

Empirical Data on Employer Gains From Compulsory Arbitration of Employment Disputes

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(Please note, this article contains several equations that are not supported by some browsers. If the equations do not appear correctly and you wish to see the correct equations, please contact the author.)

Legal costs in the United States are enormous. As pointed out by the Commission on the Future of Worker Management Relations, one of the major causes of the extraordinary legal costs in the U.S. "is the explosion of litigation under laws that rely in whole or in part on individual lawsuits for enforcement."^[1] The public frequently complains about the number of cases clogging the U.S. courts.^[2]

It has been suggested that one way to reduce litigation would be through the implementation of alternative dispute resolution (ADR).^[3] With respect to employment, many commentators have suggested that employers insert on form of ADR into their employment contracts. These clauses would mandate that employment-related disputes between the employer and the employee be settled by binding arbitration. Neither party to the employment relationship would be permitted to commence a lawsuit against the other over a dispute growing out of the employment relationship; the dispute would be settled by binding arbitration.^[4] Before employers would be willing to mandate binding arbitration, however, they would need to know that costs would be reduced. Stated differently, employers would need to know that they would benefit financially before they agreed to have employment-related disputes settled by binding arbitration or other forms of ADR.

Prior to 1991, the ability of employers to use arbitration agreements as a means of preventing their non-union employees from suing them in court over employment disputes was not clear. Then, in *Gilmer v. Interstate/Johnson Lane Corp.*,^[5] the Supreme Court held that an employee was precluded from suing his employer under the Age Discrimination in Employment Act^[6] because he had signed an agreement (in his registration as a securities representative) providing that all employment disputes would be submitted to binding arbitration. In a decision that reversed the holdings of six of the seven U.S. Circuit Courts of Appeals that had addressed and resolved the issue, the Supreme Court held a nonunion employee in such a situation would be required to

arbitrate his dispute and forgo his right to litigate (a unionized employee whose arbitration clause was contained collectively-bargaining arbitration would not be barred from commencing a lawsuit under the ADEA).[\[7\]](#)

This decision has proven quite controversial. Many of the earliest reactions came from employee rights organizations and those parts of the legal community that represent plaintiffs.[\[8\]](#) These groups point to flaws in many nonunion arbitration procedures, including the arbitration procedure used by the securities industry. The basic claim of these commentators is that binding arbitration will be beneficial for employers and detrimental for employees. While many employee rights advocates continue to criticize Gilmer and the mandatory arbitration of employment disputes[\[9\]](#) a number of scholars have responded to Gilmer's critics and defended the use of binding arbitration in the employment context.[\[10\]](#) In contrast to Gilmer's critics, these scholars contend that binding arbitration is neither a panacea for employers nor a death knell for employees.

To this point, however, the debate between the critics and supporters of binding arbitration in employment has been solely speculative and conjectural. The asserted benefits to employers and detriments to employees from binding arbitration are purely hypothetical. We are unaware of any empirical assessments of the effects of binding arbitration for employers. In fact, the American Arbitration Association recently acknowledged that there is a lack of empirical data businesses can use in deciding whether it would behoove them to institute binding arbitration systems.[\[11\]](#)

This research attempted to address the lack of empirical data mentioned above by estimating whether binding arbitration of employment disputes provides any empirical benefit to employers. Specifically, we assess whether firms received any benefit from the Supreme Court's Gilmer decision -- the decision that provided the way for employers to institute and require their employees to use binding arbitration systems. As will be discussed more fully, the methodology we use allows us to conclude that, if firms benefited from the Gilmer decision, this indicates that they benefit from binding arbitration systems as well. We use event study methodology, a technique that examines the effect of an event on shareholder returns in a sample of firms likely to have been affected by that event. According to the event study, if shareholder returns to firms rose in response to an event, that indicates that the event was beneficial for those firms. In this case, the "event" is the Supreme Court's decision in Gilmer. A rise in shareholder returns in response to the Gilmer decision will denote directly that the decision benefited those firms and indirectly that binding arbitration of employment disputes benefits employers empirically.

Since Interstate/Johnson Lane Corp. was a securities firm and since the arbitration agreement in Gilmer was a standard securities industry arbitration agreement, the first sample of firms we use is a sample of firms in the securities industry. Then, to estimate the impact of Gilmer and binding arbitration more generally, we examine the impact of the decision on non-securities firms in the financial services industry, an industry in which there are few collective bargaining agreements.[\[12\]](#) This second set of estimates

provides evidence on the opinion of investors regarding the likely ramifications of the Gilmer decision for nonunion employers outside the securities industry.

Further, our research takes advantage of the fact that the Gilmer decision changed the law in some -- but not all -- states, because of differing decisions by various U.S. Circuit Courts of Appeal prior to the Supreme Court's decision. We contrast the results for the firms located in the states in which the law changed with the results for firms located in other states. This assures us that the change in the law -- not other events in the same period -- drove changes in shareholder returns.

THE GILMER DECISION

Since the facts surrounding the Gilmer decision and the reasoning of the Supreme Court in that decision are now common knowledge to most scholars of employment law, we provide merely an overview for those wishing a brief review of the case. Those wanting a more extensive review of the case are invited to look at any of a number of articles that have been written that discuss the case in detail.[\[13\]](#)

Background

The issue addressed by the Supreme Court in Gilmer was whether or not a nonunion employee would be precluded from suing his employer under the Age Discrimination in Employment Act because he had signed an agreement stating that he would arbitrate all disputes relating to the termination of his employment and waiving his right to commence a lawsuit over those disputes. This issue was in doubt prior to Gilmer, in large part because of the Supreme Court's 1974 decision in Alexander v. Gardner-Denver.[\[14\]](#)

Alexander was a unionized employee who had been discharged.[\[15\]](#) Alexander utilized a grievance-arbitration procedure contained in a collective bargaining agreement, but his grievance was denied by an arbitrator who held that Alexander had been discharged for just cause.[\[16\]](#) When Alexander sued the employer for race discrimination under Title VII of the Civil Rights Act of 1964, the company argued that the arbitrator's decision should preclude Alexander from suing the company under Title VII. The Supreme Court disagreed with the employer's argument and allowed Alexander's lawsuit to proceed.[\[17\]](#) In other words, following Alexander v. Gardner Denver, unionized employers could not use arbitration clauses in collective bargaining agreements as a way of preventing their employees from commencing lawsuits under discrimination statutes against the employer.

