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# POLITICAL DISCRETION AND ANTITRUST POLICY: EVIDENCE FROM THE ASSASSINATION OF PRESIDENT MCKINLEY

Richard B. Baker
Carola Frydman
Eric Hilt

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## ABSTRACT

We study the importance of discretion in antitrust enforcement by analyzing the response of asset prices to the sudden accession of Theodore Roosevelt to the presidency. During McKinley's term in office the largest wave of merger activity in American history occurred, and his administration did not attempt to use antitrust laws to restrain any of those mergers. His vice president, Theodore Roosevelt, was known to be a Progressive reformer and much more interested in controlling anticompetitive behavior. We find that firms with greater vulnerability to antitrust enforcement saw greater declines in their abnormal returns following McKinley's assassination. The transition from McKinley to Roosevelt caused one of the most significant changes in antitrust enforcement of the Gilded Age—not from new legislation, but from a change in the approach taken to the enforcement of existing law. Our results highlight the importance of enforcement efforts in antitrust.



Richard B. Baker
School of Business
The College of New Jersey
2000 Pennington Road
Ewing, NJ 08628
rbennettbaker@gmail.com

Carola Frydman
Kellogg School of Management
Northwestern University
2001 Sheridan Road
Evanston, IL 60208
and NBER
c-frydman@kellogg.northwestern.edu

Eric Hilt
Wellesley College
Department of Economics
106 Central Street
Wellesley, MA 02481
and NBER
ehilt@wellesley.edu

# 1 Introduction

Over the past 40 years, the level of concentration within many sectors of the American economy has increased substantially. This rise in concentration has been associated with a decline in competition and labor's share of income, and a slowdown in aggregate output (Barkai, 2016; Autor et al., 2017; De Loecker and Eeckhout, 2017; Grullon et al., 2017).[1] The failure of antitrust authorities to restrain these developments has provoked concerns that existing antitrust statutes may no longer offer regulators adequate tools for policing anticompetitive behavior.[2] Yet government agencies often hold significant discretion over regulatory enforcement, and some have argued that stronger enforcement of existing statues could have gone a long way towards reigning in anticompetitive forces (Baker et al., 2018). Disentangling the effects of the substance of existing statutes from the efforts exerted to enforce them is quite difficult, in no small part because enforcement efforts are typically not easy to measure or even observe.

We study an extraordinary episode from the Gilded Age in which the enforcement of antitrust statutes was suddenly strengthened, and show that political discretion over antitrust enforcement can have meaningful consequences for the economy. No period in American history witnessed a more significant consolidation of economic activity into large firms than the Great Merger wave of 1895–1904 (Nelson, 1959; Lamoreaux, 1985). William McKinley, who was elected president in 1896, was generally friendly towards business interests, and did not attempt to use the Sherman Act to challenge these mergers. His assassination by an anarchist in September 1901 presents a unique opportunity to study the effects of a change in the president's attitude towards enforcement of antitrust laws at a time when all other institutions remained unchanged. In contrast to McKinley, Theodore Roosevelt, who succeeded him as president, had been openly critical of big business. The sudden accession of a well-known Progressive reformer to the presidency likely shifted expectations regarding the aggressiveness with which antitrust laws would be enforced.

We use the stock market's reaction to the McKinley assassination to measure the expected impact of this change in preferences over antitrust enforcement. The quasi-random nature of the assassination enables us to estimate the market's reaction in a way that election outcomes, which were generally well anticipated, do

[1] Though the recent rise in concentration is well documented, there is an active ongoing debate on the degree to which market power has changed in recent decades. See, among others, De Loecker and Eeckhout (2017), Gutierrez and Philippon (2017), Traina (2018), and Hall (2018).

[2] For example, an influential piece in the *New York Times* argued that "The century-old antitrust laws do not seem up to the task. Perhaps it is time to create laws for a new Gilded Age and provide regulators the power to determine if megadeals are truly good for America" ("Changing Old Antitrust Thinking for a New Gilded Age," 22 July 2014.) A 2016 report by The Roosevelt Institute, a think tank, also called for new antitrust laws (Abernathy et al., 2016).

not (see Rhode and Strumpf, 2004). The assassination did not coincide with any other major changes; the composition of Congress, the courts, and even the attorney general remained unchanged. But a president who wanted vigorous antitrust enforcement unexpectedly replaced one who had not. In response to the shooting of McKinley, the value of NYSE-traded firms fell by an average of 6.2 percent. To put this magnitude in perspective, the stock market declined by only 1.6 percent on average over the six other presidential assassinations and nearly successful assassination attempts we have identified. Importantly, the change in aggressiveness with which antitrust laws were expected to be enforced meant that firms that had engaged in mergers prior to the assassination were more likely to be vulnerable. We find that following McKinley's shooting, firms involved in recent mergers saw declines in their abnormal returns that were 1.5 to 2 percentage points greater than those of other firms. We also identify a group of firms that were likely to have been expected to benefit from stronger antitrust enforcement and show that the decline in their abnormal returns was about 2 to 3 percentage points smaller than that of other firms. These results suggest that investors expected a change in antitrust enforcement, and that they anticipated that these new policies would have meaningful impacts.

A possible source of concern regarding these estimates is that the effects of the change from McKinley to Roosevelt may have been confounded with the effects of a presidential assassination. The fact that an anarchist shot the president, for example, may have been perceived as a sign of rising political instability. Yet the experience with McKinley offers a unique opportunity to address this concern. President McKinley initially survived the shooting, and three days later his doctors announced that they expected him to make a "full recovery." When that prognosis was announced, the losses experienced following his shooting were largely reversed, and firms particularly vulnerable to antitrust enforcement saw differentially large gains. Then, seven days following the shooting, it was suddenly announced that McKinley was in fact near death. Upon receiving this news, the market reversed again, with an overall fall in share prices of similar magnitude. Since the effects from political unrest should have been reflected in prices on the day of the shooting, this latter decline in stock prices suggests that investors instead reacted to expected policy changes that would result from Roosevelt becoming president. Finally, Roosevelt's statements when he ultimately took the oath of office defied expectations and signalled that he would follow McKinley's policy agenda; these resulted in differential gains for firms that would have been more likely targets of renewed efforts to enforce antitrust statues.

An additional source of concern is that the transition from McKinley to Roosevelt may have been re-

garded as harmful to particular firms for reasons unrelated to antitrust enforcement. For example, Roosevelt may have been perceived as less friendly to corporations affiliated with major donors to McKinley's campaign, such as those connected to J.P. Morgan & Company, or the founders of Standard Oil, and to be more friendly towards firms whose executives or directors were personally connected to him. If those firms were also more likely to be part of mergers or cartels, this could explain the effects we observe on firms that had engaged in recent mergers. Yet our results are robust to controlling for affiliations with those donors, or to ties to Roosevelt. It is also possible that Roosevelt's policy agenda may have differed from McKinley's on issues beyond antitrust enforcement. We show that the two most plausible policy differences—on tariffs and labor relations—are unlikely to be the main drivers of our results.

Once in office, Roosevelt violated his pledge to follow McKinley's agenda and began to enforce the Sherman Act more aggressively. To validate our approach to estimating the role of antitrust issues in the market's reaction to the assassination, we use an event study methodology to analyze the stock market's response to the announcement of his first antitrust suit. On February 19, 1902, Roosevelt's attorney general announced that he was going to file suit against the Northern Securities Company, an enormous holding company formed by J.P. Morgan in 1901 that controlled several major competing railroads. Plans for this suit were kept secret, which enables us to observe the market's assessment of the expected change in antitrust doctrine that would result from the suit. Our analysis indicates that many of the firms whose shares performed worse in response to bad news regarding McKinley's health also suffered differentially low abnormal returns following the announcement of the suit.

The analysis of stock market returns only allows us to study the effects expected by investors over a very short horizon. To provide insights into the longer-run effects of stricter enforcement of antitrust statutes, we construct a panel of accounting data for NYSE-listed railroads, and investigate whether the profitability of those most likely to have been affected by Roosevelt's policy changes declined differentially.[3] The results suggest that the railroads that were differentially vulnerable to stricter antitrust enforcement did indeed see their profitability fall, by about 10 percent more than that of other firms. Although we cannot use this difference-in-difference approach to assess the welfare impact of the change in policies, our findings at least suggest that stronger enforcement of antitrust laws may have had strong and persistent redistributive

[3] We restrict this analysis to railroads for two reasons. First, many of the industrial companies in our sample were formed in the years immediately prior to 1901, meaning that there would be little or no "pre-period" for the analysis. But more importantly, as we will see below, many industrial firms disclosed very little accounting data regarding their operations, whereas railroads were required to do so by the Interstate Commerce Commission.

consequences.

Our results highlight the importance of enforcement efforts in antitrust. Recent years have witnessed growing interest in reforms intended to reinvigorate antitrust (see Shapiro, 2018, and the references cited therein). The transition from McKinley to Roosevelt had a significant impact on firm valuations, and resulted in a large number of antitrust suits by the federal government that almost certainly would not have been initiated under McKinley. The structure of antitrust enforcement is much more institutionalized today than it was in 1901 (Crane, 2011), and recent presidential administrations have exhibited a high degree of continuity in their approaches to the issue (Crane, 2012). Nonetheless, scholars interested in designing strategies to address the growth of economic concentration should not neglect the role of enforcement efforts. One of the most significant changes in antitrust enforcement of the Gilded Age resulted not from new legislation, but from a change in the approach taken to the enforcement of existing law when Roosevelt became president.

More generally, our findings imply that, in at least some circumstances, discretion over the enforcement of the law may be just as important as the substance of the law itself. A substantial literature has analyzed the choice between rules and discretion in a variety of policy contexts.[4] The results of this paper suggest that the adoption of rules may not eliminate or even significantly constrain discretion. Our paper also relates to the literature on the effects of policy uncertainty or political risk on economic activity and equity markets (Baker et al., 2016; Pástor and Veronesi, 2012). Although that work has primarily focused on aggregate sources of risk, Hassan et al. (2017) have shown that exposure to political risk varies considerably across firms, depending on how likely they are to be the target of regulatory efforts. We advance this literature with our analysis of a historical episode that demonstrates that discretion over the enforcement of existing regulations may be an important source of political risk for firms.

This paper also contributes to an older literature that has utilized stock prices to evaluate the effects of antitrust regulation on American companies. These studies often find modest to negligible effects of antitrust enforcement (Binder, 1988; Bittlingmayer, 1993), merger activity (Eckbo and Wier, 1985), and forced dissolution of trusts (Burns, 1977).[5] One potential limitation of these studies, however, is that they

[4]The classic example is monetary policy (Friedman, 1948 is an early contribution), but some of the other contexts in which the choice has been studied include financial regulation (Tarullo, 2001; Brunnermeier et al., 2009), loan rate setting (Cerqueiro et al., 2011), emergency liquidity provision (Hauck and Vollmer, 2013), and bank supervision (Lastra, 2013).

[5]In contrast, Prager (1992) finds that various decisions related to the *Northern Securities* case had a significant legal precedent effect on the value of other railroads from 1901 to 1905. Mullin et al. (1995) find large positive effects on the value of downstream customers of US Steel following the initiation of the (unsuccessful) suit for its dissolution in 1911.

focus mostly on events that were likely to have been anticipated by the market, and were therefore largely priced in during the period under analysis. In contrast, we study unanticipated events and find larger negative effects of antitrust enforcement on potential targets.

We also add to a literature that uses the deaths of national leaders to study their effects on institutional development (for example, Jones and Olken, 2005; 2009). In contrast to theories that hold that social and economic forces, rather than particular individuals, determine the course of history, this literature finds that individual leaders do matter and emphasizes the role of historical contingency in economic development. The results of this paper are consistent with that literature in that they imply that the accession of Roosevelt to the presidency resulted in significant changes in economic policy. The accession of Roosevelt may in fact have marked a significant turning point in American history, making a total consolidation of power by plutocratic interests, or a rise to the presidency of a radical populist, less likely.

Finally, our results also shed some light on the longstanding debate among historians regarding the McKinley and Roosevelt presidencies. Whereas McKinley is traditionally viewed as a puppet of plutocrats (Josephson, 1934), a revisionist view has argued that he had shifted toward a more reformist orientation by the time of his assassination and would have acted against the trusts had he served out his second term (Phillips, 2003; Morgan, 2003). Likewise Roosevelt is often portrayed as a bold reformer (Morris, 2001; 2002), whereas others have argued that he was in fact quite conservative (Kolko, 1967), and that he "might not perhaps have been a progressive at all if it were not for the necessity of fending off more radical threats" (Hofstadter, 1955). The large stock price movements documented in this paper around McKinley's assassination imply that the market perceived Roosevelt to be quite different from McKinley in his stance toward business.

# 2 Historical Background: McKinley, Roosevelt, and the Assassination

## 2.1 McKinley and Antitrust

William McKinley's rise to the presidency in 1896 was largely due to the efforts of political entrepreneur Mark Hanna, who engineered McKinley's campaigns for Governor of Ohio, Congress, and President of the United States. A businessman with interests in banking, newspapers, and several other sectors, Hanna became active in politics as a representative of "the business interest" in the Republican Party (Croly, 1912: 145).

Hanna's success as the chair of the Republican National Committee was due in part to his abilities as a fundraiser. He appealed directly to the wealthiest industrialists and financiers for contributions, and quickly amassed unprecedented sums to finance the 1896 presidential campaign (Pollock, 1926). The political platform of the Democratic Party also aided Hanna's fundraising efforts. Whereas the Republicans endorsed the gold standard, the Democrats nominated William Jennings Bryan, a populist who advocated for free coinage of silver at an overvalued rate and for the regulation of trusts. Hanna obtained significant contributions from the financial and industrial interests that were most threatened by the prospect of a Bryan presidency, such as Standard Oil and J.P. Morgan, and raised at least $3.5 million (Eichengreen et al., 2017), whereas the Democrats' campaign budget was just over $400,000 (Croly, 1912: 220).[6]

During McKinley's presidency, the greatest wave of industrial mergers in American history took place. Its onset was triggered by a variety of forces (Lamoreaux, 1985), including an unintended consequence of the Sherman Antitrust Act of 1890, the first federal antitrust statute. As interpreted by the courts, the Sherman Act prohibited anticompetitive practices such as price fixing and pooling arrangements. Yet in its *E. C. Knight* decision of 1895, the Supreme Court held that since manufacturing itself was not commerce, the monopolization of manufacturing capacity through horizontal mergers was not subject to the federal government's constitutional power to regulate interstate commerce.[7] This decision was widely interpreted as holding that mergers among competitors did not violate the Sherman Act (Bittlingmayer, 1985). Thus competing firms would run afoul of the law if they formed a cartel, but apparently would not if they simply merged. A massive wave of industrial mergers followed during the years 1895–1904; these were largely horizontal mergers, and many of the new combinations individually controlled more than 70% of the national market for their goods (Moody, 1904; Nutter, 1951). Appendix Section A.3.3 presents a detailed description of the history of antitrust legislation during that time.

Although not as large, a significant wave of railroad mergers also occurred during McKinley's presidency, particularly in 1900 and 1901. The Supreme Court's *Trans-Missouri* and *Joint Traffic Association* decisions held that the Sherman Act applied to railroads and that price-fixing arrangements among railroads were

[6] As a constant share of GDP, the Republican budget in the 1896 campaign is equivalent to $4.2 billion in 2016, much more than the estimated $2.65 billion spent in total on the 2016 presidential campaign. In contrast, the Republicans had raised only $1.6 million for the presidential campaign of 1892 (C. N. Bliss, Jr., in Senate Subcommittee on Campaign Finance (1913: vol 1, p. 204); data for the 2016 campaign reported in www.cbsnews.com/news/election-2016s-price-tag-6-8-billion/, accessed 12 February 2018).

[7] United States v. E. C. Knight, 156 U.S. 1 (1895).

illegal.[8] Although a number of different factors contributed to the subsequent mergers, and although the *E.C. Knight* decision did not directly address the issue of whether the merger of competing railroads would violate the Sherman Act, these decisions likely contributed to subsequent railroad merger activity.

The McKinley administration made no attempt to enforce the Sherman Act against any of these firms; during his presidency, "antitrust enforcement reached a low-water mark equaled during no other period" (Thorelli, 1955: 405). McKinley's attorneys general explained this inaction by stating that the *E. C. Knight* decision tied their hands, as it held that mergers were not reached by the Sherman Act (Letwin, 1965: 137-42). Yet this ignored the possibilities presented in the subsequent *Trans-Missouri*, *Joint Traffic* and *Addyston Pipe* decisions, and the fact that the government's strategy in the *E. C. Knight* case was poorly conceived.[9] A presidential administration hoping to restrain anticompetitive mergers could have at least tested these possibilities; that McKinley's attorneys general never did reflects a policy preference.

