0.587	-0.0135	0.000078	-1.082	9
VA	-0.0041	0.000011	-0.872	-0.0026	0.000010	-0.583	62
CA	-0.0043	0.000003	-1.658	0.0068	0.000003	2.749	481
CT	-0.0050	0.000016	-0.886	-0.0047	0.000013	-0.914	47
IL	0.0017	0.000007	0.457	0.0003	0.000006	0.088	97
MN	-0.0082	0.000022	-1.240	-0.0043	0.000020	-0.669	57
NJ	-0.0064	0.000018	-1.069	-0.0022	0.000017	-0.385	81
NY	-0.0094	0.000007	-2.606	-0.0053	0.000006	-1.556	185
OR	0.0162	0.000082	1.271	0.0216	0.000073	1.790	13
VT	-0.0360	0.000449	-1.203	-0.0288	0.000377	-1.049	2
WA	0.0086	0.000034	1.046	0.0178	0.000030	2.289	51

Table A0.3: CAAR per State with Standard Aggregation (cont'd)

CAARs, model- and test-statistics per state obtained using the MSCI World benchmarked market model and the constant mean return model. CAARs calculated with standard aggregation.

	Market Model (MSCI)			*Constant Mean Return*			
State	CAAR	var	t-value	CAAR	var	t-value	n
AL	0.0120	0.000071	1.006	0.0359	0.000083	2.789	7
AR	0.0368	0.000069	3.126	0.0684	0.000085	5.248	10
IA	-0.0012	0.000094	-0.090	0.0228	0.000104	1.577	8
IN	0.0343	0.000022	5.149	0.0608	0.000026	8.413	25
LA	0.0127	0.000068	1.087	0.0332	0.000078	2.660	9
MO	0.0111	0.000047	1.148	0.0348	0.000051	3.448	23
OK	-0.0004	0.000205	-0.021	0.0285	0.000231	1.326	5
UT	0.0280	0.000042	3.033	0.0609	0.000048	6.211	28
AZ	0.0112	0.000035	1.331	0.0438	0.000039	4.960	44
FL	-0.0047	0.000014	-0.887	0.0237	0.000015	4.283	129
GA	0.0241	0.000011	5.068	0.0559	0.000013	10.821	72
ID	-0.0030	0.000130	-0.188	0.0293	0.000155	1.662	6
KY	-0.0199	0.000056	-1.885	0.0025	0.000062	0.227	13
MI	0.0298	0.000017	5.055	0.0598	0.000021	9.311	40
MS	0.0144	0.000102	1.011	0.0190	0.000103	1.325	2
MT	-0.0706	0.000448	-2.359	-0.0363	0.000509	-1.138	3
ND	0.0267	0.000281	1.126	0.0547	0.000336	2.110	2
NE	0.0051	0.000060	0.461	0.0299	0.000071	2.507	8
OH	0.0109	0.000011	2.363	0.0409	0.000013	8.090	64
SC	-0.0294	0.000077	-2.365	0.0025	0.000093	0.181	9
SD	0.0140	0.000381	0.506	0.0333	0.000427	1.140	1
TN	0.0331	0.000027	4.504	0.0618	0.000030	7.937	38
TX	0.0134	0.000010	2.984	0.0442	0.000011	9.475	186
WI	0.0077	0.000017	1.311	0.0340	0.000020	5.417	40
WV	-0.0379	0.000618	-1.078	-0.0202	0.000657	-0.557	1
CO	0.0081	0.000013	1.579	0.0384	0.000015	6.962	66
DE	0.0427	0.000077	3.435	0.0752	0.000096	5.430	8
HI	0.0264	0.000155	1.500	0.0511	0.000180	2.692	4
KS	-0.0331	0.000117	-2.158	-0.0028	0.000144	-0.167	6
MA	0.0191	0.000009	4.398	0.0519	0.000010	11.486	202
MD	0.0125	0.000053	1.210	0.0410	0.000057	3.837	35
ME	-0.0171	0.000144	-1.006	0.0075	0.000171	0.404	4
NC	0.0155	0.000013	3.035	0.0467	0.000016	8.348	55
NH	0.0007	0.000071	0.063	0.0301	0.000085	2.317	9
NM	0.3211	0.002854	4.249	0.3816	0.003311	4.689	1
NV	-0.0185	0.000040	-2.058	0.0204	0.000048	2.090	32
PA	0.0118	0.000019	1.935	0.0423	0.000020	6.684	96
RI	0.0024	0.000085	0.187	0.0249	0.000093	1.824	9
VA	0.0092	0.000012	1.901	0.0342	0.000013	6.644	62
CA	0.0162	0.000004	6.081	0.0527	0.000004	18.726	481
CT	0.0099	0.000016	1.731	0.0397	0.000019	6.426	47
IL	0.0144	0.000007	3.939	0.0407	0.000008	10.309	97
MN	0.0055	0.000022	0.825	0.0324	0.000024	4.678	57
NJ	0.0088	0.000018	1.445	0.0381	0.000020	5.997	81
NY	0.0072	0.000007	1.961	0.0384	0.000008	9.865	185
OR	0.0325	0.000084	2.506	0.0647	0.000098	4.629	13
VT	-0.0228	0.000459	-0.753	0.0001	0.000493	0.003	2
WA	0.0285	0.000035	3.421	0.0646	0.000039	7.346	51