Between 1974 and 1991, the lower courts disagreed over the applicability of Alexander v. Gardner-Denver to non-union arbitration procedures. A plurality of courts (six of the seven Federal Circuits that had addressed the issue) held that Alexander v. Gardner-Denver also applied to non-union situations.[\[18\]](#) In those circuits, an employee could sue his/her employer in court even if the employee had agreed to submit his/her employment disputes to arbitration and waived the right to sue.[\[19\]](#) Other courts

disagreed and held that arbitration/waiver agreements did preclude lawsuits in the non-union sector. This view prevailed in the Fourth Circuit (the court that heard Gilmer before the case went to the Supreme Court).^[20] In the remaining five circuits, findings of lower courts were mixed and the Circuit court had not ruled at the time of the Supreme Court agreed to decide the Gilmer case.

The Facts of the Gilmer Case

Robert D. Gilmer was hired by Interstate/Johnson Lane in May 1981 as a manager of financial services. As a condition of employment, Gilmer was required to register as a securities representative with the New York Stock Exchange. The application for his securities registration contained an arbitration clause pursuant to which Gilmer agreed to arbitrate any disputes between himself and his employer arising out of his employment or the termination of his employment. Further, Rule 347 of the New York Stock Exchange (which covered Gilmer) states:

Any controversy between a registered representative and any member or member organization arising out of the employment or termination of employment of such registered representative by and with such member or member organization shall be settled by arbitration, at the instance of any such party, in accordance with the arbitration procedure prescribed elsewhere in these rules.^[21]

In other words, Rule 347 requires any dispute between a registered representative (employee) and a member organization (employer) to be settled by arbitration.

Interstate terminated Gilmer's employment in 1987, when Gilmer was 62 years old. After first filing an age discrimination charge with the Equal Employment Opportunity Commission (EEOC), Gilmer brought suit in the United States District Court for the Western District of North Carolina. He alleged that Interstate had discharged him because of his age, in violation of the Age Discrimination in Employment Act (ADEA).^[22] In response to Gilmer's complaint, Interstate filed a motion to compel arbitration of the ADEA claim, relying on the arbitration agreement in Gilmer's registration application, as well as on the Federal Arbitration Act.^[23] The District Court denied Interstate's motion, based on the Supreme Court's decision in Alexander v. Gardner-Denver.^[24] On appeal, the United States Court of Appeals for the Fourth Circuit reversed, finding "nothing in the text, legislative history, or underlying purposes of the ADEA indicating a congressional intent to preclude enforcement of arbitration agreements"^[25] and Gilmer filed a petition for a *writ of certiorari* to the Supreme Court. On October 1, 1990, the Supreme Court granted Gilmer's petition stating: "The petition for a writ of certiorari is granted limited to Question 1 presented by the petition."^[26] Question 1 in Gilmer's petition was: "Are claims brought pursuant to the Age Discrimination in Employment Act, 29 U. S. C. ' 621, et seq. ("ADEA") subject to compulsory arbitration?"^[27]

Following oral argument and the filing of numerous *amicus curiae* briefs, the Supreme Court, in a 7 to 2 opinion, agreed with Interstate/Johnson Lane and held that

NYSE Rule 347 and Gilmer's own employment agreement precluded his lawsuit under the ADEA. In reaching its decision, the Court treated a number of contentions Gilmer had made in support of his case. First, Gilmer argued that the social policies behind the ADEA were not adequately served by arbitration. The Court disagreed, noting that arbitration of statutory claims resolves individual grievances and furthers social policies as effectively as judicial resolution.[28] The Court also rejected Gilmer's second argument, that compulsory arbitration of ADEA claims undermines the EEOC's role in enforcing the ADEA.[29] The Court stated that, because the EEOC has independent authority to investigate age discrimination, its role does not depend on the filing of a lawsuit in court. Gilmer's third contention was that requiring arbitration would deprive plaintiffs of the judicial forum provided for by Congress in the ADEA. The Court disagreed, stating that Congress never explicitly precluded arbitration or any other non-judicial resolution of a claim as a potential remedy.[30] The Court also rejected Gilmer's fourth argument concerning the general inadequacy of arbitration.[31] Although Gilmer made four general complaints about the adequacy of arbitration, the Court discounted each of these complaints. Gilmer's fifth and final claim was that unequal bargaining power between employers and employees militated against the enforcement of arbitration agreements. The Court disagreed, stating that arbitration agreements should be treated the same as other contracts and only held void when fraud or an overwhelming imbalance of economic power is shown.[32]

Finally, the Court treated Gilmer's arguments concerning the Alexander v. Gardner-Denver case, finding Gilmer's reliance on [Alexander v. Gardner Denver to be] misplaced." [33] First, the Court noted that, unlike Gardner-Denver, Gilmer involved only an individual employment contract, not a collective bargaining agreement. The Court stated that the inherent tension between collective representation and individual statutory rights militates against waiving judicial enforcement of those rights in a collective bargaining agreement, a concern not present in Gilmer. [34] Second, the Court noted that Gilmer relies on the FAA's policy favoring arbitration, while Gardner-Denver does not.[35] Third, the Court noted that Gardner-Denver concerned whether arbitration of contract-based claims precludes subsequent judicial review of statutory claims, while Gilmer merely involved the enforceability of an agreement to arbitrate a statutory claim.[36] Thus, because the Court did not foreclose the possibility that Gilmer could relitigate his claim in federal court after arbitration, the finality of the holding remained an open question.