## 2.2 Vice President Roosevelt

McKinley's Vice President, Theodore Roosevelt, was quite different. As Governor of New York, he enacted important Progressive reforms, including a corporate franchise tax, and successfully opposed the reappointment of a corrupt "machine politician" as the state's regulator of insurance companies (Roosevelt, 1920: 285-304). His annual message as governor in 1900 focused on the trust problem, and detailed many abuses perpetrated by large corporations, including "unfair competition," "raising of prices," and the "crushing out of competitors who do no act improperly." As a state governor, he did not specifically comment on federal antitrust enforcement, but he did call for corporation laws to include stricter disclosure requirements, to help with the design and enforcement of business regulations (Roosevelt, 1926).

Following the battle over the choice of insurance commissioner, representatives of New York's insurance companies urged Senator Thomas C. Platt, boss of New York's Republican machine, to find a way to remove him from office. Since Roosevelt was an extremely popular politician, challenging his renomination for governor would have been folly. Instead, a plan was devised to add him to the national ticket, to replace

[8] United States v. Trans-Missouri Freight Association, 166 U.S. 290 (1897); United States v. Joint Traffic Association, 171 U.S. 505 (1898).

[9] As Letwin (1965: 161-67) notes, if the government had focused on the commercial activities of the firm, it would likely have been decided differently. One of the authors of the Sherman Act, Senator George Edmunds, was more forceful: "if the famous Knight case had been instituted and carried forward with suitable allegations of the precise nature and history of the Knight affair, and had been supported, as it could have been, by adequate proof of the facts it set forth, I believe the Supreme Court of the United States would not have had the least difficulty in preventing the carrying on of the combination under consideration, and putting an end to it ..." (Martin, 1908: 156).

the recently deceased Vice President Hobart. Although neither Hanna nor McKinley publicly opposed the nomination, behind the scenes Hanna tried to build support for other candidates. In one heated outburst, Hanna presciently exclaimed: "Don't any of you realize that there's only one life between that madman and the Presidency?"[10] But the support Roosevelt received at the Republican convention proved impossible to resist; Hanna quietly withdrew his objections, and Roosevelt himself accepted.

Privately, Roosevelt had expressed concerns regarding the McKinley Administration's extreme forbearance with respect to antitrust enforcement, and its electoral consequences for the Republican Party.[11] In public, however, he aggressively defended the McKinley Administration's achievements.

### 2.3 The Assassination and Roosevelt's Accession to the Presidency

On Friday September 6, 1901, President McKinley was shot twice by an anarchist while attending the Pan-American Exhibition in Buffalo, New York. The best qualified surgeon available to treat him was a gynecologist with no experience with bullet wounds. The surgery was only partially successful, and one of the bullets was not found (Rauchway, 2003).

The shooting occurred at around 4 PM, just as the stock market closed. That evening, in the hotels where traders gathered after hours, "the air was filled with rumor and speculation" regarding the shooting and its consequences for financial markets.[12] Journalists asked prominent figures for comments regarding the possible consequences of Roosevelt becoming president. Many praised Roosevelt's essential "ability and integrity" and predicted that becoming president would make him "conservative and cautious," perhaps in an attempt to calm investors.[13] Yet some commentators were openly (if tactfully) pessimistic, and reported a "belief that Roosevelt is somewhat adversely inclined towards corporations," and that under a Roosevelt presidency, "all manufacturing and financial interests will suffer, and, of course, railroads will be seriously affected."[14] One prominent commentator argued that a Roosevelt presidency would be bad for merger activity, stating that "plans for combinations in the railroad world will, however, have to wait until the news

[10] Quoted in Leech (1959: 537). Morgan (2003: 376) presents a slightly different version of this quotation.

[11] For example, Roosevelt wrote to Henry Cabot Lodge: "Around the State of New York I am surprised to find how many of the workingmen who were with us three years ago, are now sullenly grumbling that McKinley is under Hanna's dictation; that Bryan is the only man who can control the trusts; and that the trusts are crushing the life out of the small men, etc., etc." (10 August 1899, in Roosevelt, 1951a).

[12] "Market to Be Supported," *New-York Daily Tribune* 7 September 1901.

[13] "Think Business Interests Safe," *Chicago Tribune*, 7 Sept. 1901.

[14] *Cleveland Plain Dealer*, 8 September 1901; *Chicago Tribune*, 7 Sept. 1901.

from Buffalo is definitely more reassuring."[15]

On Saturday September 7, the market declined sharply, with stocks falling 6.2 percent on average. Fearing runs by depositors, the New York Clearinghouse Committee authorized a series of emergency measures to support the commercial banking system, and prominent financiers resolved to support prices on the stock market. Over the following days, the treasury also supported market liquidity through open-market purchases of federal debt securities.[16]

Following his surgery, McKinley's condition improved, and his physicians offered optimistic assessments of his chances.[17] When the markets reopened on Monday, September 9, firms' valuations largely recovered, with an average increase of 3.3 percent. Still, financial markets continued to follow the daily reports of McKinley's condition very closely. "The prevailing opinion," according to the *Chicago Tribune*, was that "the stock market will be controlled largely during the coming week by the nature of the bulletins sent from the President's bedside."[18] These remained consistently favorable, and by September 10 physicians declared that McKinley was "practically out of danger."[19]

In the early morning hours of Friday September 13, however, McKinley's condition suddenly became grave.[20] The market opened on the 13th with heavy declines, and by the time it closed, prices had fallen by an average of 5.1 percent. This magnitude is similar to the decline experienced on September 7 in response to the shooting. But the decline on the 13th was purely a response to the expected transition from McKinley to Roosevelt; any adverse consequence of the shooting itself, such as expectations of greater social conflict due to the rise of anarchism, should have already been reflected in asset prices following the 7th.

President McKinley died at 2:15 AM on Saturday the 14th, and the NYSE was closed in mourning on that day. After taking the oath of office, Roosevelt announced: "In this hour of deep and terrible national bereavement I wish to state that it shall be my aim to continue absolutely unbroken the policy of President McKinley for the peace and prosperity and honor of our beloved country." Roosevelt also stated that he would retain McKinley's entire cabinet. This dispelled fears that he would break with McKinley on key policy issues and was interpreted as a sign that "the president's death would not be disturbing" to financial

[15]Henry E. Wallace, in *New-York Daily Tribune* 8 September 1901.

[16]These events are detailed in the *Commercial and Financial Chronicle*, 4 January 1902, p. 13-14.

[17]For example, the front page of the *New York Times* reported that "Mr. Roosevelt gets reassuring news" on September 8, and that "Physicians say they are certain he will get well. All symptoms favorable" on September 9.

[18]*Chicago Tribune* 9 September 1901.

[19]"President Past the Crisis," *New-York Daily Tribune* 11 September 1901.

[20]The physician's bulletin issued at 3 AM stated that "the worst is feared. His death might occur any time," *New York Times*, September 13, 1901.

markets.[21] When the market reopened on Monday the 16th, prices increased 4.9 percent on average.

Our empirical analysis, therefore, utilizes the four most relevant dates described above to discern the effects of a change in policy between McKinley and Roosevelt: September 7 and 13, dates when the market received negative news about McKinley's health, and September 9 and 16, when the market was told that McKinley would survive and that Roosevelt would continue with McKinley's agenda, respectively.[22]

### 2.4 Impact of the Assassination in Historical Perspective

One way to gauge the magnitude of the expected change in policy resulting from the sudden transition from McKinley to Roosevelt is to compare its effect on stock prices to those associated with other assassinations and assassination attempts made on U.S. presidents. Table 1 presents the stock market's one-day reaction to assassination attempts in which someone actually fired a gun at the president.[23]

It should be noted that the variation of the timing of the different shootings relative to the opening hours of the NYSE, and the variation in the institutional response of the NYSE to the news of the shooting, limits comparability across events. For example, trading on the NYSE was halted shortly after President Kennedy was assassinated, which may have curtailed the decline in prices on that day. Nonetheless, some suggestive evidence on the perceived significance of the transition from McKinley to Roosevelt relative to other assassinations can be found in the table.

Excluding McKinley's, the shootings resulted in an average decline in share prices of 1.6 percent, suggesting that the transition from the president to the vice president typically does not signify a dramatic change in policy. Yet the stock market's decline in reaction to the shooting of McKinley was nearly four times as large as the average for the other events, and about twice as large as the decline in prices when President Garfield was shot, the second-largest stock market reaction of record. McKinley's was also the only presidential assassination that produced elevated economic policy uncertainty in Baker et al.'s (2016) study of twentieth century data.

The only similar event that provoked a reaction comparable to the one caused by McKinley's shooting

[21] *Commercial and Financial Chronicle*, 4 January 1902, p. 14.

[22] One concern regarding stock market data is that they could reflect other sources of volatility, for example related to seasonal effects. Yet the standard deviation of daily returns of the Dow Jones Industrial Average (DJIA) and Dow Jones Transportation Average (DJTA) over September 6–16, 1901, was 0.030 and 0.025, respectively, nearly four times larger than it was on average over those same days in the years 1898–1904 excluding 1901 (0.009 for the DJIA and 0.007 for the DJTA); the p-value of the difference is less than 0.0000001 in both cases.

[23] Table 1 excludes an attempt made on the life of President Andrew Jackson on January 30, 1835, as it occurred prior to the invention of the telegraph, making the arrival of news in New York difficult to time.

was the heart attack suffered by President Eisenhower on the evening of Saturday, September 24, 1955. On the following Monday, shares on the NYSE fell by an average of 6.6 percent.[24] The market reacted strongly to Eisenhower's heart attack because it came so late in his first term that it was believed he would not be able to run for reelection and a Democrat would likely win the presidency in 1956.[25] Thus, the stock market's response to the accession of Roosevelt to the presidency was roughly comparable in magnitude to the effect of a transition from a Republican to a Democrat at the height of the Cold War.

The strong stock market reaction to McKinley's assassination suggests that Roosevelt was perceived to be quite different from McKinley, and less friendly toward business interests. It contradicts the arguments of some revisionist historians that Roosevelt's administration is best understood as a continuation of trends that developed under McKinley (for example, Phillips, 2003). In particular, Roosevelt's antitrust agenda was expected to differ significantly from McKinley's.

Some evidence that the market's assessments were correct is found in Figure 1, which presents the annual number of antitrust cases pursued by the federal government from the introduction of the Sherman Act in 1890 until the end of Roosevelt's second term. McKinley's administration initiated just three antitrust cases, a historically low number, whereas 43 were begun during Roosevelt's presidency. These counts of cases actually understate the difference across the two administrations, since they do not distinguish among the economic importance of the defendants. Whereas McKinley's administration pursued cases against coal dealers in California, and livestock dealers in Kansas City, Roosevelt initiated suits against some of the largest corporations of the time, including Standard Oil, American Tobacco, Du Pont, and several major railroads.

The strong aggregate reaction of the stock market to news relating to Roosevelt becoming president, however, could have reflected investors' views about a variety of other policies. To determine the effects of a sudden change in the expected enforcement of antitrust laws, our analysis compares the variation in market values for firms more and less likely to be directly affected by such changes in policy.

[24]Calculated from CRSP; 950 price changes relative to the previous day were observed.

[25]"Stock market trading, brokers said, appeared to be dominated by the conviction that President Eisenhower would not again be a candidate, and ... that only he could win in 1956 for the Republicans. Traders were credited with believing that a Democratic Administration would not be so friendly to business" (*New York Times*, 27 September 1955).

# 3 The Effect of McKinley's Assassination on Firms

## 3.1 Construction of the Sample

Our analysis focuses on the variation in market values of publicly traded firms in response to the assassination. In this section, we present a brief description of the sources and methods used to construct a new dataset containing a variety of firm characteristics, while the Appendix presents more detailed information.

Our initial sample includes all railroads and industrial firms with shares listed on the NYSE in 1901. To calculate these firms' stock returns, we collect daily closing prices of common shares and information on dividend payouts from the *New York Times* from September 3 to September 21. At the time, the stock market was relatively illiquid; we observe prices on at least one date for only 99 of the 134 companies we identify as having common stock listed on the NYSE.

We focus on abnormal returns to remove the effects of general stock market price movements. We estimate the market-model parameters over the 75 trading days prior to September 3, and exclude from the analysis those companies for which we observe returns on fewer than half of those dates. In addition, we collect whatever accounting data and firm characteristics are available from contemporary sources such as *Moody's Manual*. Our main sample consists of 48 firms (28 railroads and 20 industrial firms) for which we observe abnormal stock returns and basic firm characteristics. Appendix Section A.3.1 shows that our results are robust to instead using unadjusted returns, which allow us to include in the sample a total of 71 firms.

It should be noted that many firms whose values were likely to have been quite sensitive to changes in antitrust enforcement, such as Standard Oil, are not included in our data because they were not listed on the NYSE. Our estimates may therefore understate the true impact of Roosevelt's accession to the presidency.

## 3.2 Hypotheses and Main Variables

### 3.2.1 Vulnerability to Antitrust Enforcement

If investors expected Roosevelt to act more aggressively than McKinley toward anticompetitive behavior, the market values of firms that were likely to become subject to antitrust enforcement would have suffered disproportionately on days of bad news concerning McKinley's health. By contrast, we would expect these firms' valuations to gain disproportionately on the days that doctors said McKinley would recover and that

Roosevelt stated he would follow McKinley's agenda. Yet identifying the firms that were particularly vulnerable to stronger enforcement of the Sherman Act presents a challenge. It may not have been clear, for example, which strategies Roosevelt's administration would have been most likely to pursue, or how receptive the courts would have been to those strategies.

We argue that firms that had participated in merger activity in the years leading up to the assassination would have been considered more likely targets of renewed efforts to enforce the Sherman Act. This insight allows us to propose two characteristics of firms that were likely correlated with expectations of differential sensitivity to stronger antitrust enforcement.

First, firms formed through recent mergers were likely among the most vulnerable to antitrust enforcement. The Supreme Court's 1895 *E.C. Knight* decision was generally interpreted as holding that the Sherman Act did not apply to mergers, and the McKinley Administration validated this interpretation by not attempting to enforce the Sherman Act against any mergers. The industrial consolidations undertaken during the great wave of mergers that followed the Supreme Court's decision were likely conceived with the expectation that they were exempt from antitrust law, and their design, and conduct, likely reflected this belief. These mergers also attracted a great deal of attention in the press, partly because of their massive scale, but also because in some cases firms that had participated in cartels to restrain competition were consolidating to protect their rents. If Roosevelt had been expected to strengthen enforcement of the Sherman Act, these firms would have been among some of the most likely targets. Therefore, we construct an indicator variable, *Merger*, for industrial firms that were incorporated in 1895 or later as a product of consolidations, since these firms would have been differentially vulnerable to antitrust enforcement.

Among the railroads in our sample, there was no equivalent post-1895 merger wave, because many of these firms were in receivership in the wake of the Panic of 1893. However, some significant merger activity among railroads did occur in 1900 and 1901, after the industry had recovered, and after the Supreme Court's *Joint Traffic Association* and *Trans Missouri* decisions, which held that cartels among railroads were illegal. These mergers included some very large, high-profile firms, and may have also been undertaken with the expectation that they were unlikely to be subject to antitrust enforcement.[26] Thus, we identify railroads that

[26] Among these mergers was the joint acquisition of the Chicago, Burlington and Quincy by the Northern Pacific Railroad and the Great Northern Railroad. This latter merger was subsequently cemented through the formation of the Northern Securities Company, which owned all three railroads. The legal actions of Roosevelt's government against this holding company are the focus of our analysis in Section 5. Contemporary commentary emphasized the role of acquisitions in the industry during this period in bringing competitive railroads together and highlighted their importance for the railroad valuations (see, for example, Sage et al. 1901).

were involved in merger activity in the 1899–1901 period from various editions of the *Moody's Manual* and the *Poor's Manual*, and designate them as differentially vulnerable to antitrust enforcement.

Our second measure is based on firms that would likely have benefited from stricter antitrust enforcement: those that had recently planned, or announced, mergers that ultimately failed to occur. These included competitors of dominant firms in their industry and relatively weak firms that sought to strengthen their positions through mergers, but failed.[27] If these firms faced competition from larger or more efficient rivals, they would have benefited from stricter antitrust enforcement. We create an indicator variable, *Merger Fail*, that identifies any firm in our sample that was mentioned in the year preceding the assassination in the *Commercial and Financial Chronicle*, one of the major business news outlets at that time, as considering, announcing, or being rumored to engage in a merger that failed to occur. While we show that our main results are robust to this alternative measure, we can only observe those failed mergers that progressed enough to be reflected in the press. Thus, our analysis focuses primarily on the recent merger variable.