Table A0.4: CAAR per State Calculated on VW Portfolios

CAARs, model- and test-statistics per state obtained using the Wilshire5000 benchmarked market model and the FF5 model. CAARs calculated on state-based value-weighted portfolios.

	Market Model (W5000)			*FF Five-Factor*			
State	CAAR	var	t-value	CAAR	var	t-value	n
AL	-0.0615	0.000112	-3.360	-0.0668	0.000086	-4.148	8
AR	0.0149	0.000082	0.947	0.0138	0.000070	0.950	11
IA	0.0308	0.000088	1.889	0.0344	0.000074	2.312	9
IN	0.1031	0.000086	6.406	0.1010	0.000078	6.600	29
LA	0.0060	0.000103	0.339	0.0115	0.000090	0.697	9
MO	-0.0243	0.000037	-2.316	-0.0302	0.000021	-3.790	34
OK	-0.0297	0.000262	-1.061	-0.0157	0.000184	-0.667	6
UT	-0.0034	0.000139	-0.164	0.0076	0.000069	0.529	38
AZ	-0.0210	0.000043	-1.863	-0.0143	0.000028	-1.559	55
FL	0.0164	0.000029	1.749	0.0139	0.000020	1.808	168
GA	0.0122	0.000038	1.141	0.0100	0.000022	1.222	85
ID	-0.0241	0.000237	-0.903	-0.0236	0.000218	-0.921	8
KY	0.0034	0.000062	0.248	0.0024	0.000054	0.189	17
MI	-0.0030	0.000095	-0.176	-0.0102	0.000058	-0.772	45
MS	0.0604	0.000117	3.226	0.0612	0.000111	3.353	2
MT	-0.0562	0.000696	-1.231	-0.0427	0.000497	-1.107	3
ND	0.0356	0.000149	1.679	0.0268	0.000097	1.568	4
NE	0.0017	0.000118	0.090	-0.0060	0.000085	-0.374	12
OH	-0.0072	0.000036	-0.692	-0.0089	0.000023	-1.070	82
SC	-0.0289	0.000110	-1.589	-0.0281	0.000091	-1.705	10
SD	-0.0116	0.000950	-0.217	-0.0096	0.000895	-0.186	2
TN	-0.0121	0.000059	-0.914	-0.0139	0.000040	-1.267	44
TX	-0.0311	0.000109	-1.722	-0.0285	0.000098	-1.657	232
WI	-0.0269	0.000039	-2.490	-0.0277	0.000033	-2.802	42
WV	-0.0458	0.000615	-1.067	-0.0430	0.000575	-1.034	1
CO	-0.0311	0.000029	-3.309	-0.0311	0.000020	-4.070	78
DE	-0.0114	0.000115	-0.615	-0.0116	0.000113	-0.630	11
HI	-0.0219	0.000404	-0.628	-0.0267	0.000318	-0.864	5
KS	-0.0544	0.000163	-2.457	-0.0612	0.000128	-3.127	9
MA	-0.0281	0.000037	-2.684	-0.0239	0.000025	-2.762	265
MD	0.0234	0.000054	1.834	0.0226	0.000047	1.907	47
ME	-0.0257	0.000157	-1.183	-0.0144	0.000123	-0.749	4
NC	-0.0019	0.000028	-0.204	-0.0023	0.000020	-0.300	70
NH	0.0067	0.000086	0.416	0.0108	0.000070	0.745	9
NM	0.2830	0.002692	3.149	0.3086	0.002447	3.602	3
NV	-0.0396	0.000240	-1.477	-0.0444	0.000155	-2.058	37
PA	0.0186	0.000025	2.163	0.0173	0.000022	2.145	114
RI	-0.0133	0.000120	-0.698	-0.0239	0.000085	-1.498	11
VA	-0.0012	0.000038	-0.112	-0.0042	0.000026	-0.482	74
CA	-0.0173	0.000030	-1.811	-0.0105	0.000009	-2.053	657
CT	-0.0063	0.000031	-0.645	-0.0095	0.000026	-1.075	58
IL	0.0051	0.000021	0.647	0.0012	0.000014	0.188	121
MN	0.0112	0.000043	0.984	0.0087	0.000031	0.891	68
NJ	0.0302	0.000040	2.760	0.0284	0.000034	2.804	97
NY	0.0293	0.000019	3.902	0.0277	0.000019	3.704	266
OR	-0.0256	0.000194	-1.060	-0.0248	0.000192	-1.033	20
VT	-0.0962	0.000184	-4.099	-0.0948	0.000171	-4.189	2
WA	0.0311	0.000061	2.300	0.0364	0.000036	3.521	60