After disposing of the arguments raised by Gilmer, the Supreme Court affirmed the judgment of the Fourth Circuit Court of Appeals: Gilmer could be required to arbitrate his claim.[37]

THE USE OF EVENT STUDIES IN ASSESSING LEGAL EVENTS

Event study methodology has been used to assess the effects of legal events on many occasions.[38] For example, a number of studies have tested the effects of legislation with event study methodology and concluded that legislation does affect the profitability of firms.[39] Although less frequently, event studies have been used to

assess the impact of court decisions as well. Specifically, Dhaliwal and Erickson (1998)[40] and McWilliams, Turk and Zardkoohi (1993)[41] both examine the effects of Supreme Court cases and find movements in stock prices in response to the Court's decisions.

The event study model rests on the efficient market hypothesis. According to this hypothesis, the price of a firm's stock multiplied by the number of shares outstanding is an unbiased estimate of the future profitability of the firm as perceived by the market on a given day. Therefore, any change in a firm's stock price in response to an event is evidence of a change in the firm's anticipated profitability in response to that event. The fact that the stock market dips and soars, moving hundreds of points on some days, does not disprove the event study model because that model statistically controls for the general level of (and movements in) the market. The estimating models used assess the value of a particular security relative to that general market level. Under the efficient markets hypothesis, it is not necessary that every investor knows about a particular event (like the Gilmer decision); rather, it is only necessary that some investors know about the event and that this generates market activity among these investors.

The effect of the Gilmer decision on security returns on any particular day is estimated by examining the equation:

$$(1) AR_{id} = R_{id} - E(R_{id} | \text{No } \underline{\text{Gilmer}} \text{ Information})$$

where AR_{id} is the abnormal return to firm i on day d due to information about the Gilmer decision, R_{id} is the actual return to firm i on day d and $E(R_{id} | \text{no } \underline{\text{Gilmer}} \text{ Information})$ is the expected return to firm i on day d absent any information about the Gilmer decision. R_{id} is readily available.[42] $E(R_{id} | \text{no } \underline{\text{Gilmer}} \text{ Information})$ must be predicted by the researcher. That return is predicted by the market model, which posits that the return to any security on day d is a function of the market as a whole and the risk of investing in that security relative to the risk of investing in the market as a whole. The ex ante return to security i in any time period t equals:

$$(2) \quad R_{it} = \alpha_i + \beta_i(R_{mt}) + \varepsilon_{it}$$

where R_{it} is the return to security i in time t , R_{mt} is the CRSP value-weighted index of all securities in time t and α_i and β_i are parameters.[43] The parameters in equation (2) were estimated for each firm using data from day -150 through day -51, treating the first event day (the day Gilmer filed his petition for *certiorari*) as day 0. Data from outside the event period were used so as to minimize the possibility of the firms' parameters having been affected by the event in question. 100 day model estimation periods from day -150 through -51 are typically used in event study research[44]

According to the market model, ε_{it} is a fair game variable with mean = 0 and variance = σ^2 . Therefore, equation (1) (the abnormal return to firm i on event day d due to the Gilmer decision) is tested by examining:

$$(3) \quad AR_{id} = R_{id} - \left(\hat{\alpha}_i + \hat{\beta}_i (R_{md}) \right)$$

In other words, the abnormal return (AR), or measure of the impact of an event, is simply the actual return given the event minus the expected return absent the event. To determine the average effect of the event on day d for the sample of the firms, the researcher merely averages the ARs over all the firms in the sample.

$$(4) \quad AR_d = 1/n \sum_{i=1}^n AR_{id}$$

The abnormal return computed in (4) discloses only the effect of the event on all the firms on day d. If more than one event day is used (because the researcher hypothesizes that shareholders capitalized the effects of the event being investigated on more than one day), the average abnormal returns (ARs) computed for each day are summed over all the event days to estimate the average total effect of the event under investigation. This total effect is known as the cumulative abnormal return ("CAR"):

$$(5) \quad CAR = \sum_{d=1}^t AR_d$$

where d=1 and d=t, respectively, are the beginning and ending days of the event period under investigation.

Whether or not the event being investigated did affect shareholder wealth in the sample of firms is determined by testing whether the cumulative abnormal return (CAR) computed in (5) is statistically different from zero. In order to make this determination, the cumulative abnormal return must be standardized to account for the possibility of statistical error in the determination of abnormal returns. Peterson discusses several ways to compute (CAR) and obtain an appropriate test statistic, consisting of the ratio of CAR (the cumulative abnormal return) to σ (CAR), the standard error of the cumulative abnormal return.[\[45\]](#) Such a statistic is used to determine the probability that the relationship between the event being investigated and movement of shareholder returns arose by chance alone.

Since the Gilmer decision would have affected all firms simultaneously, it is important in constructing the test statistic to control for the fact that the cumulative abnormal returns may be due either to the event under investigation or to something else that caused the firms' actual returns to be different from those predicted by the market model on the particular event days in question.[\[46\]](#) Several procedures for dealing with this problem have been employed, each of which uses the variance-covariance matrix of the residuals from the model estimation periods to correct for the "usual" correlation in the returns across firms. Any correlation in the sample estimated in the model estimation

periods is clearly not due to the event in question. In this paper, the Burgstahler and Noreen “H-statistic” is used.^[47] The "H-statistic" includes the $n \times n$ variance-covariance matrix, C_{ij} , of the residuals formed from the regressions in equation (2) used to estimate the parameters for each of the firms in the sample. Each off-diagonal element of the matrix, C_{ij} , represents the covariance between the estimated residuals from the market model for each of two firms. The diagonal elements of the matrix (where $i=j$) are the variances of the estimated residuals from the market model for each firm. In the Burgstahler and Noreen procedure, the denominator of the test statistic, σ (CAR), is constructed using this variance-covariance matrix as follows:

$$(6) \quad \sigma(CAR) = \left[\frac{(n/n-2)}{1/2} \sum_{i=1}^n \sum_{j=1}^n C_{ij} \right]$$

The H-statistic used to test the statistical significance of the CAR is hence computed as:

$$(7) \quad H = CAR / \sigma CAR$$

This H-statistic has essentially the same interpretation as a t-statistic.^[48] Including the corrected covariance in the statistical test of the cumulative abnormal return (CAR) increases the likelihood that if the cumulative abnormal return is significant, it is due to the legislation being investigated.^[49]

The Samples of Firms

Testing the impact of the Gilmer decision with event study methodology requires the identification of a sample(s) of firms that would have been affected by that decision more than the average firm whose stock was publicly traded (since, as noted earlier, movements in average stock prices are captured by the market index). According to the premises of the event study, the impact of Gilmer will be reflected in the shareholder returns of these firms -- and only these firms -- as information about the decision was revealed to the investing public.