In Appendix Section A.3.3, we present a brief description of the history of antitrust doctrine to further validate our approach to identifying firms that were differentially vulnerable to more aggressive antitrust enforcement, and also perform robustness analyses to evaluate the importance of alternative measures related to antitrust, such as the degree of concentration of business activity in the firm's industry.

### 3.2.2 Other Firm Characteristics

Firms that engaged in merger activity, or those that failed at it, may have differed from those that did not in other respects. Thus, an important concern for our analysis is that our main variables of interest may reflect the effect on stock market valuations of other firm characteristics correlated with mergers but unrelated to antitrust enforcement. Our analysis, therefore, includes a variety of firm characteristics that may have resulted in differential stock price responses following the assassination.

The first is the amount of accounting data that the sample firms actually disclosed to investors. In 1901, NYSE-listed firms were subject only to weak disclosure requirements, which were not rigorously enforced by the exchange. Many industrial firms published little detail in their income statements, and some produced no income statements at all.

[27] For example, Glucose Sugar Refining, a smaller and weaker competitor of the dominant American Sugar Refining, announced in June 1901 that they had begun negotiations with National Starch and other glucose producers to merge into a larger and stronger firm. However, several directors opposed the initial proposal, and the merger initially failed. It was ultimately consummated in 1902 (Dewing, 1914; p. 87).

As governor of New York, Roosevelt advocated for stricter disclosure requirements for major corporations, and made them the centerpiece of his discussion of the trust problem in his 1900 annual message. Roosevelt argued that a requirement for more detailed disclosures would address the problem of "misrepresentation or concealment regarding material facts," which he considered to be among the "chief abuses" of the trusts. He also regarded disclosure as a necessary first step for the design of a policy program to restrain the trusts: "there may be other remedies, but what these are we can only find out by publicity" (Roosevelt, 1926: 46–47). Financiers with ties to major trusts were concerned about the possibility that Roosevelt would impose new disclosure requirements, and met with him immediately after he took office to try to persuade him against doing so.[28]

Corporations that had chosen to disclose little accounting information, perhaps to evade regulatory scrutiny, may have been expected to suffer under a Roosevelt presidency. In order to address this possibility, we obtained the financial statements of all sample firms published in their most recent annual reports, as reproduced in *Moody's*, and measure the detail of their income statements by counting the number of lines.[29] At the time, railroads were subject to standardized disclosure requirements imposed by the Interstate Commerce Commission (ICC), so there was no variation in the number of income statement lines among those firms. To account for the fact that our measure of income statement detail will be correlated with being a railroad, which itself may have been perceived to be differentially affected under Roosevelt, in all of our regressions we include an indicator for railroads interacted with the relevant event dates.

The second set of characteristics capture political connections to McKinley or Roosevelt. A significant body of work has shown that the political connections of firms may affect their market valuations, both in modern economies as well as in the past (see, for example, Fisman, 2001; Ferguson and Voth, 2008; Fisman et al., 2012; and Braggion and Moore, 2013). Firms managed by individuals who had personal ties to McKinley or Hanna, or who had contributed to McKinley's campaign, might have been perceived to lose political influence in the event of McKinley's death, for example. In contrast, firms with ties to Roosevelt

[28] In early October 1901, two J.P. Morgan & Company partners, George W. Perkins, who had known Roosevelt since he was governor of New York, and Robert Bacon, one of Roosevelt's Harvard classmates, met with Roosevelt. Of the meeting, Roosevelt wrote: "Perkins wanted me to ... accept the publication of what some particular company chose to publish, as a favor, instead of demanding what we think ought to be published from all companies as a right" (Letter to Douglas Robinson, 4 Oct 1901, in Roosevelt 1951b).

[29] We focus on income statements because they presented information of the greatest value to antitrust enforcement, such as revenues, costs, and profits. Many industrials published income statements of only a few lines, with no information at all on revenues or costs, and some published no income statements at all. In contrast, nearly all sample firms published at least a rudimentary balance sheet.

may have differentially benefited when the likelihood of the transition increased. As such firms may also have engaged in merger activity, it is important to control for such ties in the analysis.

To measure ties to McKinley and/or Hanna, we construct an indicator variable, *Donor*, for firms owned or managed by major donors to the McKinley campaign. Although no comprehensive list of donors exists, the two largest donors were J.P. Morgan and Standard Oil. We identify firms affiliated with J.P. Morgan, Standard Oil, or the Rockefellers (the major owners of Standard Oil), as indicated in Moody (1904). If those donations were perceived to buy influence with McKinley, but not with Roosevelt, the affiliated firms could have suffered differentially in response to the assassination.

To study the role of personal ties to Roosevelt, we identify whether any director of a firm had a connection to Roosevelt while he was a student at Harvard. Specifically, we identify the names of graduates of Harvard in 1880 (Roosevelt's class) and the names of members of clubs of which Roosevelt was also a member that were in the graduating classes of 1877 to 1883. We create an indicator variable, *Roosevelt*, that takes the value one for companies that had a director or officer (as listed in the *Moody's Manual*) who was in one of these clubs or graduated from Harvard in 1880. Approximately 17% of the firms in our sample had such a connection.

By contrast, McKinley did not have such personal connections to directors of major corporations because he was from a modest family in Ohio, did not attend prominent educational institutions, and was not a member of elite social organizations.[30] An attempt to link members of McKinley's Civil War regiment, the 23rd Ohio Infantry, to corporate directors and officers produced no matches. Thus, we cannot assess the role of personal connections to McKinley, and focus solely on ties with campaign donors.

Finally, the assassination of McKinley may have introduced greater uncertainty regarding the outlook for future economic policy and conditions in the market for reasons other than changes in antitrust policy. If the rise in uncertainty differentially affected the valuations of larger or more profitable firms, which may have been more likely to engage in mergers, we may erroneously attribute the effects of the assassination to antitrust enforcement. Unfortunately, the lack of consistent financial statements precludes us from obtaining reliable measures of cash flow, profitability, or total assets for a large fraction of our sample. Therefore, we use the log of the book value of total capital, which we can observe for all firms in the sample, to control for

[30]McKinley graduated from Albany Law School with William E. Barnett, future director of the New York, New Haven and Hartford Railroad, and Goodwin Stoddard, future director of the Atlantic Coast Line Railroad Company. While these two companies were listed on the NYSE in 1901, their shares were illiquid and did not trade on days of interest surrounding the assassination of President McKinley.

firm size.[31]

### 3.3 Summary Data

Table 2 presents summary statistics for the 48 firms with data on abnormal returns, which are the main focus of our analysis. A detailed tabulation of firm characteristics for the individual firms in this sample is provided in Appendix Tables A.1 and A.2.

An indication that merger activity was quite common during McKinley's presidency is that our sample is evenly split between firms that had recently engaged in a merger, presented in column (1), and those that had not, shown in column (2). These two groups of firms were remarkably well balanced along several important characteristics—for example, each group was composed of 14 railroads and 10 industrial firms, and contained four firms with connections to Roosevelt. Column (3) shows that there were also no noticeable differences in firm size, or in the export share of the firms' products. We also find no statistically-significant differences in the disclosure of information in the firms' income statements, both when we focus on the entire sample and when we restrict the data to industrial firms. However, recent-merger firms were more likely to be connected to major donors to the McKinley campaign and were younger. These characteristics may have made these firms more vulnerable to higher economic uncertainty or to a transition from McKinley to Roosevelt, independent of any changes in antitrust policy. We therefore control for firm characteristics and political connections in our empirical analysis.

## 4 Impact of the Assassination on Firm Values

The daily abnormal return of NYSE-listed stocks on the dates surrounding the assassination are illustrated in Figure 2, with those of recent mergers presented separately from other firms. The recent mergers exhibit sharp declines on September 7 and 13, the dates when the market responded to McKinley's shooting and expected death, which are offset by strong increases on September 9 and 16, the dates when the market was told that McKinley would survive, and that Roosevelt would continue with McKinley's agenda. In contrast, the other firms' returns exhibit much more muted changes on those dates. This is a clear indication that the transition to Roosevelt was expected to reduce the value of the firms we designate as vulnerable to stricter

[31] We do observe dividend payouts, a measure imperfectly correlated with profitability, for all firms in the sample. Reassuringly, controlling for the firms' dividend payout rates prior to the assassination does not materially affect our main estimated effects for recent mergers (results not shown).

antitrust enforcement. In what follows, we explore these differences in greater depth.

### 4.1 Baseline Specifications

We estimate regression models in which we interact our variables for sensitivity to antitrust enforcement with indicators for the four dates when the market responded to significant news regarding the transition from McKinley to Roosevelt: September 7, McKinley's shooting; September 9, the prognosis that McKinley would survive; September 13, McKinley's expected death; and September 16, Roosevelt's statement that he would continue "absolutely unbroken" with McKinley's agenda.

Our panel data regressions for the 14 trading days the NYSE was open between September 4 and September 21, 1901, take the following form:

$$\begin{aligned} \text{AR}_{it} &= \lambda_1(\text{Merger}_i \times \text{Sept 7}_\text{t}) + \lambda_2(\text{Merger}_i \times \text{Sept 9}_\text{t}) \\ &\quad + \lambda_3(\text{Merger}_i \times \text{Sept 13}_\text{t}) + \lambda_4(\text{Merger}_i \times \text{Sept 16}_\text{t}) + \gamma_i + \delta_t + \epsilon_{it}, \end{aligned} \tag{1}$$

where $\text{AR}_{it}$ is firm $i$'s abnormal return on day $t$; $\text{Merger}_i$ is our indicator for firms that were differentially vulnerable to stricter antitrust enforcement; $\gamma_i$ are firm fixed effects; and $\delta_t$ are fixed effects for each trading day in the sample. The parameters of interest are $\lambda_1$ to $\lambda_4$, which capture the differential effect of negative or positive news on McKinley's condition for firms that were particularly sensitive to a stronger antitrust regime. To control for the effects of ties to the Presidents or other firm characteristics, we interact those variables with the same four event dates. In all specifications, we control for firm size and an indicator for railroads (interacted with event dates), and cluster standard errors by firm.

Table 3 presents the results for specifications that analyze the effect of the recent merger variable on abnormal returns. Consistent with the replacement of McKinley by Roosevelt being harmful to the valuations of firms that were sensitive to greater antitrust enforcement, the estimates in column (1) indicate that the recent mergers in our sample saw their abnormal returns fall by an additional 175 basis points (bps) on September 7, a sizable effect relative to the average decline of 103 bps on that date. When the stock market rose in response to good news on McKinley's health on September 9, the abnormal returns of recent merger firms differentially increased by a similar amount, 197 bps.

When McKinley's health took a turn for the worse, on September 13, the abnormal returns of firms that had engaged in mergers declined relative to others by 141 bps, and they increased by 197 bps on September

16, when Roosevelt reassured markets. Importantly, any impact of the assassination attempt, rather than the change in the identity of the president, would already have been reflected in prices on September 7 and 9. The remarkably similar estimated effects on September 13 and 16, therefore, suggest that the presidential transition itself was the primary concern of investors. The pattern of stock returns is consistent with recent merger firms losing about 1.4 to 1.9 percentage points of their value relative to other firms in the sample in response to an increase in the perceived likelihood of stronger antitrust enforcement.

Next, we investigate whether the effects we ascribe to antitrust enforcement were due to other firm characteristics that may have been correlated with our antitrust variables. In column (2), we allow the returns to vary on the relevant dates by the level of firm disclosure, as measured by total income statement lines. The estimated parameters indicate that, relative to a firm with no income statement (0 lines), a firm reporting 5 lines (the median length for industrial firms in the sample) saw its value rise by about 90-125 basis points on days of increased probability of a change in administration, and decline by 70-110 basis points when McKinley's policies were perceived to be more likely to continue. To the extent that a lack of disclosure of financial information facilitated collusion or abuses by the trusts, we would expect those firms that were more transparent to have been less impacted by a transition to Roosevelt. Our findings are consistent with this interpretation, although the estimated magnitudes are smaller and not quite as consistent as that of the parameters associated with the recent merger variable. More importantly, the estimated effects on recent mergers are unaffected by including these controls, suggesting that our baseline results are unlikely to be driven by characteristics associated with firm transparency, or a perception that Roosevelt would strengthen corporate regulation on issues unrelated to antitrust.

To rule out the possibility that our results are driven by political or personal connections to the presidents, in column (3) we include interactions for firms controlled by major donors to McKinley and add an indicator for firms managed or controlled by individuals with personal ties to Roosevelt. And the specification in column (4) adds log firm age as a measure of more mature or stable firms. The estimated parameters associated with these variables (presented in the Appendix) are generally imprecise, but more importantly, the effects of *Merger* are robust to the inclusion of these additional controls, which include those that differed across the two groups of firms in Table 2. The magnitudes of the estimated coefficients are quite stable across the different specifications, and most of them remain statistically significant.

Two points should be noted about the interpretation of our baseline results. First, as in any event study design, the estimated effects are based on expected values. That is, we measure the effect of a new antitrust

regime on firm values, weighted by the probability of such change actually occurring. To the extent that the probabilities were seen as relatively low for the typical firm engaged in recent mergers, our results suggest that a change in antitrust enforcement was expected to have sizable effects on the value of prosecuted firms.

A second and more important point is that we cast the interpretation of our findings as reflecting the expectations of investors of stronger enforcement of existing antitrust statues. An alternative interpretation could be that investors may instead have expected a change in the law. The historical context of our event suggests that this was unlikely. At the time of the assassination, both houses of Congress were controlled by the Republican party, which included a substantial, strongly pro-business faction that had traditionally opposed new antitrust legislation. Between 1881 and the assassination of McKinley, in fact, 45 separate pieces of antitrust legislation had been proposed in Congress, most in the 1890s (Mitchell, 2007: 122). Nearly all of them had been defeated in Congress, usually stalled in committee. Roosevelt's accession to the presidency did not change the composition of Congress, which ultimately controlled the fate of any new legislation. Indeed Roosevelt repeatedly sought new antitrust legislation during his presidency, and was met with little success (Crane, 2008).

In Table 4, we focus instead on the *Merger Fail* variable, an indicator for firms that would *benefit* from stronger antitrust enforcement. The specifications replicate those in Table 3. Consistent with these firms benefiting from a Roosevelt presidency, their valuations were more resilient on the two days of bad news regarding McKinley's health, when the stock market tanked, but rose by less on the days when it seemed that McKinley would survive or that Roosevelt would follow McKinley's agenda. Although the estimated magnitudes vary somewhat more across the four days, they are all statistically significant, and robust to the inclusion of our various controls for firm characteristics.

### 4.2 Alternative Policy Preferences

Roosevelt's policy agenda may have been expected to differ from McKinley's on issues beyond antitrust enforcement. An important source of concern for our empirical approach is that the firms we designated as vulnerable to antitrust enforcement may also have been vulnerable to changes in other policies Roosevelt was expected to enact.

On what was likely the most important economic policy issue of the time, commitment to the gold standard, Roosevelt did not in fact differ from McKinley. However, Roosevelt's preferences differed from McKinley's on another important issue, tariff policy. Whereas McKinley favored tariffs quite strongly, and

had been a sponsor of tariff legislation while in Congress, Roosevelt was more of a free-trader. Businesses that had previously benefited from tariff protection may, therefore, have seen their valuations fall in response to Roosevelt unexpectedly becoming president. To address this possibility, we control for the trade exposure of our sample firms, measured as the share of output that was exported at the industry level for the industrial firms in our sample. For railroads, we construct data on the share of revenues accounted for by export products.

In Panel A of Table 5, we include our measure of exposure to exports in regressions otherwise identical those presented in columns (1) and (4) of Table 3. The signs of the estimated parameters for this variable are generally consistent with the notion that Roosevelt's agenda would benefit exporters. But including these interactions does not meaningfully change the estimated magnitudes associated with the antitrust variables.

McKinley and Roosevelt may also have differed on their views on labor issues. McKinley was not as anti-labor as some of his contemporaries, and unlike President Cleveland before him, he did not pursue any Sherman Act cases against unions. Nonetheless, Roosevelt was relatively friendly towards labor interests, and he helped to enact several important pieces of labor legislation as governor of New York. Firms that were differentially vulnerable to labor activism would perhaps have seen their valuations fall in response to Roosevelt unexpectedly becoming president. Unfortunately, there is no firm- or industry-level data on labor strife available for our period. We instead use an event study analysis of a major labor strike that occurred during Roosevelt's administration to assess whether our results could be related to changes in expected labor relations policy.

Specifically, in Panel B of Table 5 we analyze the market's reaction to Roosevelt's intervention in an on-going coal strike among miners in Pennsylvania's anthracite coal fields. Previous presidents had generally intervened on behalf of employers in labor relations disputes, if they intervened at all. As the strike dragged on, mine operators called for Roosevelt to end the strike by deploying federal troops to ensure the safety of those miners who desired to work and their families. The operators argued that the president was granted the authority to do so under the Sherman Act of 1890, as they viewed the union as a unlawful cartel. Roosevelt disagreed; only in response to concerns that the coal strike, which began in May 1902, might substantially raise coal prices for households over the winter did Roosevelt decided to intervene, but he did so in a relatively neutral way. On October 1, 1902, Roosevelt announced that he would meet with representatives of government, management, and labor at the White House in order to facilitate a resolution to the dispute. This marked a substantial change from historical precedent.