Table A0.5: CAAR per State Calculated on VW Portfolios (cont'd)

CAARs, model- and test-statistics per state obtained using the MSCI benchmarked market model and the CMR model. CAARs calculated on state-based value-weighted portfolios.

	Market Model (MSCI)			*Constant Mean Return*			
State	CAAR	var	t-value	CAAR	var	t-value	n
AL	-0.0501	0.000118	-2.659	0.0566	0.000199	2.320	8
AR	0.0187	0.000082	1.189	0.0112	0.000093	0.671	11
IA	0.0456	0.000109	2.526	0.0103	0.000202	0.417	9
IN	0.1108	0.000087	6.852	0.0197	0.000131	0.994	29
LA	0.0211	0.000123	1.097	0.0319	0.000223	1.234	9
MO	-0.0163	0.000037	-1.545	0.0246	0.000086	1.532	34
OK	-0.0070	0.000312	-0.230	0.1342	0.000515	3.416	6
UT	0.0151	0.000174	0.659	0.0468	0.000300	1.561	38
AZ	-0.0028	0.000070	-0.191	0.0504	0.000225	1.939	55
FL	0.0296	0.000041	2.659	0.0326	0.000133	1.633	168
GA	0.0221	0.000042	1.959	0.0308	0.000104	1.749	85
ID	-0.0068	0.000251	-0.248	0.0628	0.000435	1.738	8
KY	0.0110	0.000061	0.814	0.0057	0.000109	0.313	17
MI	0.0085	0.000092	0.514	0.0501	0.000208	2.005	45
MS	0.0627	0.000117	3.345	0.0179	0.000120	0.943	2
MT	-0.0238	0.000811	-0.483	0.0727	0.001160	1.232	3
ND	0.0438	0.000151	2.059	0.0403	0.000200	1.647	4
NE	0.0084	0.000116	0.447	0.0138	0.000156	0.636	12
OH	-0.0002	0.000034	-0.017	0.0124	0.000078	0.811	82
SC	-0.0146	0.000123	-0.762	0.0231	0.000238	0.864	10
SD	-0.0005	0.000961	-0.009	0.0258	0.001015	0.468	2
TN	-0.0018	0.000063	-0.130	0.0476	0.000134	2.378	44
TX	-0.0137	0.000134	-0.682	0.0566	0.000273	1.977	232
WI	-0.0129	0.000055	-1.003	0.0417	0.000148	1.978	42
WV	-0.0379	0.000618	-0.880	-0.0202	0.000657	-0.455	1
CO	-0.0165	0.000046	-1.408	0.0315	0.000150	1.482	78
DE	0.0073	0.000140	0.359	0.0722	0.000322	2.325	11
HI	-0.0085	0.000414	-0.242	0.0759	0.000517	1.927	5
KS	-0.0436	0.000164	-1.964	-0.0172	0.000252	-0.625	9
MA	-0.0141	0.000052	-1.133	0.0439	0.000146	2.098	265
MD	0.0317	0.000060	2.364	0.0296	0.000092	1.778	47
ME	-0.0095	0.000176	-0.415	-0.0234	0.000309	-0.770	4
NC	0.0103	0.000036	0.997	0.0543	0.000126	2.791	70
NH	0.0238	0.000112	1.298	0.0269	0.000240	1.001	9
NM	0.3211	0.002856	3.469	0.3815	0.003311	3.828	3
NV	-0.0174	0.000281	-0.598	0.0247	0.000510	0.632	37
PA	0.0302	0.000033	3.033	0.0399	0.000107	2.225	114
RI	-0.0084	0.000117	-0.450	0.0437	0.000146	2.085	11
VA	0.0074	0.000043	0.654	0.0302	0.000082	1.927	74
CA	0.0021	0.000062	0.154	0.0569	0.000237	2.134	657
CT	0.0058	0.000038	0.543	0.0225	0.000129	1.142	58
IL	0.0134	0.000022	1.665	0.0337	0.000073	2.278	121
MN	0.0190	0.000043	1.672	0.0184	0.000091	1.112	68
NJ	0.0349	0.000039	3.249	0.0085	0.000061	0.630	97
NY	0.0379	0.000020	4.879	0.0233	0.000073	1.571	266
OR	-0.0123	0.000197	-0.505	0.0200	0.000327	0.640	20
VT	-0.0870	0.000191	-3.636	-0.0694	0.000230	-2.643	2
WA	0.0475	0.000083	3.000	0.0370	0.000207	1.487	60