Obviously, firms in the securities industry were affected most directly -- since Interstate/Johnson Lane Corp. is a securities firm and since the Gilmer case involved NYSE Rule 347, the Rule requiring securities brokers to arbitrate their employment disputes. Therefore, the first sample consisted of all securities firms in the United States with data necessary for the statistical analysis ($n=54$). Beyond the securities industry, the potential effect of Gilmer is more tenuous. When the Supreme Court granted Gilmer's petition for *certiorari*, the question it agreed to decide was framed fairly broadly: “Are claims brought pursuant to the Age Discrimination in Employment Act, 29 U. S. C. ' 621, et seq. (“ADEA”) subject to compulsory arbitration?”^[50] In the Court’s opinion, however, the issue was framed much more narrowly: “whether a claim under the Age Discrimination in Employment Act of 1967 (ADEA) 29 U.S.C. ' 621 et seq., can be

subjected to compulsory arbitration pursuant to an arbitration agreement in a securities registration application.”[\[51\]](#) Thus, while it was clear that the Gilmer decision would resolve the preclusive effect of arbitration agreements in the securities industry, the applicability of the decision to non-union arbitration agreements in other settings was by no means a certainty.

To test whether or not investors believed that the effect of Gilmer went beyond the securities industry we tested the effects of the decision on the returns of a sample of non-securities firms in the financial services industry. There is very limited unionization of the firms in this industry and, moreover, it is very similar to the securities industry in terms of the nature of the product, the nature of the work, the skills of the persons employed, and the location of the industry. We reasoned that, if Gilmer affected any firms outside the securities industry, it might reasonably be expected to affect non-securities financial services firms. As stated earlier, we used Standard & Poor’s Compustat, SIC codes 6000, 6100, 6300, 6400, and 6500 to identify a sample of firms in the relevant industries with data necessary for the statistical analysis (n=730).[\[52\]](#)

As discussed earlier, the effects of Gilmer on either sample also might depend on the location of the firm involved. Prior to the Supreme Court’s decision, the U.S. Circuit Courts of Appeals were divided over the issue addressed by the Court in Gilmer. Six Circuits, encompassing Maine, Delaware, Massachusetts, New Hampshire, Pennsylvania, New Jersey, Texas, Louisiana, Mississippi, Illinois, Indiana, Wisconsin, Minnesota, North Dakota, South Dakota, Nebraska, Iowa Missouri, Arkansas, Kansas, Colorado, Utah, Wyoming and Oklahoma, had held that such arbitration agreements did not preclude lawsuits under the ADEA (Group 1). One Circuit, consisting of Virginia, West Virginia, North Carolina and South Carolina, held that lawsuits were precluded by nonunion arbitration agreements (Group 2) and the remaining circuits covering the remaining states had not resolved the issue (Group 3).

Thus, the Gilmer decision settled an ambiguous legal issue for firms in some states, actually reversed the legal precedent for a second set of firms, and merely affirmed the status quo for a third. Hence, one would expect the decision to have greatest impact on firms in states in which the law changed. To test for differences among the groups, we formed zero-investment difference portfolios consisting of a long position in the firms in Group 1 and an equally valued short position in firms in Group 3.[\[53\]](#) The zero-investment difference portfolio approach allows the researcher to compare the effects of an event on two groups, both of which are affected by the event. If the effect of Gilmer on the firms in Group 1 -- the states where the law changed -- were greater than the effect on firms in other states, the return on the zero-investment difference portfolio should be positive and significant.[\[54\]](#)

Days on Which Shareholder Returns Would Have Been Affected By Gilmer

Assessing the effects of the Gilmer decision with the event study requires the examination of stock prices on the days when investors would have adjusted their estimates of the value of their claims to firm profits that would occur as a result of that

decision. The researcher must identify every day on which investors concluded that a firm's expected profitability would change as a result of the decision. Selecting the correct event days is of paramount importance. Omitting days on which investors adjusted their expectations of the value of their claims to firm profits due to the decision will produce an estimate of the impact of that decision that is biased toward zero. Including days on which investors did not make such adjustments will introduce additional variability in the estimated impact of the decision.

To select the event days relevant to the Gilmer decision, we relied on the Supreme Court docket sheet for the case. The docket sheet lists each date on which there was some activity related to the case. It begins with the date Gilmer filed his petition for a writ of *certiorari* asking the Supreme Court to overrule the Fourth Circuit Court of Appeals' decision and ends with the date the record in the case was returned to the Fourth Circuit. As noted earlier, Gilmer filed his cert. petition on June 26, 1990 and Interstate/Johnson Lane filed a brief in opposition to Gilmer's petition on July 27, 1990. On October 1, 1990, the Supreme Court granted Gilmer's petition stating: "The petition for a writ of certiorari is granted limited to Question 1 presented by the petition"[\[55\]](#) (Question 1 in Gilmer's petition was: "Are claims brought pursuant to the Age Discrimination in Employment Act, 29 U. S. C. ' 621, et seq. ("ADEA") subject to compulsory arbitration?"). On November 15, 1990, several amicus curiae briefs were filed with the court expressing opinions about the issues in the case. On November 27, 1990, Interstate/Johnson Lane filed a motion seeking to have the court strike certain portions of the amicus curiae briefs, but the Court denied this motion on December 10, 1990 and several additional amicus curiae briefs were filed on December 19, 1990.

The Gilmer case was argued before the Supreme Court on January 14, 1991. On January 22, 1991, Interstate/Johnson Lane made a motion to file a supplemental brief after argument and this motion was granted on February 19, 1991. Finally, the Supreme Court's decision in the case was rendered on May 13, 1991.