If recent mergers were correlated with sensitivity to a change in labor relations policy, then those firms should have performed differentially worse in response to the announcement of the conference. Panel B of Table 5 presents the results of regressions similar to those reported in columns (1) and (4) of Table 3, but using cumulative abnormal returns during an eight day window around the October 1 announcement. The estimated effects are, on average, positive, and not statistically significant, but the coefficients are too imprecisely estimated to confidently rule out a sizable negative effect. These results, therefore, provide some suggestive evidence that, at least as indicated by this event, the effects on firm valuations that we estimate around the presidential assassination are unlikely to be primarily driven by expectations of changes in policies to favor workers.

# 5 Litigation against Northern Securities

Our analysis of the events surrounding McKinley's assassination suggests that investors believed that the replacement of McKinley by Roosevelt would result in more aggressive antitrust enforcement. To test this interpretation of our results, and the validity of the recent merger variable as an indicator of sensitivity to antitrust issues, we study the stock market's reaction to an event that revealed new information on Roosevelt's approach to antitrust: the announcement of Roosevelt's first antitrust suit. Unlike the assassination event, this one was unquestionably an indication that more aggressive antitrust enforcement was in store. Other suits filed subsequently by Roosevelt potentially revealed additional information about the enforcement strategy he chose to pursue, but only the first suit was kept secret before its announcement, and is therefore suitable for an event study.

In November of 1901, just after Roosevelt had become president, J.P. Morgan created an enormous holding company, the Northern Securities Company, to jointly own the capital stocks of two major competing railroads, the Northern Pacific and Great Northern, as well as third that connected them to Chicago, the Chicago, Burlington and Quincy. The shear scale of the firm, with $300 million in capital, along with its potential to monopolize rail transportation in a large area of the country, concerned Roosevelt. Recent Supreme Court decisions, such as *Trans Missouri* and *Joint Traffic,* held that the Sherman Act applied to railroads, and that collusive behavior among them violated the act. However, on the theory that the *E. C. Knight* decision indicated the Sherman Act did not apply to mergers, these firms had been joined together via a holding company. Roosevelt asked Attorney General Philander Knox to quietly study the possibility

of pursuing an antitrust action against the company, explaining in his autobiography that he felt "It was necessary to reverse the Knight case" (Roosevelt 1920: 443). Knox studied the matter carefully, ultimately concluding that the Knight case had been poorly argued and a different strategy was possible in a suit against Northern Securities, which had a reasonable chance of success (Morris 2002: 88).

On February 19, 1902, after the stock market closed, Knox made the following announcement regarding the forthcoming legal actions against Northern Securities: "Some time ago the president requested an opinion as to the legality of this merger, and I have recently given him one to the effect that, in my judgment, it violates the provisions of the Sherman Act of 1890, whereupon he directed that suitable action should be taken to have the question judicially determined" (quoted in Meyer, 1906: 258).[32] The actual suit was filed on March 10, 1902.

The timing made it quite a shock. The Supreme Court was then considering a case filed by the attorney general of Minnesota against the railway combination, and was expected to announce its decision on Monday, February 24, 1902.[33] Contemporary reports suggest that the market expected the Supreme Court to reject Minnesota's suit, and the announcement of a federal suit just before the Supreme Court's decision generally came as a surprise.[34]

The announcement confirmed that Roosevelt would indeed attempt to pursue a more aggressive antitrust agenda. In its effort to obtain a judgment that a merger of competitors violated the Sherman Act, the suit sought to expand the boundaries of antitrust doctrine, with potentially far-reaching consequences. Yet, on February 20, it could not have been clear whether the suit would be successful, or if it were, how broad and applicable the decision would ultimately be. The implications beyond railroads, or even beyond the three railroads included in the merger, would not have been so clear. We therefore study the effect of the unexpected announcement of the federal case against Northern Securities on the market values of firms that we designated as differentially sensitive to more aggressive antitrust enforcement.

[32]In response, on February 23 J. P. Morgan himself went to Washington to meet with Roosevelt and Knox, bringing then-Senator Mark Hanna and Senator Chauncey Depew with him. Unaccustomed to policy decisions that concerned his interests being made without his consultation, Morgan said, characteristically: "If we have done anything wrong, send your man to my man and they can fix it up" (Quoted in Bishop, 1920: 184). Over the subsequent weeks, Morgan conferred repeatedly with Hanna regarding the case, but the case against Northern Securities followed its course (Strouse 2000: 442).

[33]On January 7, 1902, the attorney general of Minnesota, on behalf of his state and with the support of several other western states, moved for leave to file a bill of complaint against the company before the U.S. Supreme Court (Meyer, 1906).

[34]The *Washington Post*, for example, stated that the "announcement from Washington was therefore a rude shock to all of this optimistic sentiment that has been carefully nurtured in the financial district" (February 21, 1902).

Figure 3 shows average cumulative abnormal returns separately for the firms that had engaged in recent mergers and those that had not, for all trading days from February 14 to March 1, 1902. We normalize the returns to zero for February 14, and cumulate them forward from that date. The returns of merger firms were similar to those of other firms until February 19, when they began to decline. Since the announcement that the government was going to challenge the merger happened late in the day, the filing primarily impacted stock prices on February 20.

It is possible that Roosevelt may have unintentionally revealed that a suit was forthcoming, which may explain the decline in abnormal returns among recent mergers on February 19. On the 18th, Roosevelt met with Mark Hanna and asked his opinion regarding the combination. Hanna, who was a shareholder and a close associate of some of the Northern Securities insiders, expressed enthusiastic support for the firm. It is not clear whether Hanna interpreted Roosevelt's question as a sign that an antitrust suit was in the works, and when the suit was actually announced Hanna is said to have been "thunderstruck" (Morris 2002: 89).[35] But if Hanna had mentioned his conversation to others, or if Roosevelt had any other conversations about the firm on that day that are not known to historians, this could explain the fall in returns in anticipation of the announcement.

In any case, following the 20th, the returns of merger firms remained below those of non-merger corporations for at least a week. Importantly, this pattern was not driven by any direct effects on the shares of Northern Securities, as this firm is not included in our sample. Thus, the figure presents suggestive evidence that the revelation of the stronger stance of Roosevelt's administration against trusts differentially affected those firms that we characterize as ex-ante more sensitive to more aggressive antitrust enforcement.[36]

To more formally analyze the effect of the Northern Securities litigation on the market values of NYSE-listed firms, we employ an event study methodology. For each firm in the sample, we calculate cumulative abnormal returns from February 20 to March 1, 1902, and relate them to our measure of the threat of being subjected to antitrust suits. Our empirical strategy consists of estimating:

$$\text{CAR}_i = \alpha + \beta \text{Merger}_i + \delta X_i + \epsilon_i \tag{2}$$

[35] This may indicate that Hanna did not anticipate a suit, but it may also indicate that he did not expect one so soon.

[36] Prager (1992) studies, instead, the effects on railroad valuations of the circuit courts' decisions that sided with the government's case in 1903. He finds that stock prices declined during those dates, and suggests that Northern Securities was an important development in antitrust policy because it established new precedent for railroad mergers.

where $CAR_i$ is firm $i$'s cumulative abnormal return from February 20 to March 1; $Merger_i$ is an indicator for firms that were more likely to be targets of antitrust litigation due to recent merger activity; and $X_i$ includes controls for firm-specific characteristics.

Table 6 presents the results; we modify the specifications presented across the different columns from those of Table 3 above, in response to the different character of the information revealed by the filing of the suit. In column (1), we include minimal controls. The results indicate that recent mergers lost about 1.3 percent of their value relative to other firms, a magnitude that is generally consistent with those associated with days of bad news regarding McKinley's health. In column (2), we include our measure of accounting disclosure, and find that it has little effect on returns. This is consistent with our interpretation of that variable as highlighting companies that would be affected by stronger disclosure requirements, the likelihood of which was not affected by the Northern Securities suit. As the suit was filed against a railroad, and the potential impact of any decision on firms outside the railroad industry could have been seen as ambiguous, in column (3) we add an indicator for railroads. This has little impact, and does not affect the magnitude of the merger variable.

Finally, in column (4) we add an indicator for firms affiliated with J.P. Morgan & Company. Morgan had engineered Northern Securities and was the most influential financier of his era. Roosevelt and Morgan saw each other partly as rivals (Wiebe, 1959), and one concern about the results could be that they reflect the expectation that Morgan firms would receive greater regulatory scrutiny. Although imprecisely estimated, the coefficient on the Morgan variable is negative. More importantly, however, the estimate on the merger variable is unaffected by the inclusion of the Morgan control.

By focusing on returns cumulated from February 20, our results are conservative and exclude the potential impact of anticipation effects. In the appendix, we show that our results are robust to performing the event study over different windows around the announcement of the administration's action against Northern Securities, and that they double in size when we begin the analysis on February 18 or 19. We also show that the estimated effects are similar when we focus instead on unadjusted returns and when we include controls for various measures of market concentration and coordination through common ownership.

The relative decline in abnormal returns for recent merger firms is consistent with the suit being interpreted as a sign that stricter antitrust enforcement was likely, and recent mergers were among those likely to face greater antitrust scrutiny. It is important to note that these coefficients likely understate the overall effect of the suit, because none of the railroads involved in the Northern Securities combination had shares

of common stock that traded on the NYSE at the time, and thus are not included in the sample.

# 6 Accounting Returns of Railroads

Our focus on stock market returns enables us to measure the impacts of expected changes in policy, since we can measure returns at a high-frequency immediately as events unfolded. These results are by nature short run and based on expectations, and therefore do not allow us to address whether stronger antitrust enforcement actually had consequences on the economy over a longer time span. To provide some insights into this question, we next investigate whether Roosevelt's agenda actually affected the financial outcomes of the firms we designated as vulnerable to stronger antitrust enforcement. Specifically, we study whether the profitability of those firms fell relative to others in the years following Roosevelt's ascension to the Presidency. We focus our analysis exclusively on railroads because industrial firms did not consistently produce detailed financial statements at the turn of the century.

To perform these tests, we collect annual accounting data for all sample railroads from 1895 to 1905.[37] We measure accounting profitability as return on assets (defined as net income divided by total assets), and use it to estimate regressions of the following form:

$$\pi_{it} \quad = \quad \theta \text{Merger}_i \times \text{Post1901}_t + \gamma_i + \delta_t + \epsilon_{it}, \tag{3}$$

where $\pi_{it}$ is the return on assets of railroad $i$ in year $t$; $\text{Merger}_{it}$ is our firm-specific measure of vulnerability to stricter antitrust; $\text{Post1901}_t$ is an indicator for the years following 1901, when Roosevelt was president; and $\gamma_i$ and $\delta_t$ are railroad and year fixed effects, respectively. The coefficient of interest, $\theta$, is the post-1901 difference-in-differences in the profitability of railroads that were recent mergers relative to others. To avoid confounding the estimated effects with differences in railroad size, all our regressions control for the lagged value of log assets, a more precise measure of size than the value of capital used in the analysis of stock returns. Standard errors are clustered by firm.

The results are presented in Table 7. The estimated effects in column (1) indicate that the profitability of those railroads engaged in mergers prior to McKinley's assassination experienced a decline of 0.5 percentage

[37] We stop the analysis in 1905 because the Hepburn Act passed in 1906. This law strengthened the powers of the Interstate Commerce Commission (ICC), the agency in charge of regulating railroads. Any subsequent changes in railroad profitability may, therefore, have been caused by stricter ICC regulation, rather than stricter antitrust enforcement.

points more than others on average from 1901 to 1905, relative to the difference in ROA between these two groups of railroads in prior years. The economic magnitude of this effect is quite significant, as it represents about 10.2 percent of the mean 1901 profitability rate in the sample. This result is robust to allowing for differential post-assassination effects by firm size (in column (2)), as well as in the level of financial leverage and firm age (in column (3)). These results suggest that firms engaged in recent mergers were not only expected to suffer under Roosevelt by investors, but that they actually did so. It is important to note, however, that our difference-in-difference design does not allow us to determine the aggregate effects of the policy change on the railroad industry, or its welfare effects on the economy more broadly.

# 7 Conclusion

We study the assassination of President William McKinley in September 1901 to estimate the potential scope of political discretion in the aggressiveness of antitrust enforcement. The news of McKinley's shooting provoked a significant fall in stock prices. This decline was reversed when doctors subsequently announced that they expected McKinley to recover, and this reversal was itself reversed when McKinley's condition suddenly became grave. The latter fall in stock prices in response to the expectation that McKinley would die was purely a response to the transition from McKinley to Roosevelt, and not a reaction to the fact that an anarchist shot the president, which had occurred 7 days earlier. These swings in market values were borne differentially by firms that were particularly sensitive to changes in antitrust enforcement, as were the declines in the market associated with the surprise announcement of Roosevelt's first antitrust suit.

At the time Roosevelt took office, antitrust enforcement was at a historic low point, and the Supreme Court's *E.C. Knight* decision seemed to foreclose any possibility of pursuing a more aggressive approach. Yet when he unexpectedly became president, asset price changes indicated that there was considerable discretion available to him in antitrust enforcement, and that he would utilize that discretion. As one of the authors of the Sherman Act, Senator George Edmunds, stated, "What is needed is not, so much, more legislation as competent and earnest administration of the laws that exist" (quoted in Letwin, 1965: 141). Perhaps something similar is true today, in the sense that recent administrations may have not been as aggressive and innovative as they could have been in enforcing existing rules.

The longer-run consequences of the assassination, relative to the counterfactual of McKinley serving out his second term, are not easy to infer. At the end of his term as vice president in 1904, Roosevelt may

have run for president and won, in which case his accession to the presidency in 1901 simply accelerated changes that would have occurred anyway. Yet it is possible that a different Republican, one more sympathetic toward the trusts, may have prevailed in 1904. Growing economic concentration may have been accompanied by growing political influence of big business, potentially threatening both economic growth and democracy (Zingales, 2017). Roosevelt was no radical, and indeed the Tillman Act of 1907 prohibiting direct contributions from corporations to political campaigns was enacted partly in response to the funding that his own 1904 campaign had received from plutocratic interests. But Roosevelt's independent, reform-minded presidency may have prevented some developments that could have been quite harmful for American democracy.