Table A0.6: Time Series Analysis of Categories

This table reports results from time series analysis of categories on market returns represented by the Wilshire 5000 index. *Note:* *p<0.1; **p<0.05; ***p<0.01

	Dependent variable:			
	Excess Return			
	(1)	(2)	(3)	(4)
t-1	−0.0066	−0.00003	0.0012	0.0032
	t = −1.0698	t = −0.0074	t = 0.3666	t = 0.9546
t (May 3rd)	−0.0006	−0.0019	−0.0002	−0.0046
	t = −0.1041	t = −0.4624	t = −0.0627	t = −1.3581
t+1	0.0043	0.0011	0.0008	−0.0032
	t = 0.6891	t = 0.2677	t = 0.2317	t = −0.9344
Market Return	0.6115***	1.0190***	0.9387***	1.1220***
	t = 24.2309	t = 61.2277	t = 69.5644	t = 81.8954
Constant	0.0006**	0.0005***	0.0004**	0.0002
	t = 2.1124	t = 2.7337	t = 2.5085	t = 1.4498
Observations	418	418	418	418
Adjusted R^2	0.5885	0.9013	0.9218	0.9422
Residual Std. Error (df = 413)	0.0062	0.0041	0.0033	0.0034

Table A0.7: Category-Level CAARs (1-day event window)

This table reports CAARs and associated statistics on the level of categories explained in subsection 5.3 with an event window of one day. Panel A reports results obtained using standard CAAR aggregation, and panel B shows results obtained using category-based value-weighted portfolios.

Standard CAAR Agg.

Panel A: Market Models

	MSCI World			*Wilshire5000*			
Category	CAAR	var	t-value	CAAR	var	t-value	n
1	0.0007	0.000007	0.258	0.0015	0.000007	0.561	115
2	0.0004	0.000002	0.310	0.0014	0.000002	0.968	658
3	-0.0023	0.000003	-1.417	-0.0014	0.000002	-0.866	589
4	-0.0045	0.000001	-3.742	-0.0036	0.000001	-3.025	1014

Panel B: Other Models (FF5, CMR)

	FF 5-factor			*Constant Mean Return*			
Category	CAAR	var	t-value	CAAR	var	t-value	n
1	0.0014	0.000006	0.540	0.0061	0.000008	2.091	115
2	-0.0000	0.000002	-0.024	0.0063	0.000002	4.176	658
3	0.0003	0.000002	0.172	0.0038	0.000003	2.286	589
4	0.0002	0.000001	0.193	0.0020	0.000002	1.535	1014

Value-Weighted Portfolio Agg.