Every date on the docket sheet was included as an event date (see Table 1) because some activity occurred related to the Court's decision on each date. Potentially, any activity in the case might have led investors to believe that a firm's expected profitability would change as a result of that activity and of the case itself. Clearly, some days likely would have been more important than others (i.e., we would expect a bigger reaction from investors on the date of the Court's decision than on the date a supplemental brief was filed). Nevertheless, any activity in the case has the potential to induce investors to recalculate their estimates of the future probability of firms due to Gilmer. Thus, every date was included as an event date.[\[56\]](#)

Shareholder returns were tested over six different periods in this paper. Test I examined shareholder returns over the eleven event days just discussed. Tests II and III involve different spans of time framing these eleven days. In most research using event study methodology, the three-day window including one day on each side of the event date is used as a frame and this constitutes Test II. This frame allows for two possibilities: information about the event may have been leaked to the market before the

event took place (making it necessary to examine shareholder returns one day prior to each event date) and the market might have a delayed reaction, particularly if the event took place so late in the day that its effect was not impounded into security prices until the next day (making it necessary to examine shareholder returns one day after each event date). When dealing with a Supreme Court decision, however, the rationale for examining shareholder returns one day before the event date may well not apply. With Supreme Court decisions, leakage of information before the event date is less likely than with other events. Hence, we also evaluated Test III, which examined shareholder returns over the eleven event days plus one day after each event date.

We also examined the market's reaction on the day the Supreme Court's decision was handed down (Test IV), the decision date plus and minus one date (Test V) and the decision date plus one day (Test VI). The date the Court's decision was handed was tested by itself because some would expect the largest investor reaction on that date.

RESULTS AND DISCUSSION

The empirical results are presented in Tables 2A and 2B. Table 2A presents the cumulative abnormal return (CAR) for the entire securities sample (all securities firms in the U.S.) and the two securities subsamples (states where the law changed and other states, respectively), and the zero-investment difference portfolio results that measure the difference between the two subsamples. Table 2B contains the same results for the firms in the financial services industry.

In the securities industry, shareholder returns rose by 3.1% over test I, 3.7% over test II and 3.5% over Test III. Interestingly, the results show that there was no change in the shareholder returns of firms in the securities industry on the date the Gilmer decision was handed down (Test IV), although returns in those firms did rise when the days before and after the decision are included in the analysis (Test V) and when only the date following the decision was included (Test VI). All results except Test IV are statistically significant.

The results for the subsamples comport with prior expectations. The returns of the firms in those states where the law changed were greater than those in other states over Tests I, II, III, and V,^[57] as demonstrated by the findings for the zero-investment portfolio in the last row of the table. Overall, we conclude that financial markets believed that firms in the securities industry would benefit financially from the Supreme Court's decision in Gilmer v. Interstate/Johnson Lane Corp.

The results in the non-securities financial industries sample, presented in Table 2B, are less clear. On the eleven event days (Test I), the CAR is positive, but its magnitude is less than 1% and it is not statistically significant.^[58] Over Test II (the event days, plus or minus one day) and Test III (the event day plus one day), the results show a statistically significant increase in shareholder returns. Surprisingly, the CAR over test II in the financial services industry is almost as great as the CAR in the securities industry (3.25% as compared to 3.77%). On the other hand, the difference

between financial service firms in states where the law changed and where the law did not was not significant over Tests I, II, or III.

In contrast, over the three day period surrounding the announcement of the Court's decision in Gilmer (Test V) and over the two day period including the decision date plus the day after (Test VI), there was a statistically significant increase in shareholder returns in response to the Gilmer decision. In fact, shareholder returns actually rose slightly more in the financial services industry than they did in the securities industry over the three-day period surrounding the actual decision. Furthermore, the difference between states where the law changed and states where it did not is substantial over that period. That difference is both highly positive and statistically significant in all three event frames (Tests IV, V, and VI).

Thus, the impact of the Gilmer decision on the financial services industry is susceptible to different interpretations. If one puts more weight on results in which the surrounding days are included in the analysis (either Tests II and V – which include the day before and the day after the event – or Tests III and VI – which include solely the day after the event), then there is evidence that financial services firms benefited from Gilmer. If anything, financial services industry firms in states where the law changed (as compared to other states) got a surprisingly big boost from the decision itself (Test V and VI). On the other hand, if one puts more weight on results from the actual event days themselves (Tests I and IV), then one would conclude that investors did not believe that the Gilmer decision would have any impact on non-union firms in general. In most event studies, the tests using the three days surrounding an event day are typically emphasized (and we agree that markets sometimes anticipate and sometimes react to events with delay), leading us to place more emphasis on Tests II, III, V and VI.

As noted in the preceding paragraph, firms in the financial services industry -- especially those firms located in states where the law changed (as compared to states where the law did not change) -- got a surprisingly big boost from Gilmer when the Court's decision was actually rendered (Tests V and VI). While the zero-investment portfolio results for securities industry firms were greatest over Tests I and II (the tests that included all the event dates), the zero-investment difference portfolio results for financial services firms were greatest over Tests IV, V, and VI (the tests including only the date of the Gilmer decision itself).

One possible explanation for these results is that investors expected all along (throughout the entire time the case was at the Supreme Court level) that the decision in Gilmer would benefit the securities industry, because they knew that the case involved NYSE Rule 347 (the rule requiring securities brokers to arbitrate their employment disputes). Hence, the effects of the decision for securities firms were capitalized over the entire eleven-day event period. Investors, however, did not know that firms in financial services (or any firms outside of the securities industry) would potentially benefit from the Court's decision until it was actually handed down. Thus, investors in these firms waited until the decision was actually handed down before capitalizing the decision in their investment decisions.

To anyone reading the Gilmer decision, the fact that shareholder returns to firms in financial services rose on the day the decision was handed down is surprising. These results seem to indicate that investors believed that the decision was beneficial for their firms. However, footnote 2 of the Court's opinion specifically stated that the arbitration clause being enforced by the Court was the one contained in Gilmer's securities registration application. According to the court: "The record before us does not show, and the parties do not contend, that Gilmer's employment agreement with Interstate contained a written arbitration clause. Rather, the arbitration clause at issue is in Gilmer's securities registration application."^[59] In other words, the Court expressly refused to address the enforceability of arbitration clauses in employment agreements, and instead based its decision on the securities registration application.^[60] Nevertheless, something about the Court's decision arguably led investors to believe that the decision would have positive implications for nonunion firms outside the securities industry.