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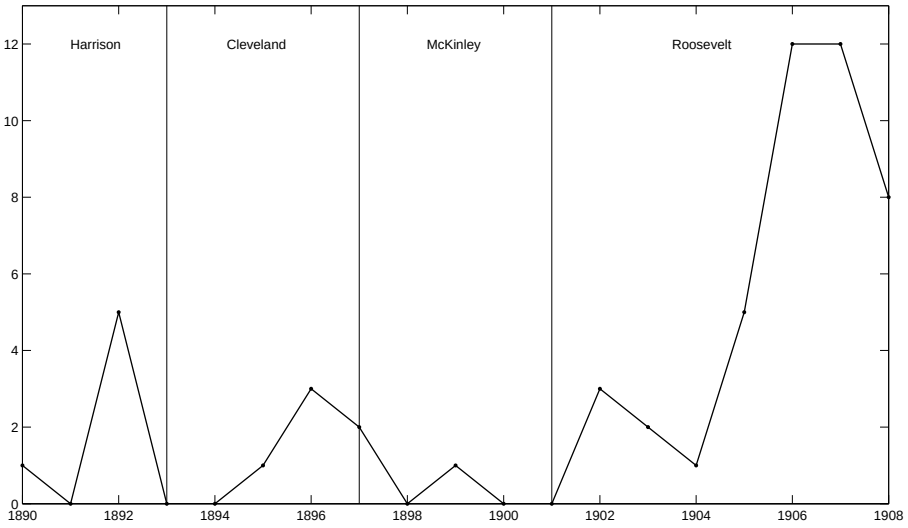


Figure 1: Annual Number of Federal Antitrust Cases Under Different Presidents, 1890-1908

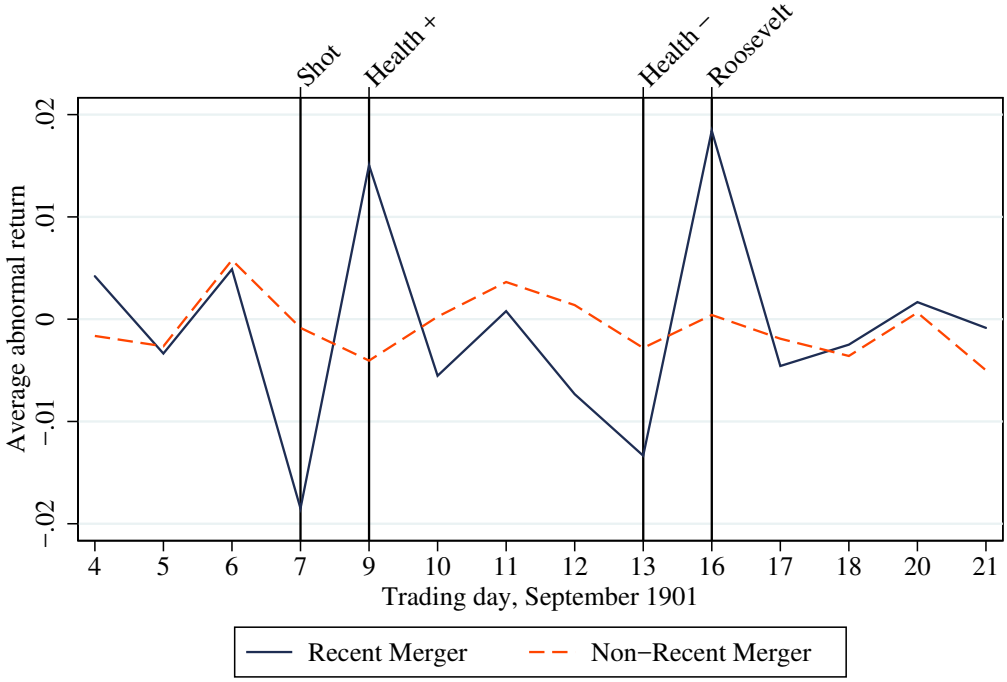


Figure 2: Average Daily Abnormal Returns around McKinley Assassination Event

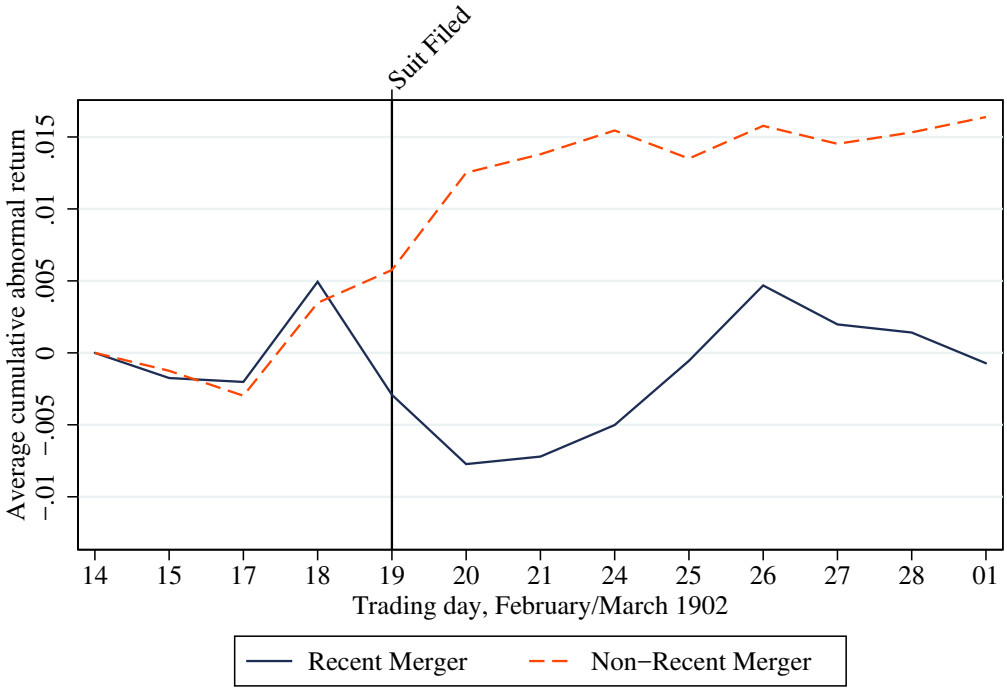


Figure 3: Average Cumulative Abnormal Returns following Northern Securities Suit Announcement

*Notes*: We set abnormal returns equal to zero for all firms on the 14th and cumulate forward from February 15. For each trading date *t*, the cumulative returns displayed are the group averages of the sum of abnormal returns for each firm from February 15 to date *t*. The attorney general announced his intention to initiate the suit on the 19th after the market was closed.

Table 1: Presidential Assassination Attempts and the Stock Market: Price Response to News of Shootings

| President | Date and Time of Shooting | Date of Trading on News of Shooting | Mean Percent Change, NYSE | Outcome for President |
|---|---|---|---|---|
| Lincoln | Friday April 14, 1865, 10:25 PM | Monday April 17 (NYSE closed April 15) | -0.7% | Death, Next day, 7:22 AM |
| Garfield | Saturday July 2, 1882, 9:30 AM | Same day | -3.3% | Death, 79 days later |
| McKinley | Friday Sept. 6, 1901, 4:07 PM | Following day | -6.2% | Death, 8 days later |
| Roosevelt | Wed. Feb. 15, 1933, 9:35 PM | Following day | -2.1% | Survived; Was unhurt |
| Kennedy | Friday Nov. 22, 1963, 1:30 PM | Same day (Trading halted 2:07 PM) | -2.8% | Death, Same day, 2:00 PM |
| Ford | Monday Sept. 22, 1975, 6:25 PM | Following day | -0.48% | Survived; Was unhurt |
| Reagan | Mon. March 30, 1981, 2:27 PM | Same day | -0.2% | Survived |

*Note:* Franklin D. Roosevelt was President-Elect at the time of the shooting attempt on his life. For shootings prior to Roosevelt, the percent change in share prices computed as an equal-weighted index from closing NYSE prices reported in the *New York Times*. For the subsequent shootings, the percent change in share prices is calculated from closing NYSE prices as reported in CRSP. The number of securities for which prices were observed on the day prior to the shooting, and also on the day when trading reflected the news of the shooting, was 16 for the Lincoln assassination, 63 for Garfield, 79 for McKinley, 311 for Roosevelt, 1,144 for Kennedy, 1,468 for Ford and 1,520 for Reagan. All times are reported as EST.

Table 2: Summary Statistics

| | Merger (1) | No Merger (2) | Difference (3) |
|---|---|---|---|
| *Panel A: All Firms* | | | |
| I. S. Lines | 20.9583 | 21.6250 | -0.6667 |
| | [14.6420] | [14.4156] | (4.1942) |
| Donor | 0.3333 | 0.0833 | 0.2500** |
| | [0.4815] | [0.2823] | (0.1139) |
| Roosevelt | 0.1667 | 0.1667 | -0.0000 |
| | [0.3807] | [0.3807] | (0.1099) |
| Log(Age) | 1.8477 | 2.8346 | -0.9869*** |
| | [0.9284] | [0.9338] | (0.2688) |
| Log(Capital) | 18.0661 | 17.6861 | 0.3800 |
| | [0.9713] | [0.8244] | (0.2600) |
| Railroad | 0.5833 | 0.5833 | -0.0000 |
| | [0.5036] | [0.5036] | (0.1454) |
| Export/Output | 9.2908 | 9.2235 | 0.0673 |
| | [4.1793] | [3.2661] | (1.0827) |
| JP Morgan Firm | 0.1250 | 0.0417 | 0.0833 |
| | [0.3378] | [0.2041] | (0.0806) |
| Observations | 24 | 24 | 48 |
| *Panel B: Industrial Firms Only* | | | |
| I. S. Lines | 4.1000 | 5.7000 | -1.6000 |
| | [2.5582] | [6.9290] | (2.3357) |
| Observations | 10 | 10 | 20 |

*Notes*: Columns (1) and (2) report means with standard deviations in brackets. Column (3) reports the difference in means estimated from regressions with a dummy for recent mergers and presents robust standard errors in parentheses.

*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 3: McKinley Assassination Event Analysis using Abnormal Returns, Recent Mergers

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Merger x Sept. 7 | -0.0175* | -0.0160* | -0.0205** | -0.0205* |
| | (0.0095) | (0.0092) | (0.0094) | (0.0108) |
| Merger x Sept. 9 | 0.0197*** | 0.0191*** | 0.0199*** | 0.0194** |
| | (0.0061) | (0.0060) | (0.0067) | (0.0084) |
| Merger x Sept. 13 | -0.0141* | -0.0150* | -0.0181** | -0.0114 |
| | (0.0081) | (0.0077) | (0.0082) | (0.0097) |
| Merger x Sept. 16 | 0.0197** | 0.0189** | 0.0216** | 0.0175* |
| | (0.0084) | (0.0082) | (0.0090) | (0.0093) |
| I. S. Lines x Sept. 7 | | 0.0025** | 0.0030*** | 0.0030*** |
| | | (0.0010) | (0.0010) | (0.0010) |
| I. S. Lines x Sept. 9 | | -0.0014** | -0.0016** | -0.0016** |
| | | (0.0006) | (0.0007) | (0.0007) |
| I. S. Lines x Sept. 13 | | 0.0018 | 0.0011 | 0.0010 |
| | | (0.0020) | (0.0025) | (0.0026) |
| I. S. Lines x Sept. 16 | | -0.0022** | -0.0021* | -0.0021* |
| | | (0.0010) | (0.0011) | (0.0012) |
| Donor x Event Dates | NO | NO | YES | YES |
| Roosevelt x Event Dates | NO | NO | YES | YES |
| Log(Age) x Event Dates | NO | NO | NO | YES |
| Firm, Date Fixed Effects | YES | YES | YES | YES |
| Observations | 603 | 603 | 603 | 603 |
| R-squared | 0.1898 | 0.2181 | 0.2536 | 0.2590 |
| Abnormal Return: | | | | |
| Mean | -0.0007 | -0.0007 | -0.0007 | -0.0007 |
| Std. Dev. | 0.0196 | 0.0196 | 0.0196 | 0.0196 |

*Notes*: This table presents estimates obtained from different versions of Equation (1). The variable *Merger* indicates differential vulnerability to more aggressive antitrust enforcement. September 7 and 13 were dates with bad news regarding McKinley's health; September 9 and 13 presented good news regarding his health and the likelihood that Roosevelt would follow his agenda, respectively. All regressions include log capital and an indicator for railroads interacted with the event dates (September 7, 9, 13, and 16). Standard errors adjusted for clustering by firm are reported in parentheses.

*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 4: McKinley Assassination Event Analysis using Abnormal Returns, Failed Mergers

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Merger Fail x Sept. 7 | 0.0292*** | 0.0251*** | 0.0223*** | 0.0207*** |
| | (0.0081) | (0.0079) | (0.0076) | (0.0071) |
| Merger Fail x Sept. 9 | -0.0168** | -0.0145** | -0.0154** | -0.0133** |
| | (0.0065) | (0.0066) | (0.0060) | (0.0057) |
| Merger Fail x Sept. 13 | 0.0256*** | 0.0253** | 0.0244*** | 0.0234*** |
| | (0.0092) | (0.0095) | (0.0088) | (0.0074) |
| Merger Fail x Sept. 16 | -0.0351*** | -0.0325*** | -0.0346*** | -0.0318*** |
| | (0.0084) | (0.0083) | (0.0096) | (0.0088) |
| I. S. Lines x Event Dates | NO | YES | YES | YES |
| Donor x Event Dates | NO | NO | YES | YES |
| Roosevelt x Event Dates | NO | NO | YES | YES |
| Log(Age) x Event Dates | NO | NO | NO | YES |
| Firm, Date Fixed Effects | YES | YES | YES | YES |
| Observations | 603 | 603 | 603 | 603 |
| R-squared | 0.2252 | 0.2369 | 0.2572 | 0.2803 |
| Abnormal Return: | | | | |
| Mean | -0.0007 | -0.0007 | -0.0007 | -0.0007 |
| Std. Dev. | 0.0196 | 0.0196 | 0.0196 | 0.0196 |

*Notes*: This table presents estimates obtained from different versions of Equation (1). The variable *Merger Fail* indicates firms that would be expected to benefit from more aggressive antitrust enforcement. September 7 and 13 were dates with bad news regarding McKinley's health; September 9 and 13 presented good news regarding his health and the likelihood that Roosevelt would follow his agenda, respectively. All regressions include log capital and an indicator for railroads interacted with the event dates (September 7, 9, 13, and 16). Standard errors adjusted for clustering by firm are reported in parentheses.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 5: Exploring Alternative Policy Differences: Exports and Coal Strike

| Panel A: Exports | | | Panel B: Coal Strike Event | | |
|---|---|---|---|---|---|
| | (1) | (2) | | (3) | (4) |
| Merger x Sept. 7 | -0.0178* | -0.0208** | Merger | 0.0134 | 0.0082 |
| | (0.0094) | (0.0103) | | (0.0107) | (0.0110) |
| Merger x Sept. 9 | 0.0201*** | 0.0197** | I. S. Lines | | 0.0042*** |
| | (0.0060) | (0.0076) | | | (0.0014) |
| Merger x Sept. 13 | -0.0149* | -0.0127 | Donor | | 0.0062 |
| | (0.0078) | (0.0092) | | | (0.0113) |
| Merger x Sept. 16 | 0.0197** | 0.0173* | Roosevelt | | -0.0273** |
| | (0.0084) | (0.0091) | | | (0.0122) |
| Export/Output x Sept. 7 | 0.0010 | 0.0016 | Log(Age) | | -0.0054 |
| | (0.0013) | (0.0013) | | | (0.0047) |
| Export/Output x Sept. 9 | -0.0015* | -0.0019** | Constant | -0.0517 | -0.1780* |
| | (0.0008) | (0.0009) | | (0.0890) | (0.0884) |
| Export/Output x Sept. 13 | 0.0018 | 0.0019* | | | |
| | (0.0011) | (0.0010) | | | |
| Export/Output x Sept. 16 | -0.0001 | -0.0004 | | | |
| | (0.0015) | (0.0015) | | | |
| I. S. Lines x Event Dates | NO | YES | | | |
| Donor x Event Dates | NO | YES | | | |
| Roosevelt x Event Dates | NO | YES | | | |
| Log(Age) x Event Dates | NO | YES | | | |
| Firm, Date FEs | YES | YES | | | |
| Observations | 603 | 603 | Observations | 47 | 47 |
| R-squared | 0.2016 | 0.2767 | R-squared | 0.0614 | 0.3145 |
| Abnormal Return: | | | Cum. Abn. Return: | | |
| Mean | -0.0007 | -0.0007 | Mean | 0.0047 | 0.0047 |
| Std. Dev. | 0.0196 | 0.0196 | Std. Dev. | 0.0353 | 0.0353 |

*Panel A Notes*: This panel presents versions of the regressions presented in Table 3 in which we control for the export share of the sample firms' products interacted with the assassination event dates. The variable *Merger* indicates differential vulnerability to more aggressive antitrust enforcement. All regressions include log capital and an indicator for railroads interacted with the event dates (September 7, 9, 13, and 16). Standard errors adjusted for clustering by firm are reported in parentheses.

*Panel B Notes*: This table presents results of an event study of the announcement on October 1, 1902, that Roosevelt would intervene in the anthracite coal strike, a significant departure from historical precedent in the approach to labor relations taken by the president. The dependent variable is abnormal returns cumulated from October 1 to October 8, 1902. All regressions also include log capital and an indicator for railroads as controls. Robust standard errors are in parentheses.