Panel C: Market Models

	MSCI World			*Wilshire5000*			
Category	CAAR	var	t-value	CAAR	var	t-value	n
1	-0.0015	0.000034	-0.255	-0.0008	0.000032	-0.143	144
2	-0.0028	0.000029	-0.521	-0.0018	0.000017	-0.441	812
3	-0.0009	0.000020	-0.198	-0.0000	0.000009	-0.007	738
4	-0.0056	0.000027	-1.066	-0.0046	0.000010	-1.432	1349

Panel D: Other Models (FF5, CMR)

	FF 5-factor			*Constant Mean Return*			
Category	CAAR	var	t-value	CAAR	var	t-value	n
1	-0.0030	0.000025	-0.598	0.0019	0.000071	0.230	144
2	-0.0013	0.000014	-0.365	0.0027	0.000127	0.243	812
3	0.0005	0.000007	0.191	0.0042	0.000101	0.414	738
4	-0.0003	0.000002	-0.208	0.0005	0.000146	0.043	1349

Table A0.8: States With Restrictive Abortion Policies at April 19, 2022

This table reports the 26 states indicated by (Guttmacher Institute, 2022a) to likely ban abortion in the *Roe v. Wade* should be overturned. Categorization was made two weeks prior to the date of the leak and event 2.2.1.3.
*AL, LA, TN, WV - Constitution amended to prohibit any protection for abortion rights.

State		FIPS	Pre-Roe Ban	Trigger Ban	Near-total Ban	Six-week Ban
Alabama	AL*	01	Pre-Roe		Near-total	
Arizona	AZ	04	Pre-Roe			
Arkansas	AR	05	Pre-Roe	Trigger	Near-total	
Florida	FL	12		Trigger		Fifteen-week
Georgia	GA	13				Six-week
Idaho	ID	16		Trigger		Six-week
Indiana	IN	18			Near-total	
Iowa	IA	19	Pre-Roe		Near-total	Six-week
Kentucky	KY	21		Trigger		Six-week
Louisiana	LA*	22		Trigger	Near-total	Six-week
Michigan	MI	26	Pre-Roe			
Mississippi	MS	28	Pre-Roe	Trigger		Six-week
Missouri	MO	29		Trigger	Near-total	Eight-week
Montana	MT	30				Special Bans
Nebraska	NE	31		Trigger		Fifteen-week
North Dakota	ND	38		Trigger		Six-week
Ohio	OH	39				Six-week
Oklahoma	Ok	40	Pre-Roe	Trigger	Near-total	Six-week
South Carolina	SC	45				Six-week
South Dakota	SD	46		Trigger		
Tennessee	TN*	47		Trigger		Six-week
Texas	TX	48	Pre-Roe	Trigger		Six-week
Utha	UT	49		Trigger	Near-total	
West Virginia	WV*	54	Pre-Roe			
Wisconsin	WI	55	Pre-Roe			
Wyoming	WY	56		Trigger		

Table A0.9: 13 States With "Trigger laws" Restrictive Abortion Policies

This table reports the 13 states' legal documents for "Trigger laws" which are intended to make abortion illegal in the event that *Roe v. Wade* is overturned.

State		FIPS	Trigger Legal Documents
Arkansas	AR	05	Ark. Code Ann. § 5-61-304 note (West)
Idaho	ID	16	Idaho Code Ann. § 18-622(1) (West)
Kentucky	KY	21	Ky. Rev. Stat. Ann. § 311.772(2) (West)
Louisiana	LA	22	Near-total & La. Stat. Ann. § 40:1061(A)
Mississippi	MS	28	Miss. Code. Ann. § 41-41-45 note (West)
Missouri	MO	29	Mo. Ann. Stat. § 188.017(4) (West)
North Dakota	ND	38	N.D. Cent. Code Ann. § 12.1-31-12 note (West)
Oklahoma	Ok	40	S.B. No. 918, 58th Leg., 1st Reg. Sess. (Okla. 2021)
South Dakota	SD	46	S.D. Codified Laws § 22-17-5.1 note
Tennessee	TN	47	Tenn. Code Ann. § 39-15-213 note (West)
Texas	TX	48	Tex. Health & Safety Code Ann. § 170A.002 note (West)
Utha	UT	49	Utah Code Ann. § 76-7a-201 note (West)
Wyoming	WY	56	Wyo. Stat. Ann. § 35-6-102(b) (West)

Table A0.10: State-level Summary of Abortion Access (Pre Covid-19 Data)

The table describes all US states' population of Women aged 15-44 and the effected women in the case of Roe v. Wade being overruled. *TB = "Trigger ban", PB = "Pre-Roe ban" HR = "High-Risk of enforcing ban".* *Data from Myers et al. (2019) and (University of California San Francisco, 2019)

