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The Effect of the Minimum Wage on Shareholder Wealth

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ABSTRACT

This paper presents a series of event studies that measure the stock market reaction to news about the minimum wage. We use two samples of firms: a broad sample of companies in low-wage industries; and a narrow sample of firms that mentioned the cost effects of the federal minimum wage in their recent annual reports. Our analysis of legislative events leading up to the 1989 amendments to the Fair Labor Standards Act shows little systematic effect on the market value of low-wage companies. We also analyze a series of events associated with a confidential memo from the Secretary of Labor that was leaked in mid-1993. Here, the stock market reactions suggest that news of a possible change in the minimum wage may have a modest effect on value of low-wage companies.

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Most of the existing research on the distributional impact of the minimum wage focusses on labor incomes. Far less is known about the effect of the minimum wage on profits. Standard economic theory suggests that an increase in the minimum wage will reduce the profits of low-wage employers, at least in the short run. In the longer run, lower profit rates attributable to a higher minimum wage may be offset by higher product prices, improved efficiency, or reductions in industry-specific input prices. Despite general agreement on the sign of the effect of minimum wages on profitability, however, we are unaware of any research on the quantitative impact of minimum-wage legislation on employer profits.¹

In this paper we open up the study of the link between minimum wages and profitability. We use a standard event study methodology to measure the reaction of the stock market to news about pending minimum-wage legislation. We identify a series of events, beginning in early 1987, that may have affected investors' expectations about the likelihood of a higher federal minimum wage. For example, during the 1988 presidential election campaign, then-Vice-President Bush announced that he could support a minimum wage increase. In response to this news, investors may have raised their forecasts of the future minimum wage rate, and downgraded their forecasts of employers' profitability. Assuming that stock market values accurately reflect the expected future profit streams of publicly-traded firms, the market reaction to news about the minimum wage provides a direct measure of how the minimum wage affects low-wage employers' profits.

¹One closely related strand of research concerns the effect of unionization on stock market values (Ruback and Zimmerman (1984)). Along the same lines, Olson and Becker (1989) consider the stock market reaction to passage of the Wagner Act. Neumann (1980) and Becker and Olson (1986) measure the stock market effect of strikes, while Liberty and Zimmerman (1986) and Abowd (1989) analyze reactions to labor contract negotiations.

Our empirical analysis utilizes two samples of firms that were potentially affected by minimum wage legislation in the late 1980s and early 1990s. The first sample consists of 110 publicly-traded firms in low-wage industries, and includes such well-known companies as McDonald's, K-mart, and Sears. Despite their industry affiliation, some of these firms may have had relatively few employees who were affected by the rise in the minimum wage. To address this concern, we used a computerized search of 1992 annual reports to construct a second sample of 28 firms that specifically mentioned the effect of the minimum wage on their labor costs. We can be reasonably confident that these firms were directly affected by recent minimum-wage hikes.

Our findings provide mixed evidence that the value of low-wage firms varies in response to legislative maneuvering on the minimum wage. News of the political developments leading up to the November 1989 federal minimum wage amendments had little systematic effect on the market value of firms in either of our samples. One difficulty in interpreting these results, however, is that the stock market should only respond to changes in investors' expectations about future minimum wage levels. Many investors may have believed that a minimum wage hike was inevitable, or may have anticipated the legislative developments before they occurred. Potentially stronger evidence on the effect of the minimum wage is provided by the market reaction to a confidential memo from the Secretary of Labor that was leaked to the press in 1993. Our analysis of events surrounding this memo suggests that news of a potential minimum wage hike may have a modest negative effect on the value of low-wage employers -- on the order of 1 to 2 percent.

I. A Profile of Minimum-Wage Employers

As a first step toward measuring the effect of the minimum wage on profits, it is useful to identify the kinds of companies that typically hire minimum wage workers. The first four columns of Table 1 present a summary of employer characteristics for workers in the 1993 Current Population Survey (CPS), with separate data for workers who were earning less than the minimum wage (column 1); exactly the minimum wage (column 2); within 50 cents above the minimum wage (column 3); and more than 50 cents above the minimum wage (column 4).² Rows 1-4 of the table show the establishment size distribution of workers in each wage range. The CPS questionnaire also asks individuals whether they work for a multi-establishment employer, and if so, the overall size of the firm. Rows 5 and 6 show the percentages of workers at single and multi-establishment companies, and rows 7-10 present the overall firm-size distribution of employment. Finally, rows 11-20 show the industry affiliation of workers.

Several interesting patterns emerge from these data. Most importantly, minimum-wage and near-minimum-wage employees tend to work at smaller establishments. Interestingly, however, about 64% of minimum-wage employees work at multi-establishment firms -- not much below the rate for higher-wage workers, but far above the rate for subminimum-wage workers. This pattern implies that the gap in average firm size between minimum-wage workers and more highly-paid workers is smaller than the gap in average establishment size.

²Information on employer size in Table 1 is taken from the April 1993 Employee Benefits Supplement. Industry distribution data are taken from the merged earnings supplement files (for all 12 months of 1993). The April sample consists of 13,986 workers age 16 or older, and the Outgoing Rotation Group sample consists of 168,423 workers age 16 or older. We exclude individuals with hourly earnings below \$1.00 or above \$150.00 per hour.

The industry distribution of minimum-wage workers is also notably different from that of higher-wage workers. The retail trade and service industries employ only about one-half of all workers, but over 80 percent of all minimum-wage workers. A finer industry breakdown reveals that minimum-wage workers are especially prevalent in the restaurant, hotel, grocery store, variety merchandise store, and department store industries. Indeed, 29 percent of minimum-wage earners in 1993 worked for a restaurant.