SUMMARY AND CONCLUSION

The verdict of the financial markets on the implications of the Gilmer decision for firm profitability is clear. As many employer and employee advocates have assumed, the use of binding arbitration systems for the settlement of legal disputes with employees benefits employers – in other words, there are empirical gains to employers who institute binding arbitration for their employees. We find that, in the securities industry, profits were elevated about 3% by the decision authorizing firms to implement such systems (with key results varying between 1% and 4%), despite their cost and despite the fact that such systems have spawned further legal controversy. In fact, the controversy over the particular form of arbitration used in the securities industry has been so great that in August 1997, the National Association of Securities Dealers agreed to drop the rule requiring all brokers to agree to arbitrate employment-related disputes.^[61] Individual brokerage firms still may require individual brokers to sign such agreements, however, and it is clearly in their financial interest to do so.

Whether or not it is in the public policy interest to allow such systems or to extend them to other arenas is an entirely different matter. The research reported here does not - and cannot -- answer that question. Nor do we contend that these systems benefit the public. This research merely demonstrates that mandatory arbitration systems benefit firms financially. Hence, if the law permits compulsory arbitration systems they are likely to spread. Arguments that they really do not benefit firms from a strategic human resource management perspective or other perspectives are unlikely to be influential in stopping the unilateral employer implementation of these systems. If it is legal to implement these systems, employers will do so. We contend that the conventional view is valid. We have demonstrated empirically that compulsory arbitration systems benefit employers. We leave it to others to demonstrate how they disadvantage employees.

Table 1

GILMER EVENT PERIODS

Date	Expected	Reason
June 26, 1990	-	Petition for writ of certiorari filed
July 27, 1990	+	Brief of Respondent in opposition filed
Oct. 1, 1990	-	Certiorari Granted
Nov. 15, 1990	?	Amicus Curiae briefs filed
Nov. 27, 1990	?	Respondent motion to strike portions of amicus briefs
Dec. 10, 1990	-	Respondent's motion of Nov. 27 denied
Dec. 19, 1990	?	Amicus Curiae briefs filed
Jan. 14, 1990	?	Oral argument held
Jan. 22, 1990	?	Respondent motion to file supplemental brief
Feb. 19, 1991	+	Respondent motion of Jan. 22 granted
May 13, 1991	+	Decision of 4th Circuit Affirmed
May 14, 1991	+	Day After Decision of Supreme Court Announced

Table 2A

Cumulative Abnormal Returns (CARs) for the Securities Industry in Various Periods Related to the Gilmer Decision and in Various Parts of the U.S.

Sample/Test	Test I – Event Days	Test II – Event Days,	Test III – Event Days,	Test IV – Day of Court	Test V – Day of Court	Test VI Day of Court
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	only	-1, 0, +1	0, +1	Decision	Decision, -1, 0 +1	Decision, -0 +1
Securities in all of the U.S. (n=54) CAR t statistic	.0307 (2.32)	.0377 (2.67)	.0354 (2.71)	-.001 (.421)	.006 (2.04)	.0106 (2.41)
Securities in states where law changed (n=20) CAR t-statistic	.0527 (2.37)	.0637 (1.65)	.046 (1.97)	-.002 (.03)	.0124 (3.19)	.0177 (3.61)
Securities in other states (n=32) CAR t-statistic	.0171 (2.30)	.0394 (3.07)	.0281 (2.91)	-.0015 (.669)	.002 (1.56)	.0079 (2.06)
Zero-Investment Difference Portfolio Between firms in two sets of states CAR t-statistic	.0356 (3.156)	.0235 (2.204)	.0194 (1.86)	.0005 (.848)	.0104 (1.79)	.008 (1.63)

Table 2B

Cumulative Abnormal Returns (CARs) for the Non-security Financial Services Industries in Various Periods Related to the Gilmer Decision and for Various Parts of the U.S.

Sample/Test	Test I – Event Days only	Test II – Event Days, -1, 0, +1	Test III – Event Days, 0, +1	Test IV – Day of Court Decision	Test V – Day of Court decision, -1, 0, +1	Test VI– Day of Court decision, 0, +1
Finance – all U.S.. (n=730) CAR t-statistic	.009 (1.21)	.0325 (2.45)	.02965 (2.19)	-.0003 (.75)	.008 (2.35)	.0099 (2.56)
Finance – states where law changed (n=222)	.0086 (1.06)	.0322 (2.301)	.03345 (2.41)	.0032 (1.06)	.0119 (2.79)	.0106 (2.86)

Sample/Test	Test I – Event Days only	Test II – Event Days, -1, 0, +1	Test III – Event Days, 0, +1	Test IV – Day of Court Decision	Test V – Day of Court decision, -1, 0, +1	Test VI– Day of Court decision, 0, +1
CAR t-statistic						
Finance – other states (n=435) CAR t-statistic	.0095 (1.299)	.0329 (2.604)	.0279 (2.51)	-.0038 (.058)	.0042 (1.78)	-.004 (.91)
Zero- Investment Difference Portfolio for Firms in two sets of states CAR t-statistic	-.0009 (.04)	-.0007 (.085)	.006 (1.44)	.007 (1.78)	.0777 (2.78)	.011 (3.01)

[1] U.S. Departments of Labor and Commerce, “Report and Recommendations, December 1994,” Washington, D.C., 1994.

[2] See, e.g., Harry Weinstein, “U.S. Court system at Breaking Point, Study Panel Finds,” *Los Angeles Times*, January 30, 1990, p.A3.