	Pre *Dobbs v. Jackson*				Post *Dobbs v. Jackson*		
State	Population of women aged 15–44	Number of abortion facilities	Mean travel distance(miles)	Policies	Affected population	Mean travel distance(miles)	Affected population
Alabama	949,949	5	31	PB, HR	0		929,859
Arizona	1,345,764	8	17	PB, HR	0		1,277,694
Arkansas	577,447	3	48	TB,PB,HR	577,447	213	577,447
California	8,104,632	150	7		0		0
Colorado	1,137,745	21	16		0		0
Connecticut	672,949	19	9		0		0
Delaware	180,343	4	13		0		0
D.C.	186,464	8	1		0		0
Florida	3,828,199	58	15		0		129,648
Georgia	2,147,399	17	28	HR	0		2,018,732
Idaho	328,941	4	38	HR	0		212,839
Illinois	2,532,027	23	20		1544	20	23,745
Indiana	1,295,622	7	34	HR	83,535	38	1,295,622
Iowa	592,278	6	40	TB, HR	44,301	42	44,301
Kansas	558,606	4	53		0	1	12,523
Kentucky	848,472	1	64	TB, HR	675,756	115	848,472
Louisiana	936,106	3	47	TB, HR	936,106	190	936,106
Maine	231,535	18	14		0		0
Maryland	1,193,286	21	11		0		0
Massachusetts	1,381,812	18	13		0		0
Michigan	1,874,298	23	18	PB, HR	0		1,872,347
Minnesota	1,066,806	5	37		100,153	46	100,153
Mississippi	591,744	1	62	TB, HR	406,750	144	591,744
Missouri	1,171,775	1	62	TB, HR	786,826	73	786,826
Montana	190,089	6	63		0		0
Nebraska	370,172	3	47		10,612	48	10,612
Nevada	589,149	8	10		0		12
New Hampshire	241,346	6	18		0		18
New Jersey	1,715,123	44	5		0		5
New Mexico	395,286	5	56		0		57
New York	4,001,053	93	5		0		0
North Carolina	2,016,657	17	25		21,848	25	27,298
North Dakota	146,282	1	145	TB, HR	135,893	325	135,893
Ohio	2,203,285	10	25	HR	0		2,160,067
Oklahoma	768,751	4	37	PB, HR	32,722	38	754,319
Oregon	810,399	12	16		0		7226
Pennsylvania	2,383,721	12	25		0		33,849
Rhode Island	209,072	3	8		0		0
South Carolina	965,704	3	30	HR	0		809,431
South Dakota	155,829	1	136	TB, HR	141,086	248	141,086
Tennessee	1,312,517	8	35	TB, HR	1,189,422	133	1,309,667
Texas	5,885,855	19	40	PB, HR	168,381	42	5,862,312
Utah	675,124	2	39	HR	0		621,114
Vermont	113,854	6	18		0		0
Virginia	1,668,846	15	21		53,265	23	53,265
Washington	1,464,754	31	13		0		13
West Virginia	322,254	1	64	PB, HR	2911	64	168,671
Wisconsin	1,083,819	3	53	PB, HR	0		961,565
Wyoming	107,740	2	134		0		12,495
United States	**63,530,880**	**743**	**25**		**5,368,558**	**33**	**24,777,283**

Table A0.11: Understanding Abortion Bans

The table describes the most profound abortion bans
*Definitions done by Center for Reproductive Rights (2020)

Ban Type	Description
Pre-Roe bans	Most states repealed abortion bans in effect as of 1973 once Roe made them unenforceable. However, some states and territories never repealed their pre-Roe abortion bans. Now that the Supreme Court has overturned Roe, these states could try and revive these bans.
Trigger bans	Abortion bans passed since Roe was decided that are intended to ban abortion entirely if the Supreme Court limited or overturned Roe or if a federal Constitutional amendment prohibited abortion.
Pre-viability gestational bans	Laws that prohibit abortion before viability; these laws were unconstitutional under Roe. Gestational age is counted in weeks either from the last menstrual cycle (LMP) or from fertilization.
Method bans	Laws that prohibit a specific method of abortion care, most commonly dilation and extraction (D&X) procedures and dilation and evacuation (D&E) procedures.
Reason bans	Laws that prohibit abortion if sought or potentially sought for a particular reason. These bans typically name sex, race, and genetic anomaly as prohibited reasons. However, there is no evidence that pregnant people are seeking abortion care because of the sex or race of their fetus.[1].
Criminalization of self-managed abortion (SMA)	Some states criminalize people who self-manage their abortion, i.e., end their pregnancies outside of a health care setting.
SB-8 Copycats	Laws that are modeled after Texas SB 8, the vigilante law that took effect in September 2021. These laws ban abortion at an early gestational age and are enforced through private rights of action, which authorizes members of the public to sue abortion providers and people who help others access abortion care.