*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 6: Northern Securities Event Analysis using Cumulative Abnormal Returns

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Merger | -0.0130* | -0.0159** | -0.0157** | -0.0159** |
| | (0.0071) | (0.0065) | (0.0066) | (0.0068) |
| I. S. Lines | | 0.0004 | 0.0007 | 0.0006 |
| | | (0.0003) | (0.0005) | (0.0005) |
| Railroad | | | -0.0070 | -0.0064 |
| | | | (0.0180) | (0.0181) |
| JP Morgan Firm | | | | -0.0074 |
| | | | | (0.0049) |
| Constant | 0.0968 | 0.1112 | 0.1040 | 0.0911 |
| | (0.0725) | (0.0668) | (0.0761) | (0.0780) |
| Observations | 48 | 48 | 48 | 48 |
| R-squared | 0.1260 | 0.1767 | 0.1779 | 0.1839 |
| Cum. Abn. Return: | | | | |
| Mean | 0.0066 | 0.0066 | 0.0066 | 0.0066 |
| Std. Dev. | 0.0239 | 0.0239 | 0.0239 | 0.0239 |

*Notes*: This table presents estimates obtained from different versions of Equation (2). We study the effects of the announcement on February 19, 1902, that an antitrust suit would be filed against the Northern Securities Company. The dependent variable is abnormal returns cumulated from February 20 to March 1, 1902. All regressions also include log capital and log age as controls. Robust standard errors are reported in parentheses.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 7: Profitability of Railroads under Roosevelt versus McKinley 1895–1905

| | (1) | (2) | (3) |
|---|---|---|---|
| Post 1901 × | | | |
| Merger | -0.005* | -0.005** | -0.005** |
| | (0.003) | (0.002) | (0.002) |
| Log(Assets) | | 0.002 | 0.002 |
| | | (0.002) | (0.002) |
| Leverage | | | -0.00003 |
| | | | (0.011) |
| Log(Age) | | | 0.001 |
| | | | (0.002) |
| Lagged Log(Assets) | -0.021*** | -0.023*** | -0.023*** |
| | (0.007) | (0.007) | (0.007) |
| Firm Fixed Effects | YES | YES | YES |
| Year Fixed Effects | YES | YES | YES |
| Observations | 267 | 267 | 267 |
| R-squared | 0.871 | 0.873 | 0.873 |

*Notes*: This table presents estimates for different versions of Equation (3), obtained from a panel of 28 railroads over the years 1895-1905. The dependent variable is Return on Assets, measured as net income divided by total assets. Standard errors adjusted for clustering by firm are reported in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

# A Data Appendix

## A.1 Variable Definitions

*Stock Returns*: The main focus of our analysis are abnormal returns, calculated using daily stock price data and dividend payout information hand-collected from the *New York Times* on the days surrounding President McKinley's assassination. For each stock, returns ($R$) are calculated as

$$R_t = \frac{P_t + D_t}{P_{t-1}} - 1,$$

where $P$ represents price, $D$ represents the dividend on days the stock goes ex-dividend, and $t$ indexes trading day. Alpha and beta are estimated for each security using Dimson's (1979) method with three leads and three lags on the market index to address liquidity concerns. The estimating equation follows:

$$R_t = \alpha + \sum_{k=-3}^{3} \beta_{k+4} * I_{t+k} + \epsilon_t,$$

where $I$ represents the relevant market index. For industrial firms we use the Dow Jones Industrial Average and for railroads we use the Dow Jones Transportation Average as the market index. Abnormal returns ($AR$) are then calculated for each firm as follows:

$$AR_t = R_t - \hat{\alpha} - \sum_{k=-3}^{3} \hat{\beta}_{k+4} * I_t.$$

Pre-period price data was collected for the 75 trading days between May 29 and August 30, 1901, from the *New York Times* in order to estimate $\hat{\alpha}$ and $\hat{\beta}$ for each stock. Due to low liquidity, however, prices are not observed on many days for some firms in the pre-period. Thus, our sample is restricted to stocks for which at least 38 returns are observed in the pre-period. Furthermore, we restrict the sample to firms with an r-squared greater than or equal to 0.32 for railroads and 0.24 for industrial firms in the estimation of $\hat{\alpha}$ and $\hat{\beta}$. These cutoffs represent the 25th percentile of r-squared within each sector after imposing the restriction on the number of returns available in the pre-period. Those firms excluded by this second restriction are missing returns for 22 days of the pre-period on average, while those that pass are missing returns for 8 days on average. These restrictions are made to exclude companies from the analysis for which we cannot obtain reliable estimates of $\hat{\alpha}$ and $\hat{\beta}$.

*Merger*: This indicator identifies firms that engaged in merger activity in the years prior to the assassination. The variable takes the value one for industrial firms that were incorporated after 1895. We utilize the historical record to verify that all of these firms were the product of consolidations of various smaller firms during the Great Merger Wave. For railroads, this variable takes the value of one for firms with merger activity during the period 1899–1901. This captures mergers occurring after the Supreme Court's 1898 decision on United States v. Joint Traffic Association, which one could argue were more likely to have been enacted to avoid antitrust scrutiny. To identify merger activity we consulted the *Moody's Manual* and *Poor's Manual of the Railroads of the United States* and noted railroads that acquired a major stake in another railroad and railroads in which a controlling stake was purchased.

*Merger Fail*: An indicator variable that takes the value one for firms for which a clear rumor of or plan for a merger with a specific company was announced in *The Commercial and Financial Chronicle* between July 1, 1900, and June 30, 1901, but the merger had not been completed by December 1901, and zero

otherwise.

*Community of Interest*: An indicator variable that takes the value of one for subordinate (or controlled) railroads in 'communities of interest' (that is, groups of railroads with common ownership stakes or board seats that could be used to coordinate actions), as identified by Moody (1904). We verify Moody's categorization utilizing *The Moody's Manuals*, and add the Canadian Pacific railroad, which had controlling shares in several American roads that were not part of other groups, as an additional community of interest. We set the variable to zero for industrial firms in the sample.

*Donor Firm*: An indicator variable that takes the value of one for firms affiliated with J. P. Morgan, the Rockefellers, or Standard Oil (the largest donors to McKinley's presidential campaign), and zero otherwise. The firms designated as affiliated with Morgan are those listed by Moody (1904) as being under "Morgan domination" or "Morgan control," a subset of those with J.P. Morgan & Company partners on their boards. The Standard Oil firms include a number of firms founded by or strongly affiliated with the Rockefellers or Standard Oil as noted by Moody (1904). We include firms connected to the Rockefellers because William Rockefeller, brother of John D. Rockefeller and an executive at Standard Oil, also assisted Hanna in raising funds from other wealthy donors for the McKinley campaign (Rhodes, 1922).

*Export/Output*: Eysenbach (1976) provides estimates of "exports as a percentage of gross output" for 17 industries for American firms in 1899 in Appendix Table 15. Industrial firms in our sample are matched to these industries using their descriptions in the 1901 edition of the *Moody's Manual*. For railroads, we calculate the percentage of revenues associated with export products among railroads within each of the ICC's ten geographical regions. We first use data from the 1901 Annual Report of the ICC, which details the proportion of different categories of railroad freight by geographical division. We then use tables from the Historical Statistics of the United States to calculate the percentage of each type of product that was exported. For each railroad, the export measure is calculated as: the percentage of revenues accounted for by freight multiplied by the sum of the percentages of freight that was accounted for by different products multiplied by the percentage of each product category that was exported.

*Income Statement Lines*: A count of the number of substantive lines provided in the income statement of each firm, excluding lines containing intermediate items such as 'subtotals.' Railroads were required to report standardized, detailed income statements to the Interstate Commerce Commission (ICC), which were then published in the ICC's annual reports. Thus, for all railroads this variable takes the value 33, the number of lines on the ICC income statements. For industrial firms we checked the *Moody's Manual*, the *Manual of Statistics Stock Exchange Handbook*, and the *New York Times* guide to investors published in September 1901 for income statements. When income statements were present in more than one source, this variable is a count of the number of lines in the most detailed statement. For firms that did not report an income statement in any of these publications, the income statement lines takes a value of zero. One NYSE company, American Locomotive, was founded in June of 1901, and therefore does not appear in the sources we relied on for financial statements. We have been unable to determine whether investors had access to an income statement at the time of the assassination (or what was known about their dividend rate at that time), and therefore exclude the company from the analysis.

*JP Morgan Firm*: An indicator variable that takes the value of one for firms affiliated with J. P. Morgan, and zero otherwise. These firms are listed by Moody (1904) as being under "Morgan domination" or "Morgan control," a subset of those with J.P. Morgan & Company partners on their boards.

*Leverage*: Book value of leverage (long-term debt/total assets). Long-term debt includes bonds and other

long-term interest-bearing liabilities (e.g. mortgages and equipment trusts), as reported in the firms' balance sheets.

*Log(Age)*: The natural log of one plus 1901 minus the year of incorporation for each firm. The year of incorporation was collected from the 1901 edition of the *Moody's Manual*.

*Log(Assets)*: The natural log of total assets, as reported in the firms' balance sheets.

*Log(Capital)*: The natural log of the sum of the preferred and common shares outstanding multiplied by their respective par values. Preferred shares outstanding, common shares outstanding, and the par value of each were collected from the firm's capital stock description from the 1901 edition of the *Moody's Manual*.

*Market Concentration*: The relative extent of monopoly by 2 digit SIC codes. Source: Table 39, p 144-147, for Manufacturing and Table 41, p 151, Table 9, p 40, and Table 10, p 41, for Mining, Transportation, Communication, and Public Utilities, Nutter (1951). This variable takes a value of zero for railroads.

*Market Share*: The percentage of the market controlled by the largest firm in the sector in which the firm operates, where sectors are defined at the 3 and 4 digit SIC codes. Source: Table 37, p 129-141, Nutter (1951). This variable takes a value of zero for railroads.

*Railroad*: An indicator variable that takes the value of one for firms that are listed in the "Eleventh Section: Steam Railroad Securities" of the 1901 Moody's Manual beginning on page 1161, and zero otherwise.

*Return on Assets*: The ratio of net income to total assets, obtained from the firms' income statements and balance sheets.

*Roosevelt*: An indicator variable that takes the value of one for firms with directors or executives who attended Harvard with Theodore Roosevelt. Roosevelt matriculated at Harvard in the fall of 1876 and graduated in 1880. While attending Harvard he was a member of the following clubs: Alpha Delta Phi, Delta Kappa Epsilon, Hasty Pudding, Phi Beta Kappa, and Porcellian. We collected the names of the members of these clubs for the graduating classes of 1877–83, who would likely have overlapped with Roosevelt, from club catalogs. We also collected the names of those in the graduating class of 1880 from the Harvard University catalog. Using these lists and a listing of executives and directors of firms collected from the 1901 *Moody's Manual*, we identified firms with connections to Roosevelt.

## A.2 Full Results from Main Tables

The tables of results in the paper suppress a number of parameters, to keep the tables from becoming too lengthy. In Appendix Tables A.3 and A.4 we show specifications previously presented in Tables 3 and 4, respectively, displaying coefficients on additional variables of interest.

## A.3 Robustness Checks

### A.3.1 Baseline Effects—McKinley's Assassination

In this section, we present additional tests to assess the robustness of our main estimated effects for recent mergers discussed in Section 4.1 of the paper.

Our main analysis takes into account differences in firm stability by allowing for differential effects of log capital, a proxy for firm size, on each of the four relevant dates around McKinley's assassination. Here, we replicate this analysis by also including in the regressions other relevant firm characteristics. In Appendix Table A.5 we include log assets. This measure is arguably a more precise proxy for firm size than the log capital variable that we use in all our specifications, but unfortunately we do not observe it for those firms that do not disclose balance sheets. Despite the loss of observations, the estimated effects when we include controls for the value of assets are similar to when we do not.

In the paper, we focus the analysis on abnormal stock returns to avoid confounding our estimates with cross-sectional differences in price co-movement with the overall market. This approach reduces the number of observations significantly because it limits the sample to those firms that traded frequently enough to be able to estimate their CAPM betas prior to the assassination, as described in Appendix Section A.1. In Appendix Table A.6 we replicate our main analysis utilizing instead unadjusted returns as the dependent variable. To ensure a minimum level of liquidity, in column (1) we restrict the sample to the firms whose common stocks traded at least 100 shares—the minimum requirement to observe a traded price in *The New York Times*—on each of the four event days. The estimated coefficients get a bit smaller and imprecise, reflecting the fact that low-volume stocks tended to have relatively small unadjusted returns. However, the patterns across dates remains similar—returns of recent merger firms declined on dates of bad news about McKinley's health, and increased when there was positive news about the continuity of his policies. In columns (2) to (5), we restrict the sample to the 48 firms that we include in our baseline specification, but we focus on unadjusted returns instead. The estimated effects are similar to those obtained when using instead abnormal returns, as shown in Table 3.

### A.3.2 Baseline Effects—Northern Securities

In Section 5 of the paper, our event-study analysis of the Northern Securities litigation, presented in Table 6, focuses on abnormal returns cumulated from February 20 to March 1, 1902. Here, we show that the results are robust to defining the event over alternative windows. For ease of comparison, column (1) of Appendix Table A.8 reproduces column (4) of Table 6. In columns (2) and (3), we allow for anticipation effects, starting to cumulate returns on February 19 or February 18, respectively. The estimated effects become larger and more precise when we allow for the potential leakage of information to the market prior to Attorney General Knox's announcement.

A potential concern with our main analysis in Table 6 is that other news may have differentially affected firms over a period of nine trading days following the announcement of the suit. To address this problem, we again define the start of the event period on February 20, but instead cumulate returns over shorter windows—eight trading days in column (4) and five trading days in column (5). In both cases, the estimated effects are remarkably similar to those obtained in the baseline estimation, revealing that our main results are not highly sensitive to the window of the analysis.[38]

In Appendix Table A.9 we replicate the baseline event study for the Northern Securities event utilizing instead cumulative unadjusted returns as the dependent variable, which allows for a larger number of firms to be included in the analysis. To ensure a minimum level of liquidity, in column (1) we restrict the sample to those NYSE-traded firms for which we observe common stock prices on at least three of the nine trading days following, and at least one of the eight trading days prior to, February 19, 1902, (inclusive). The estimated coefficient is a bit larger in magnitude and slightly less precise; still, the results are remarkably similar to the cumulative abnormal returns results presented in Table 6. In columns (2) through (5) we restrict the sample to the 48 firms that we include in our baseline specification, using cumulative unadjusted returns. The estimated

[38]One firm, American Cotton Oil, is excluded when cumulating from February 20 to February 25 (as shown in Appendix Table A.8 column [5]) because no shares of this firm's common stock are traded during the cumulation period.

effects for firms that engaged in recent mergers are negative and statistically significant, consistent with the main results presented in Table 6.

### A.3.3 Legal History and Measures of Sensitivity to Antitrust Enforcement

Our hypothesis is that McKinley and Roosevelt differed in their stance toward antitrust enforcement. Thus, we would expect changes in the probability of a transition from President McKinley to Roosevelt to differentially affect the market performance of firms that could be subject to antitrust suits, or that could be differentially affected by new antitrust precedents. A significant challenge for our analysis is to identify these firms. In this section, we expand the paper's description of the history of antitrust doctrine to provide further justification for our variable, which is based on recent merger activity. We also provide evidence that our analysis is robust to considering alternative indicators based on more modern views of anticompetitive behavior, such as market concentration.

Antitrust doctrines were changing rapidly at the turn of the twentieth century. In the 1880s, as industrial interests organized in large combinations, or "trusts," state attorneys first used *quo warranto* suits—legal actions against a corporation incorporated in the state for violating their charters or engaging in illegal acts—but trusts sometimes evaded state courts by reincorporating in friendlier states or adopting different organizational forms. Between 1888 and July 1890, thirteen states passed antitrust statues. These laws typically included stronger penalties than those later introduced by the Sherman Act, and gave most state courts the power to effectively terminate a trust in that state by revoking its charter (Troesken, 2000).

The states' ability to efficiently restrain "bad" combinations by applying common law and their own antitrust laws was limited because the constitution gives Congress the authority to regulate interstate commerce. In July 1890 Congress passed the first federal antitrust law, the Sherman Act. The act banned any contract in restraint of trade, but the broad terms of the law allowed sufficient leeway to distinguish between beneficial forms of cooperation that promoted economic growth and those that suppressed competition (Kovacic and Shapiro, 2000). Which specific practices (such as predatory pricing, price fixing, and many others) were considered violations of the law was evolving over time as the courts were confronted with interpreting the Act. The Addyston Pipe decisions by the Court of Appeals (in 1898) and the Supreme Court (in 1899) helped establish that the Sherman Act would be governed by a rule of reason. In this case, six pipe makers engaged in bid rigging to guarantee that one of the members in the agreement would win projects adjudicated by municipalities using an auction system. The Court of Appeals stated that if the primary purpose of an agreement was to restrain trade, then the agreement was invalid under the law, even if the combination charged reasonable prices. In his opinion, future President Taft argued that the association had acquired the power to charge unreasonable prices, even if they had yet to do so. In *Addyston Pipe and Steel Company v. United States* (175 U.S. 211 [1899]), the Supreme Court further argued that purely private contracts that directly restrain commerce were in violation of the law. By the time of McKinley's assassination, the courts' interpretation of Section I of the Sherman Act made clear that anticompetitive practices that could restrain trade would be found to be in violation of the law.

The Act, however, did not seem to prohibit large concentrations of market power per se. In *United States v. E. C. Knight Co.* (156 U.S. 1 [1895]), the Supreme Court ruled that a series of mergers that gave the American Sugar Refining Company (the *Sugar Trust*) 98% of the nation's sugar refining capacity did not constitute interstate commerce, and was therefore not a violation of the Act.