[3] Michael A. Scodro, “Arbitrating Novel Legal Questions: A Recommendation for Reform,” 105 *Yale Law Journal*, 1927 (1996); Arnold M. Zack, “Can Alternative Dispute Resolution Help Resolve Employment Disputes?” 136 *International Labour Review*, 95 (1997)

[4] Zack, *supra*, note 3; Robert J. Lewton, “Are Mandatory Arbitration Agreements A Viable Solution For Employers Seeking to Avoid Litigation of Statutory Employment Discrimination Claims?” 59 *Alb. L. Rev.* 991 (1996).

[5] 500 U.S. 20 (1991).

[6] 29 U.S.C. §§ 621-33a (1994).

[7] In the union sector, it was determined in Alexander v. Gardner Denver Co., 415 U.S. 36 (1974) that an employee had the right to sue his employer in federal court under Title VII of the Civil Rights Act of 1964, 42 U.S.C. § 2000e2a et. seq. (1998) notwithstanding the existence of an arbitration agreement covering that employee.

[8] See, e.g., Richard A. Bales, A New Direction for American Labor Law: Individual Autonomy and the Compulsory Arbitration of Individual Employment Rights, 30 Hous L. Rev. 1863 (1994). In fact, commentators had objected to the idea of binding arbitration of employment disputes even before Gilmer was decided. See e.g., Harry T. Edwards, “Alternative Dispute Resolution: Panacea or Anathema? 99 Harv. L. Rev. 668 (1986)

[9] See, e.g., David M. Kinnecome, Where Procedure Meets Substance: Are Arbitral Procedures a Method of Weakening the Substantive Protections Afforded by Employment Rights Statutes, 79 B. U. L. REV. 745 (1999); Katherine Van Wezel Stone, Mandatory Arbitration of Individual Employment Rights: The Yellow Dog Contract of the 1990s, 73 DENV. U. L. REV. 1017 (1996); “Note, The Mandatory Arbitration Clause: Forum selection or Employee Coercion” 8 B.U. Pub Int. L. J. 537 (1999).

[10] See, e.g., David Sherwin, J. Bruce Tracey & Zev Eigen, “In Defense of Mandatory Arbitration of Employment Disputes: Saving the Baby, Tossing out the Bath Water, and Constructing A New Sink in The Process,” 2 U. Pa. J. Lab. & Emp. L. 7 (1999); Michael Z. Green, “Debunking the Myth of Employer Advantage From Using Mandatory Arbitration for Discrimination Claims,” 31 Rutgers L. J. 399 (2000).

[11] See Julie A. Klein, “Researching Results of Alternative Dispute Resolution, N. Y. L. J., July 1, 1999 at 3.

[12] We used Standard & Poors Compustat, SIC codes 6000, 6100, 6300, 6400, and 6500. This includes banks, non-bank depository institutions, credit agencies, insurance services, and real estate services.

[13] See e.g., Case Comment: statutory Civil Rights Claims in Arbitration: Analysis of Gilmer v. Interstate/Johnson Lane Corp. 72 B.U.L. Rev. 641, (1992); Roberto L. Corrada, Labor/Employment Law: Claiming Private Law for the Left: Exploring Gilmer's Impact and Legacy, 73 Denv. U.L. Rev. 1051 (1996); Joseph R. Grodin, Arbitration of Employment Discrimination Claims: Doctrine and Policy in the Wake of Gilmer, 14 Hofstra Lab. L.J. 1 (1996)

[14] 415 U.S. 36 (1974).

[15] *Id.* at 38 (1974).

[16] *Id.* at 42.

[17] Id. at 59.

[18] See *Alford v. Dean Witter Reynolds, Inc.*, 905 F.2d 104 (5th Cir. 1990), *vacated*, 500 U.S. 930 (1991); *Utley v. Goldman Sachs & Co.*, 883 F.2d 184 (1st Cir. 1981), *cert. denied*, 493 U.S. 1045 (1990); *Nicholson v. CPC Int'l, Inc.*, 877 F.2d 221 (3d Cir. 1989); *Swenson v. Management Recruiters Int'l, Inc.*, 858 F.2d 1304 (8th Cir. 1988), *cert. denied*, 493 U.S. 848 (1989); *Johnson v. University of Wisconsin-Milwaukee*, 783 F.2d 591 (7th Cir. 1986); *Cooper V. Asplundh*, 836 F.2d 1544 (10th Cir. 1988).

[19] The six circuits encompass the states of Maine, Delaware, Massachusetts, New Hampshire, Pennsylvania, New Jersey, Texas, Louisiana, Mississippi, Illinois, Indiana, Wisconsin, Minnesota, North Dakota, South Dakota, Nebraska, Iowa, Missouri, Arkansas, Kansas, Colorado, Utah, Wyoming and Oklahoma.

[20] *Gilmer v. Interstate Johnson/Lane Corp.*, 895 F.2d 195 (4th Cir. 1990), *aff'd*, 500 U.S. 720 (1991).

[21] *Id.*

[22] 29 U.S.C. §§ 621-33a (1994).

[23] 9 U.S. C. §§ 1-16 (1994).

[24] See 500 U.S. at 23-24.

[25] *Id.* at 24,(quoting 895 F. 2d 195, 197 (4th Cir. 1990)).

[26] *Gilmer v. Interstate/Johnson Corp.*, 499 U.S. 809 (1990)

[27] Petition for Writ of Certiorari, *Gilmer v. Interstate Johnson/Lane Corp.*, 500 U.S. 20 (1991) (No. 90-18), *available at* Lexis, 1990 U.S. Briefs 18 (June 26, 1990).

[28] 500 U. S. at 28.

[29] *Id.* at 29.

[30] *Id.*

[31] *Id.* at 30-31.

[32] *Id.* at 32-33.

[33] *Id.*at 33.

[34] *Id.* at 35.

[35] Id.

[36] Id.

[37] Id.

[38] For a review of the use of event studies in a variety of legal contexts, see Steven E. Abraham, "Using Events Study Research in a Legal Environment of Business Course" 17 Journal of Legal Studies Education, 57 (1999).