Table A0.12: Types of Abortion Restrictions

The table describes the most profound abortion restrictions
*Definitions done by Center for Reproductive Rights (2020)

Restriction Type	Description
Targeted Regulation of Abortion Providers (TRAP)	Targeted regulation of abortion providers (TRAP) laws single-out physicians who provide abortion care and impose various legal requirements that are different from and more burdensome than those imposed on physicians who provide comparable types of care. These laws do not increase patient safety and are counter to evidence-based clinical guidelines. TRAP laws fall into several categories, including regulation of locations where abortion is provided and/or facility specifications, provider qualifications, and reporting requirements. Compliance is often costly and can require unnecessary facility modifications.
Parental involvement	Laws that require providers or clinics to notify parents or legal guardians of young peoples seeking abortion prior to an abortion (parental notification) or document parents' or legal guardians' consent to a young person's abortion (parental consent).
Consent Laws	Laws that require pregnant people to receive biased and often inaccurate counseling or an ultrasound prior to receiving abortion care, and, in some instances, to wait a specified amount of time between the counseling and/or ultrasound and the abortion care. These laws serve no medical purpose but, instead, seek to dissuade pregnant people from exercising bodily autonomy.
Hyde Amendment	In 1976, Rep. Henry Hyde (R-IL) successfully introduced a budget rider, known as the Hyde Amendment, that prohibits federal funding for abortion. Congress has renewed the Hyde Amendment every year since its introduction.

Table A0.13: Abortion by State and % of Residence conducting out of State, 2020

The table shows the number of abortions per state and the number of abortions done by residents out of state. *Data provided by Guttmacher Institute (2022b)

State		% of U.S. Abortions	No. of Abortions	% of Abortion Out of State
Alabama	AL	0.6	5700	47%
Alaska	AK	0.1	1240	7%
Arizona	AZ	1.4	13320	6%
Arkansas	AR	0.3	3250	37%
California	CA	16.6	154060	0%
Colorado	CO	1.4	13420	1%
Connecticut	CT	1.2	11170	6%
Delaware	DE	0.2	1830	44%
District of Columbia	DC	1	9410	45%
Florida	FL	8.3	77400	1%
Georgia	GA	4.5	41620	5%
Hawaii	HI	0.3	3130	2%
Idaho	ID	0.2	1690	26%
Illinois	IL	5.7	52780	1%
Indiana	IN	0.8	7880	31%
Iowa	IA	0.4	3510	12%
Kansas	KS	0.9	8180	4%
Kentucky	KY	0.4	4080	39%
Louisiana	LA	0.8	7360	21%
Maine	ME	0.3	2370	5%
Maryland	MD	3.3	30750	17%
Massachusetts	MA	1.8	17060	6%
Michigan	MI	3.4	31500	1%
Minnesota	MN	1.2	11060	3%
Mississippi	MS	0.4	3560	44%
Missouri	MO	0	170	99%
Montana	MT	0.2	1630	3%
Nebraska	NE	0.2	2200	8%
Nevada	NV	1.2	11010	4%
New Hampshire	NH	0.2	2050	23%
New Jersey	NJ	5.2	48830	6%
New Mexico	NM	0.6	5880	8%
New York	NY	11.9	110360	1%
North Carolina	NC	3.4	31850	2%
North Dakota	ND	0.1	1170	13%
Ohio	OH	2.3	20990	10%
Oklahoma	OK	1	9690	5%
Oregon	OR	0.9	8560	5%
Pennsylvania	PA	3.5	32260	14%
Rhode Island	RI	0.3	2760	17%
South Carolina	SC	0.6	5300	57%
South Dakota	SD	0	130	84%
Tennessee	TN	1.2	10850	23%
Texas	TX	6.2	58020	8%
Utah	UT	0.3	3120	8%
Vermont	VT	0.1	1230	7%
Virginia	VA	2	18740	25%
Washington	WA	1.9	17980	5%
West Virginia	WV	0.1	990	52%
Wisconsin	WI	0.7	6960	17%
Wyoming	WY	0	100	88%