The Knight case was generally interpreted to hold that it was pointless to attempt to utilize the Sherman Act against anticompetitive mergers. For example, Attorney General Griggs in his 1899 annual report, written at the peak of the Great Merger Movement, presented a detailed discussion of the Knight case and the jurisdictional problems it posed for suits against mergers, and then stated:

> In all instances the Department has been governed only by a sincere desire to enforce the law as it exists and to avoid subjecting the Government to useless expense and the law officers

> of the Government to humiliating defeat by bringing actions where there was a clear want of jurisdiction.... (Griggs, 1899: 29)

Given this precedent, it is unlikely that a policy maker concerned with anticompetitive behavior would attempt to prosecute firms simply because they enjoyed large market shares–though clearly these firms would have been at risk if they had employed any illegal tactics in protecting their market shares or exploiting them in other markets.

Our main strategy is, therefore, to focus on firms that had engaged in mergers in the years prior to the assassination, as firms that could no longer collude given the interpretation of Section I often chose instead to merge to be able to preserve monopoly power. The legal history, therefore, validates our choice of focus on merger activity to identify those firms that may have been perceived to be more likely to suffer disproportionately from stronger enforcement of antitrust rules. In what follows, we further validate our analysis by showing that our results are robust to including controls for various measures of market concentration.

Unfortunately, there is no systematic information on the market shares for the individual firms in our sample at the time of the assassination. Instead, we rely on industry-level measures constructed by Nutter (1951).[39] Appendix Table A.7 replicates the results from Table 3 in the paper but adds as well controls for market concentration interacted with the relevant event dates. In columns (1) and (2), our measure of concentration is the percentage of the market controlled by the largest firm, where markets are defined at the 3 and 4 digit SIC codes as in Nutter (1951: Table 37, p 129-141). In columns (3) and (4), we use instead Nutter's measure of the 'relative extent of monopoly' (Nutter, 1951; Table 39, p 144-147, Table 41, p 151, Table 9, p 40, and Table 10, p 41). Relative extent of monopoly is defined at the two-digit SIC level as the percentage of total value-added accounted for by monopolistic industries at the four-digit SIC level, where monopolistic industries are those in which the four-firm concentration ratio is greater than one half. In both cases, including our measures of industry concentration does not affect the estimated coefficients for recent mergers.

Finally, in columns (5) and (6) we take into account that the inability to collude on rates in the aftermath of the Sherman Act led some railroads to form 'communities of interest,' by which a group of investors either individually or through a major railroad would take ownership shares or board seats in other railroads to help coordinate policies. We create an indicator variable for those firms in such a community that were not the dominant firm. These subordinated firms had likely the most to lose from stronger antitrust enforcement, as they would otherwise have to compete with the dominant firms in the group. Again our results show that the inclusion of this variable does not affect our main estimated effects for recent mergers.

In Appendix Table A.10, we use a similar strategy to investigate the robustness of the estimated effects for the Northern Securities event study to the inclusion of the three alternative measures of market concentration and firm coordination. None of these variables have on their own a significant or sizable differential effect on the cumulative abnormal returns of railroads following the announcement of the suit. Moreover, their inclusion does not affect our main estimated effects for recent mergers. In combination with the results presented in Appendix Table A.7, these results suggest that operating in industries where the dominant firms had large market shares, or utilized common ownership to coordinate policies, was not per se sufficient for being affected differentially by the changes in policies between the two administrations.

The case against Northern Securities Corporation that we analyze in the paper indicates the Act was initially used by Roosevelt's government to forestall mergers that conferred monopoly power, and that investors anticipated so at the time of McKinley's assassination. To provide further validation that our measure

[39] To establish the industrial code for the manufacturing firms in our sample, we use the code assigned to each of these firms for the year 1917 by Chandler (1990). When a firm in our sample is not listed by Chandler, we match the industry description provided in the *Moody's Manuals* to the definitions of standardized codes provided by the U.S. Department of Labor (http://www.osha.gov/pls/imis/sic_manual.html). For firms that Chandler scored, the two methods produce the same codes.

of recent mergers is a reasonable indicator of the investors' perception of firms' differential vulnerability to changes in antitrust enforcement at the time, we next relate the our measure to firms that were actually prosecuted for antitrust violations. Specifically, we identify the firms in our sample that were defendants in antitrust cases initiated under Roosevelt. It is important to note that only a small number of firms were subject to legal action, and that some prominent ones, such as Standard Oil, are not included in our sample due to the lack of stock price data. For the sample of 134 railroads and industrial firms that traded on the NYSE after June 1, 1901, and were still listed by the NYT as either active or inactive in September, the likelihood of actual antitrust prosecution was significantly higher (16.7%) for those firms that we categorized as having engaged in merger activity, relative to a much lower 5.8% for those firms with no recent mergers (p-value = 0.072 from univariate regressions with clustered standard errors). The pattern is relatively similar (20.8% versus 8.3%) for the smaller sample of 48 firms for which we can calculate abnormal returns, though the difference is no longer statistically significant.

Table A.1: Firm Attributes

| Firm Name | Recent Merger | Failed Merger | Donor | Roosevelt | JP Morgan Firm | Railroad |
|---|---|---|---|---|---|---|
| Amalgamated Copper | Yes | No | Yes | Yes | No | No |
| American Car & Foundry | Yes | No | No | No | No | No |
| American Cotton Oil | No | No | No | No | No | No |
| American Smelting & Refining | Yes | No | Yes | No | No | No |
| American Sugar Refining | No | No | No | Yes | No | No |
| Anaconda Copper Mining | No | No | No | No | No | No |
| Colorado Fuel and Iron | No | Yes | No | No | No | No |
| Columbus & Hocking Coal & Iron | No | No | No | No | No | No |
| Glucose Sugar Refining | Yes | Yes | No | No | No | No |
| International Paper | Yes | No | No | No | No | No |
| International Power | Yes | No | No | No | No | No |
| National Biscuit | Yes | No | No | No | No | No |
| National Lead | No | No | No | No | No | No |
| Pressed Steel Car | Yes | No | No | No | No | No |
| Republic Iron & Steel | Yes | No | Yes | Yes | No | No |
| Tennessee Coal, Iron & Railroad | No | Yes | Yes | No | No | No |
| United States Leather | No | No | No | No | No | No |
| United States Rubber | No | Yes | No | No | No | No |
| United States Steel | Yes | No | Yes | Yes | Yes | No |
| Virginia-Carolina Chemical | No | No | Yes | No | Yes | No |
| Atchison, Topeka & Santa Fe | No | No | No | No | No | Yes |
| Baltimore & Ohio | No | No | No | No | No | Yes |
| Canadian Pacific | No | No | No | No | No | Yes |
| Chesapeake & Ohio | No | No | No | No | No | Yes |
| Chicago Great Western | Yes | No | No | No | No | Yes |
| Chicago, Rock Island & Pacific | No | No | No | No | No | Yes |
| Chicago & Alton | No | No | No | No | No | Yes |
| Chicago, Indianapolis & Louisville | No | Yes | No | Yes | No | Yes |
| Chicago, Milwaukee & St. Paul | Yes | Yes | Yes | No | No | Yes |
| Chicago Terminal Transfer | Yes | No | No | No | No | Yes |
| Delaware & Hudson | No | Yes | No | Yes | No | Yes |
| Erie | Yes | No | Yes | Yes | Yes | Yes |
| Illinois Central | No | No | No | No | No | Yes |
| Louisville & Nashville | No | No | No | Yes | No | Yes |
| Missouri, Kansas & Texas | Yes | Yes | Yes | No | No | Yes |
| Missouri Pacific | Yes | Yes | No | No | No | Yes |
| New York Central & Hudson River | No | No | No | No | No | Yes |
| New York, Ontario & Western | No | No | No | No | No | Yes |
| Pennsylvania | No | No | No | No | No | Yes |
| Reading | Yes | No | No | No | No | Yes |
| Southern | Yes | No | Yes | No | Yes | Yes |
| Southern Pacific | Yes | No | No | No | No | Yes |
| St. Louis & San Francisco | Yes | No | No | No | No | Yes |
| St. Louis Southwestern | No | No | No | No | No | Yes |
| Texas & Pacific | Yes | No | No | No | No | Yes |
| Union Pacific | Yes | Yes | No | No | No | Yes |
| Wabash | Yes | No | No | No | No | Yes |
| Wisconsin Central | Yes | No | No | No | No | Yes |

*Notes*: See appendix text for a description of the variables.

Table A.2: Firm Attributes (Continued)

| Firm Name | Capital | Income Statement Lines | Year of Incorporation | Export/Output |
|---|---|---|---|---|
| Amalgamated Copper | 155,000,000 | 0 | 1899 | 7.121 |
| American Car & Foundry | 60,000,000 | 8 | 1899 | 2.840 |
| American Cotton Oil | 30,435,700 | 7 | 1889 | 13.361 |
| American Smelting & Refining | 100,000,000 | 5 | 1899 | 7.121 |
| American Sugar Refining | 73,936,000 | 0 | 1891 | 13.361 |
| Anaconda Copper Mining | 30,000,000 | 0 | 1895 | 7.121 |
| Colorado Fuel and Iron | 25,000,000 | 23 | 1892 | 5.046 |
| Columbus & Hocking Coal & Iron | 7,000,000 | 6 | 1883 | 5.046 |
| Glucose Sugar Refining | 37,665,600 | 3 | 1897 | 13.361 |
| International Paper | 39,849,500 | 6 | 1898 | 3.082 |
| International Power | 8,000,000 | 4 | 1899 | 2.840 |
| National Biscuit | 53,061,100 | 5 | 1898 | 13.361 |
| National Lead | 29,809,400 | 5 | 1891 | 11.383 |
| Pressed Steel Car | 25,000,000 | 4 | 1899 | 2.840 |
| Republic Iron & Steel | 47,497,900 | 6 | 1899 | 5.046 |
| Tennessee Coal, Iron & Railroad | 22,553,060 | 3 | 1860 | 5.046 |
| United States Leather | 125,139,600 | 0 | 1893 | 4.475 |
| United States Rubber | 47,191,500 | 10 | 1892 | 2.505 |
| United States Steel | 1,014,959,700 | 0 | 1901 | 5.046 |
| Virginia-Carolina Chemical | 24,000,000 | 3 | 1895 | 11.383 |
| Atchison, Topeka & Santa Fe | 216,199,530 | 33 | 1895 | 13.012 |
| Baltimore & Ohio | 104,361,217 | 33 | 1827 | 8.500 |
| Canadian Pacific | 96,171,000 | 33 | 1881 | 11.326 |
| Chesapeake & Ohio | 60,543,100 | 33 | 1878 | 8.648 |
| Chicago Great Western | 40,176,490 | 33 | 1892 | 13.893 |
| Chicago, Rock Island & Pacific | 60,000,000 | 33 | 1880 | 12.797 |
| Chicago & Alton | 39,086,800 | 33 | 1900 | 12.028 |
| Chicago, Indianapolis & Louisville | 15,000,000 | 33 | 1897 | 8.039 |
| Chicago, Milwaukee & St. Paul | 96,397,400 | 33 | 1863 | 13.505 |
| Chicago Terminal Transfer | 30,000,000 | 33 | 1897 | 6.252 |
| Delaware & Hudson | 34,658,200 | 33 | 1823 | 8.920 |
| Erie | 176,240,200 | 33 | 1895 | 8.438 |
| Illinois Central | 76,000,000 | 33 | 1850 | 10.014 |
| Louisville & Nashville | 55,000,000 | 33 | 1850 | 10.830 |
| Missouri, Kansas & Texas | 68,280,300 | 33 | 1896 | 14.075 |
| Missouri Pacific | 76,616,873 | 33 | 1876 | 12.981 |
| New York Central & Hudson River | 115,000,000 | 33 | 1869 | 6.927 |
| New York, Ontario & Western | 58,118,382 | 33 | 1879 | 9.006 |
| Pennsylvania | 202,200,800 | 33 | 1846 | 8.257 |
| Reading | 140,000,000 | 33 | 1871 | 9.124 |
| Southern | 180,000,000 | 33 | 1894 | 9.797 |
| Southern Pacific | 197,832,148 | 33 | 1884 | 12.103 |
| St. Louis & San Francisco | 46,747,400 | 33 | 1896 | 13.009 |
| St. Louis Southwestern | 21,650,000 | 33 | 1890 | 14.333 |
| Texas & Pacific | 38,706,000 | 33 | 1874 | 13.334 |
| Union Pacific | 204,511,000 | 33 | 1897 | 13.239 |
| Wabash | 52,000,000 | 33 | 1889 | 7.253 |
| Wisconsin Central | 27,436,000 | 33 | 1899 | 13.321 |

*Notes*: See appendix text for a description of the variables.

Table A.3: McKinley Assassination Event Analysis using Abnormal Returns, Recent Mergers

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Merger x Sept. 7 | -0.0175* | -0.0160* | -0.0205** | -0.0205* |
| | (0.0095) | (0.0092) | (0.0094) | (0.0108) |
| Merger x Sept. 9 | 0.0197*** | 0.0191*** | 0.0199*** | 0.0194** |
| | (0.0061) | (0.0060) | (0.0067) | (0.0084) |
| Merger x Sept. 13 | -0.0141* | -0.0150* | -0.0181** | -0.0114 |
| | (0.0081) | (0.0077) | (0.0082) | (0.0097) |
| Merger x Sept. 16 | 0.0197** | 0.0189** | 0.0216** | 0.0175* |
| | (0.0084) | (0.0082) | (0.0090) | (0.0093) |
| I. S. Lines x Sept. 7 | | 0.0025** | 0.0030*** | 0.0030*** |
| | | (0.0010) | (0.0010) | (0.0010) |
| I. S. Lines x Sept. 9 | | -0.0014** | -0.0016** | -0.0016** |
| | | (0.0006) | (0.0007) | (0.0007) |
| I. S. Lines x Sept. 13 | | 0.0018 | 0.0011 | 0.0010 |
| | | (0.0020) | (0.0025) | (0.0026) |
| I. S. Lines x Sept. 16 | | -0.0022** | -0.0021* | -0.0021* |
| | | (0.0010) | (0.0011) | (0.0012) |
| Donor x Sept. 7 | | | 0.0209** | 0.0209** |
| | | | (0.0100) | (0.0101) |
| Donor x Sept. 9 | | | -0.0052 | -0.0052 |
| | | | (0.0076) | (0.0076) |
| Donor x Sept. 13 | | | 0.0158 | 0.0149 |
| | | | (0.0105) | (0.0091) |
| Donor x Sept. 16 | | | -0.0118 | -0.0117 |
| | | | (0.0138) | (0.0132) |
| Roosevelt x Sept. 7 | | | 0.0124 | 0.0124 |
| | | | (0.0078) | (0.0080) |
| Roosevelt x Sept. 9 | | | -0.0062 | -0.0064 |
| | | | (0.0052) | (0.0055) |
| Roosevelt x Sept. 13 | | | -0.0213 | -0.0179 |
| | | | (0.0131) | (0.0131) |
| Roosevelt x Sept. 16 | | | 0.0100 | 0.0091 |
| | | | (0.0129) | (0.0127) |
| Log(Age) x Sept. 7 | | | | 0.0000 |
| | | | | (0.0035) |
| Log(Age) x Sept. 9 | | | | -0.0005 |
| | | | | (0.0035) |
| Log(Age) x Sept. 13 | | | | 0.0062 |
| | | | | (0.0056) |
| Log(Age) x Sept. 16 | | | | -0.0042 |
| | | | | (0.0038) |
| Firm, Date Fixed Effects | YES | YES | YES | YES |
| Observations | 603 | 603 | 603 | 603 |
| R-squared | 0.1898 | 0.2181 | 0.2536 | 0.2590 |
| Abnormal Return: | | | | |
| Mean | -0.0007 | -0.0007 | -0.0007 | -0.0007 |
| Std. Dev. | 0.0196 | 0.0196 | 0.0196 | 0.0196 |

*Notes*: All regressions include log capital and an indicator for railroads interacted with the event dates (September 7, 9, 13, and 16). Standard errors adjusted for clustering by firm are reported in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Table A.4: McKinley Assassination Event Analysis using Abnormal Returns, Failed Mergers