[39] *See. e.g.*, Steven E. Abraham, "Can a Wrongful Discharge Statute Really Benefit Employers?," 37 INDUS. REL. 499 (1998); Steven E. Abraham, "The Impact of the Taft-Hartley Act on the Balance of Power in Labor Relations," 33 AM. BUS. L.J. 341 (1996); Steven E. Abraham & Paula B. Voos, "Right-to-Work Laws: New Evidence from the Stock Market," SOUTHERN ECONOMICS J. (2000); P. R. Chandy et al., "The Shareholder Wealth Effects of the Pennsylvania Fourth Generation Anti-Takeover Law," 32 AM. BUS. L.J. 399 (1995); W. Thomas Connor, "Sword or Shield: The Impact of Third Generation Takeover Statutes on Shareholder Wealth," 57 GEO. WASH. L. REV. 958 (1989); Jo W. Hackl & Rosa Testani, "Second Generation State Takeover Statutes and Shareholder Wealth: An Empirical Study," 97 YALE L.J. 1197 (1988); Roberta Romano, "The Political Economy of Takeover Statutes," 73 VA. L. REV. 111 (1987).

[40] Dan S. Dhaliwal & Merle M. Erickson, "Wealth Effects of Tax-Related Court Rulings" 20 JATA 21 (1998)

[41] Abigail McWilliams, Thomas A. Turik & Abghar Zardkoohi "Antitrust Policy & Mergers: The Wealth Effect of Supreme Court Decisions," 31 Econ. Inquiry 517 (1993).

[42]. Equity returns are used to estimate the effect of an event on firms. R_{it} , the return to any security in time t is equal to its price change in that period plus any dividend disbursements:

$$R_{it} = \frac{\text{Price}_{it} - \text{Price}_{it-1} + \text{Dividends}_{it}}{\text{Price}_{it-1}}$$

Data on firm returns are maintained by "CRSP" -- the Center for Research on Security Prices connected with the University of Chicago School of Business. The value-weighted index was used in our study. Both firm and market returns were transformed by a natural logarithm, $\ln(1 + \text{returns})$ before estimation.

[43]. If the time period involved is one day, the "t" subscripts are replaced with "d" subscripts and equation (2) becomes $R_{id} = \alpha_i + \beta_i(R_{md}) + \varepsilon_{id}$.

[44] *See, e.g.*, Peterson, Pamela P. "Event Studies: A Review of Issues and Methodology." 28 Q. J. of Bus. and Econ., 28, 36-66 (1989).

[45] Id at 43

[46] John J. Binder, "Measuring the Effect of Regulation With Stock Price Data," 16 RAND J. ECON. 167 (1985).

[47] See David Burgstahler & Eric W. Noreen, "Detecting Contemporaneous Security Market Reactions to a Sequence of Related Events," 24 J. ACCOUNTING RES. 170 (1989). For a more detailed discussion of this methodology, see Abraham, *supra*, note 36.

[48] . Details of the Burgstahler and Noreen H-statistic are described more fully in their paper. Under the null hypothesis that CAR= 0, the H-statistic is distributed as a t-distribution with N - 2 degrees of freedom, where N is the number of periods used to estimate the market model parameters in the non-event periods.

[49]. The ARs are corrected using an analogous procedure. Finally, the proportion of positive to negative CARs in the sample was tested by using a generalized sign test statistic defined by Cowan:[49]

$$(8) \quad \frac{\hat{w} - \hat{np}}{[\hat{np}(1-p)]}$$

where w is the number of firms in the sample with positive CARs, n is the number of firms in the sample and p is the proportion of positive residuals in the model estimation period. This statistic has a standard normal distribution under the null hypothesis that the proportion of positive to negative returns in the event period is the same as the proportion of positive to negative returns in the model estimation period. Arnold R. Cowan, "Nonparametric Event Study Tests." Review of 2 Quantitative Finance and Accounting, 343 (1992). These results do not add to the conclusions in text and are not discussed. They are available on request from the authors.

[50] 499 U.S. 809 (1990)

[51] 500 U. S. 20, 23.

[52]. Since the number of firms in the financial services sample (730) was larger than the number of days used to estimate the market model parameters (100), the variance-covariance matrix of the market model is imprecisely specified. To correct for this problem, the firms in that samples were combined into 40 portfolios in computing the statistical tests. The portfolios were formed based on the betas from the model estimation periods and each portfolio was given a weight of 1/40 in calculating the ARs and CAR.

[53]. In the securities sample, there were 20 firms in Group 1, two firms in Group 2, and 32 firms in Group 3. Group 2 was too small for these statistical techniques. Therefore, we formed a zero-investment difference portfolio that tested the difference between Group 1 and Group 3. For consistency, we tested for differences between Groups 1 and 3 in the financial industry as well. The portfolios were constructed so that the firms in Groups 1 and 3 were given equal weights in each portfolio. In the financial services sample, there were 222 firms in Group 1 and 435 in Group 3. These were combined into equally weighted portfolios consisting of 20 firms each, and the difference was tested for statistical significance.

[54]. The Burgstahler and Noreen H statistic was used to test the significance of the differences between these groups as well.

[55] Gilmer v. Interstate/Johnson Corp., 499 U.S. 809 (1990)

[56]. After selecting the event dates, we checked both the *Wall Street Journal* and the *New York Times* to make sure that no other events occurred in the same time period that might have affected the firms in the sample more than the market as a whole. Fortunately, our search uncovered no such events.

[57] Test I and II are significant at the .05 % level; Tests III and V at the .10 level; and Test VI barely misses statistical significance.

[58]. In the financial services industry, the sign test is significant at the .10 level over test I, even though the CAR itself is not statistically significant.

[59] 500 U. S. at 25, n.2.

[60] The Court distinguished Gilmer's securities registration application from Gilmer's employment contract to avoid interpreting the exclusion in Section 1 of the FAA of "contracts of employment seamen, railroad employees, or any other class of workers, engaged in interstate commerce. 9 U.S.C. § 1 (1994).

[61] *See* Self Regulating Organizations; Nat'l Ass'n of Secs. Dealers, Inc.; Order Granting Approval to Proposed Rule Change Relating to the Arbitration of Employment Discrimination Claims, 63 Fed. Reg. 35299 (1998).