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Merger Fail x Sept. 7 | 0.0292*** | 0.0251*** | 0.0223*** | 0.0207*** |
| | (0.0081) | (0.0079) | (0.0076) | (0.0071) |
| Merger Fail x Sept. 9 | -0.0168** | -0.0145** | -0.0154** | -0.0133** |
| | (0.0065) | (0.0066) | (0.0060) | (0.0057) |
| Merger Fail x Sept. 13 | 0.0256*** | 0.0253** | 0.0244*** | 0.0234*** |
| | (0.0092) | (0.0095) | (0.0088) | (0.0074) |
| Merger Fail x Sept. 16 | -0.0351*** | -0.0325*** | -0.0346*** | -0.0318*** |
| | (0.0084) | (0.0083) | (0.0096) | (0.0088) |
| I. S. Lines x Sept. 7 | | 0.0019** | 0.0024** | 0.0024** |
| | | (0.0009) | (0.0010) | (0.0010) |
| I. S. Lines x Sept. 9 | | -0.0011** | -0.0012** | -0.0012** |
| | | (0.0005) | (0.0006) | (0.0005) |
| I. S. Lines x Sept. 13 | | 0.0007 | -0.0002 | -0.0000 |
| | | (0.0021) | (0.0025) | (0.0024) |
| I. S. Lines x Sept. 16 | | -0.0012 | -0.0009 | -0.0008 |
| | | (0.0012) | (0.0013) | (0.0013) |
| Donor x Sept. 7 | | | 0.0042 | 0.0060 |
| | | | (0.0094) | (0.0089) |
| Donor x Sept. 9 | | | 0.0090 | 0.0066 |
| | | | (0.0069) | (0.0064) |
| Donor x Sept. 13 | | | 0.0035 | 0.0062 |
| | | | (0.0107) | (0.0096) |
| Donor x Sept. 16 | | | 0.0039 | 0.0012 |
| | | | (0.0145) | (0.0139) |
| Roosevelt x Sept. 7 | | | 0.0163** | 0.0165** |
| | | | (0.0072) | (0.0077) |
| Roosevelt x Sept. 9 | | | -0.0101** | -0.0104** |
| | | | (0.0050) | (0.0050) |
| Roosevelt x Sept. 13 | | | -0.0183 | -0.0138 |
| | | | (0.0126) | (0.0114) |
| Roosevelt x Sept. 16 | | | 0.0093 | 0.0086 |
| | | | (0.0125) | (0.0115) |
| Log(Age) x Sept. 7 | | | | 0.0035 |
| | | | | (0.0036) |
| Log(Age) x Sept. 9 | | | | -0.0044 |
| | | | | (0.0034) |
| Log(Age) x Sept. 13 | | | | 0.0095** |
| | | | | (0.0040) |
| Log(Age) x Sept. 16 | | | | -0.0064* |
| | | | | (0.0036) |
| Firm, Date Fixed Effects | YES | YES | YES | YES |
| Observations | 603 | 603 | 603 | 603 |
| R-squared | 0.2252 | 0.2369 | 0.2572 | 0.2803 |
| Abnormal Return: | | | | |
| Mean | -0.0007 | -0.0007 | -0.0007 | -0.0007 |
| Std. Dev. | 0.0196 | 0.0196 | 0.0196 | 0.0196 |

*Notes*: All regressions include log capital and an indicator for railroads interacted with the event dates (September 7, 9, 13, and 16). Standard errors adjusted for clustering by firm are reported in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Table A.5: McKinley Assassination Event Analysis using Abnormal Returns, Robustness to Assets

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Merger x Sept. 7 | -0.0185* | -0.0164* | -0.0200** | -0.0190* |
| | (0.0096) | (0.0092) | (0.0097) | (0.0111) |
| Merger x Sept. 9 | 0.0219*** | 0.0212*** | 0.0225*** | 0.0212** |
| | (0.0061) | (0.0060) | (0.0070) | (0.0084) |
| Merger x Sept. 13 | -0.0116 | -0.0127 | -0.0167* | -0.0111 |
| | (0.0085) | (0.0079) | (0.0086) | (0.0101) |
| Merger x Sept. 16 | 0.0204** | 0.0194** | 0.0229** | 0.0181* |
| | (0.0089) | (0.0087) | (0.0100) | (0.0099) |
| Log(Assets) x Sept. 7 | -0.0039 | -0.0062 | -0.0037 | -0.0039 |
| | (0.0039) | (0.0041) | (0.0041) | (0.0045) |
| Log(Assets) x Sept. 9 | 0.0056** | 0.0066** | 0.0063** | 0.0067** |
| | (0.0026) | (0.0027) | (0.0028) | (0.0032) |
| Log(Assets) x Sept. 13 | 0.0085* | 0.0071 | 0.0048 | 0.0025 |
| | (0.0043) | (0.0048) | (0.0053) | (0.0060) |
| Log(Assets) x Sept. 16 | -0.0004 | 0.0013 | 0.0043 | 0.0057 |
| | (0.0031) | (0.0029) | (0.0055) | (0.0056) |
| I. S. Lines x Event Dates | NO | YES | YES | YES |
| Donor x Event Dates | NO | NO | YES | YES |
| Roosevelt x Event Dates | NO | NO | YES | YES |
| Log(Age) x Event Dates | NO | NO | NO | YES |
| Firm, Date Fixed Effects | YES | YES | YES | YES |
| Observations | 575 | 575 | 575 | 575 |
| R-squared | 0.1982 | 0.2321 | 0.2641 | 0.2701 |
| Abnormal Return: | | | | |
| Mean | -0.0005 | -0.0005 | -0.0005 | -0.0005 |
| Std. Dev. | 0.0197 | 0.0197 | 0.0197 | 0.0197 |

*Notes*: All regressions include log capital and an indicator for railroads interacted with the event dates (September 7, 9, 13, and 16). Standard errors adjusted for clustering by firm are reported in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Table A.6: McKinley Assassination Event Analysis using Unadjusted Returns, Recent Mergers

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Merger x Sept. 7 | -0.0161* | -0.0235** | -0.0235** | -0.0211* | -0.0115 |
| | (0.0095) | (0.0103) | (0.0105) | (0.0109) | (0.0112) |
| Merger x Sept. 9 | 0.0120* | 0.0207*** | 0.0207*** | 0.0180** | 0.0134 |
| | (0.0064) | (0.0066) | (0.0067) | (0.0074) | (0.0086) |
| Merger x Sept. 13 | -0.0134 | -0.0176** | -0.0176** | -0.0161* | -0.0031 |
| | (0.0081) | (0.0087) | (0.0087) | (0.0088) | (0.0100) |
| Merger x Sept. 16 | 0.0121 | 0.0219** | 0.0220** | 0.0200** | 0.0089 |
| | (0.0089) | (0.0091) | (0.0092) | (0.0097) | (0.0107) |
| I. S. Lines x Event Dates | NO | NO | YES | YES | YES |
| Donor x Event Dates | NO | NO | NO | YES | YES |
| Roosevelt x Event Dates | NO | NO | NO | YES | YES |
| Log(Age) x Event Dates | NO | NO | NO | NO | YES |
| Firm, Date Fixed Effects | YES | YES | YES | YES | YES |
| Observations | 869 | 603 | 603 | 603 | 603 |
| R-squared | 0.6799 | 0.7636 | 0.7636 | 0.7712 | 0.7822 |
| Return: | | | | | |
| Mean | 0.0012 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Std. Dev. | 0.0377 | 0.0376 | 0.0376 | 0.0376 | 0.0376 |

*Notes*: In Column (1) the sample is restricted to firms whose common stocks traded at least 100 shares on all four event dates. In Columns (2) through (6) the sample is limited to the firms that appear in our abnormal returns analysis. All regressions include log capital and an indicator for railroads interacted with the event dates (September 7, 9, 13, and 16). Standard errors adjusted for clustering by firm are reported in parentheses.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A.7: McKinley Assassination Event Analysis using Abnormal Returns, Robustness to Market Share, Market Concentration, and Community of Interest

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Merger x Sept. 7 | -0.0167* | -0.0199* | -0.0172** | -0.0197* | -0.0174 | -0.0198* |
| | (0.0088) | (0.0102) | (0.0080) | (0.0106) | (0.0109) | (0.0115) |
| Merger x Sept. 9 | 0.0199*** | 0.0195** | 0.0199*** | 0.0193** | 0.0197*** | 0.0193** |
| | (0.0060) | (0.0084) | (0.0058) | (0.0085) | (0.0071) | (0.0089) |
| Merger x Sept. 13 | -0.0150* | -0.0121 | -0.0141* | -0.0116 | -0.0134 | -0.0096 |
| | (0.0082) | (0.0100) | (0.0081) | (0.0097) | (0.0090) | (0.0108) |
| Merger x Sept. 16 | 0.0197** | 0.0175* | 0.0201** | 0.0177* | 0.0191** | 0.0169* |
| | (0.0083) | (0.0093) | (0.0080) | (0.0092) | (0.0092) | (0.0097) |
| Market Share x Sept. 7 | -0.1673* | -0.1295** | | | | |
| | (0.0837) | (0.0536) | | | | |
| Market Share x Sept. 9 | 0.0649 | 0.0525 | | | | |
| | (0.0460) | (0.0490) | | | | |
| Market Share x Sept. 13 | 0.0836 | 0.0850 | | | | |
| | (0.0658) | (0.0659) | | | | |
| Market Share x Sept. 16 | 0.0367 | 0.0366 | | | | |
| | (0.1051) | (0.0960) | | | | |
| Market Concentration x Sept. 7 | | | 0.1166** | 0.0795* | | |
| | | | (0.0460) | (0.0430) | | |
| Market Concentration x Sept. 9 | | | -0.0326 | -0.0124 | | |
| | | | (0.0284) | (0.0311) | | |
| Market Concentration x Sept. 13 | | | -0.0038 | -0.0107 | | |
| | | | (0.0490) | (0.0370) | | |
| Market Concentration x Sept. 16 | | | -0.0297 | -0.0119 | | |
| | | | (0.0460) | (0.0426) | | |
| Community of Interest x Sept. 7 | | | | | -0.0004 | -0.0054 |
| | | | | | (0.0114) | (0.0118) |
| Community of Interest x Sept. 9 | | | | | 0.00001 | 0.0011 |
| | | | | | (0.0079) | (0.0080) |
| Community of Interest x Sept. 13 | | | | | -0.0036 | -0.0077 |
| | | | | | (0.0100) | (0.0113) |
| Community of Interest x Sept. 16 | | | | | 0.0033 | 0.0061 |
| | | | | | (0.0090) | (0.0095) |
| I. S. Lines x Event Dates | NO | YES | NO | YES | NO | YES |
| Donor x Event Dates | NO | YES | NO | YES | NO | YES |
| Roosevelt x Event Dates | NO | YES | NO | YES | NO | YES |
| Log(Age) x Event Dates | NO | YES | NO | YES | NO | YES |
| Firm, Date Fixed Effects | YES | YES | YES | YES | YES | YES |
| Observations | 603 | 603 | 603 | 603 | 603 | 603 |
| R-squared | 0.2175 | 0.2768 | 0.2249 | 0.2696 | 0.1904 | 0.2620 |
| Abnormal Return: | | | | | | |
| Mean | -0.0007 | -0.0007 | -0.0007 | -0.0007 | -0.0007 | -0.0007 |
| Std. Dev. | 0.0196 | 0.0196 | 0.0196 | 0.0196 | 0.0196 | 0.0196 |

*Notes*: Specifications in columns (1) and (2) include a measure of market share interacted with event dates. Specifications in columns (3) and (4) include a measure of market concentration interacted with event dates. Specifications in columns (5) and (6) include an indicator for being a subordinate member of a railroad community of interest interacted with event dates. All regressions include log capital and an indicator for railroads interacted with the event dates (September 7, 9, 13, and 16). Standard errors adjusted for clustering by firm are reported in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Table A.8: Northern Securities Event Analysis using Cumulative Abnormal Returns

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Merger | -0.0159** | -0.0298*** | -0.0314** | -0.0147** | -0.0150* |
| | (0.0068) | (0.0098) | (0.0117) | (0.0064) | (0.0075) |
| I. S. Lines | 0.0006 | 0.0009 | 0.0012 | 0.0003 | -0.0004 |
| | (0.0005) | (0.0009) | (0.0011) | (0.0004) | (0.0009) |
| Railroad | -0.0064 | 0.0001 | -0.0050 | 0.0043 | 0.0180 |
| | (0.0181) | (0.0301) | (0.0379) | (0.0137) | (0.0277) |
| JP Morgan Firm | -0.0074 | -0.0065 | -0.0085 | -0.0058 | -0.0176** |
| | (0.0049) | (0.0071) | (0.0083) | (0.0053) | (0.0068) |
| Constant | 0.0911 | 0.1174 | 0.2077 | 0.1089 | 0.0411 |
| | (0.0780) | (0.1183) | (0.1601) | (0.0723) | (0.0848) |
| Observations | 48 | 48 | 48 | 48 | 47 |
| R-squared | 0.1839 | 0.2723 | 0.3068 | 0.2760 | 0.1738 |
| Cum. Abn. Return: | | | | | |
| Mean | 0.0066 | 0.0040 | 0.0107 | 0.0071 | 0.0053 |
| Std. Dev. | 0.0239 | 0.0313 | 0.0365 | 0.0206 | 0.0232 |
| CAR Window: | | | | | |
| Begin Date | 02/20/1902 | 02/19/1902 | 02/18/1902 | 02/20/1902 | 02/20/1902 |
| End Date | 03/01/1902 | 03/01/1902 | 03/01/1902 | 02/28/1902 | 02/25/1902 |

*Notes*: This table presents estimates obtained from different versions of Equation (2). We study the effects of the announcement on February 19, 1902, that an antitrust suit would be filed against the Northern Securities Company. The dependent variable is abnormal returns cumulated over the range of dates specified under CAR Window. All regressions also include log capital and log age as controls. Robust standard errors are reported in parentheses.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A.9: Northern Securities Event Analysis using Cumulative Unadjusted Returns

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Merger | -0.0180* | -0.0191** | -0.0173** | -0.0166** | -0.0170** |
| | (0.0106) | (0.0077) | (0.0070) | (0.0071) | (0.0073) |
| I. S. Lines | | | -0.0003 | 0.0005 | 0.0005 |
| | | | (0.0003) | (0.0006) | (0.0006) |
| Railroad | | | | -0.0234 | -0.0225 |
| | | | | (0.0191) | (0.0191) |
| JP Morgan Firm | | | | | -0.0108* |
| | | | | | (0.0056) |
| Constant | 0.1893** | 0.0840 | 0.0751 | 0.0510 | 0.0321 |
| | (0.0922) | (0.0670) | (0.0688) | (0.0784) | (0.0813) |
| Observations | 90 | 48 | 48 | 48 | 48 |
| R-squared | 0.1843 | 0.1811 | 0.1977 | 0.2094 | 0.2204 |
| Cum. Return: | | | | | |
| Mean | -0.0019 | -0.0106 | -0.0106 | -0.0106 | -0.0106 |
| Std. Dev. | 0.0357 | 0.0257 | 0.0257 | 0.0257 | 0.0257 |

*Notes*: This table presents estimates obtained from different versions of Equation (2). We study the effects of the announcement on February 19, 1902, that an antitrust suit would be filed against the Northern Securities Company. The dependent variable is unadjusted returns cumulated from February 20 to March 1, 1902. All regressions also include log capital and log age as controls. Robust standard errors are reported in parentheses.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A.10: Northern Securities Event Analysis using Cumulative Abnormal Returns, Robustness to Market Share, Market Concentration, and Community of Interest

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Merger | -0.0155** | -0.0159** | -0.0148** | -0.0156** | -0.0160** | -0.0170** |
| | (0.0064) | (0.0068) | (0.0070) | (0.0066) | (0.0069) | (0.0071) |
| Market Share | -0.0165 | 0.0064 | | | | |
| | (0.0150) | (0.0691) | | | | |
| Market Concentration | | | -0.0165 | -0.0103 | | |
| | | | (0.0113) | (0.0317) | | |
| Community of Interest | | | | | 0.0092 | 0.0056 |
| | | | | | (0.0073) | (0.0067) |
| Constant | 0.1251* | 0.0889 | 0.1266* | 0.0937 | 0.0971 | 0.0809 |
| | (0.0736) | (0.0804) | (0.0733) | (0.0789) | (0.0687) | (0.0737) |
| I. S. Lines | NO | YES | NO | YES | NO | YES |
| Railroad | NO | YES | NO | YES | NO | YES |
| JP Morgan Firm | NO | YES | NO | YES | NO | YES |
| Observations | 48 | 48 | 48 | 48 | 48 | 48 |
| R-squared | 0.1630 | 0.1843 | 0.1619 | 0.1869 | 0.1553 | 0.1910 |
| Cum. Abn. Return: | | | | | | |
| Mean | 0.0066 | 0.0066 | 0.0066 | 0.0066 | 0.0066 | 0.0066 |
| Std. Dev. | 0.0239 | 0.0239 | 0.0239 | 0.0239 | 0.0239 | 0.0239 |

*Notes*: This table presents estimates obtained from different versions of Equation (2). We study the effects of the announcement on February 19, 1902, that an antitrust suit would be filed against the Northern Securities Company. The dependent variable is abnormal returns cumulated from February 20 to March 1, 1902. Specifications in columns (1) and (2) include a measure of market share. Specifications in columns (3) and (4) include a measure of market concentration. Specifications in columns (5) and (6) include an indicator for being a subordinate member of a railroad community of interest. All regressions also include log capital and log age as controls. Robust standard errors are reported in parentheses.

*** $p<0.01$, ** $p<0.05$, * $p<0.1$.