The entries in the four right-hand columns of Table 1 give the wage distribution within each row category. For example, the entry in row 1, column 6 indicates that 3.9 percent of all employees who worked at establishments with fewer than 25 employees in 1993 were paid exactly the minimum wage. Although this percentage may seem low, note that only 2.5 percent of all employees were paid exactly the minimum wage in 1993 (row 21). Small businesses are more likely to pay the minimum wage, but the percentage of workers who are paid the minimum is still relatively low.³

The wage distributions within industries reveal a similar pattern: at the one-digit industry level, the percentage of workers paid exactly \$4.25 per hour never exceeds 8%. In the retail trade sector, for example, only 7.5 percent of workers were paid exactly the minimum in 1993, although another 12.3 percent were paid just above the minimum (i.e., \$4.26-4.75 per hour). At a finer level of industry aggregation, however, the prevalence of minimum-wage pay is higher. In the restaurant industry, 13.4 percent of workers were paid the minimum wage in 1993 and another 18 percent were paid between \$4.26 and 4.75 per hour. These numbers suggest that a 10 percent increase in the

³Many previous studies have found that smaller employers pay lower wages than larger employers, on average, after adjusting for the characteristics of their workers. See, for example, Brown and Medoff (1989).

minimum wage would directly affect the pay of about one-third of restaurant employees.

One could argue that the minimum wage has an even greater impact than suggested by the data in Table 1, because many low-wage employers use the minimum wage as an anchor for their entire wage structure. When the minimum wage is increased, wages throughout the skill distribution may rise at such firms, leading to a "spillover" or "ripple" effect (see Katz and Krueger (1994)). To investigate this issue we recalculated the entries in Table 1 using only those workers who were hired within the last year. The resulting tabulations reveal that 7.4 percent of recently-hired workers were paid exactly the minimum wage in 1993, and another 12 percent of recent hires were paid between \$4.26 and 4.75 per hour. Nevertheless, the relative impact of the minimum wage by establishment size or industry is similar, whether one considers all workers or only newly-hired workers.

In terms of identifying firms that are likely to be affected by the rise in the minimum wage, the data in Table 1 suggest a number of conclusions. Firms with relatively small establishments in the retail trade and service industries are particularly likely to pay minimum or near-minimum wages to a substantial fraction of workers. In addition, firms with high turnover rates (i.e., those with a higher fraction of recently-hired workers at any point in time) are more likely to pay minimum or near-minimum wages. These considerations point to such industries as restaurants, variety stores, hotels and motels, motion pictures, and dry cleaning as likely candidates for study.

II. The Effect of the Minimum Wage on Profits -- Theoretical Issues

How does an increase in the minimum wage affect the profitability of minimum wage employers? To answer this question we first consider the impact of a minimum wage on a single firm. We then consider the effect when an entire industry is forced to pay higher wages. Finally, we briefly discuss the effect of the minimum wage under alternative models of the labor and product markets.

A. Competitive, Wage-taking Firm

In the standard competitive model of the labor market each firm chooses employment to maximize profits, subject to an exogenous wage rate w and an exogenous product price p . If we denote the firm's output by $F(L)$, where $F(\cdot)$ is a concave function of employment, L , then the optimized profit function is:⁴

$$\pi(w) = \max_L p F(L) - wL.$$

Let w^0 represent the wage prior to an increase in the minimum, let $\pi^0 = \pi(w^0)$, and let $w^M > w^0$ represent the new minimum wage level. Following Abowd (1989), the discrete second-order approximation to the change in the firm's profit ($\Delta\pi$) is given by

$$\frac{\Delta\pi}{\pi^0} \approx - \frac{w^0 L^0}{\pi^0} \left(\frac{w^M - w^0}{w^0} \right) + \frac{1}{2} \frac{w^0 L^0}{\pi^0} \eta \left(\frac{w^M - w^0}{w^0} \right)^2 \quad (1)$$

⁴For notational simplicity, we ignore other inputs, including capital and higher-wage labor.

where L^0 is the optimal level of employment at wage w^0 , and η is the absolute value of the elasticity of demand for labor.⁵ The leading term in equation (1) indicates that the first-order effect of a minimum wage hike is to reduce profits in proportion to the ratio of payroll costs to profits. The second term in equation (1) is positive, indicating that the total effect of the minimum wage will be smaller than the first-order term whenever the firm can substitute away from minimum-wage labor (i.e., whenever $\eta > 0$). The greater the scope for substitution, the larger is the second-order term and the less the minimum wage increase will eat into profit. Indeed, in the limiting case of a linear technology, the firm can costlessly substitute other inputs (e.g. capital or skilled workers) for minimum-wage workers, and the firm's profit will be unaffected by the minimum wage hike.

B. Industry Level

The expression in equation (1) is based on the assumption that the minimum wage hike applies to a single firm. More realistically, an increase in the minimum wage will raise labor costs for all the firms in an industry, eventually leading to an increase in the market price of output. Specifically, if the industry experiences a decline in employment as a result of the minimum wage hike, then industry output will fall, leading to a rise in prices that will partially offset the loss of profits. Indeed, in the standard case of a competitive industry with constant returns to scale, the product price will eventually rise by just enough to fully cover the rise in

⁵Note that η is the firm-specific elasticity of demand, allowing output to fully adjust. In a purely competitive industry with constant returns to scale this elasticity is undefined, since any firm that has to pay higher wages will simply go out of business. Implicitly, then, we are assuming decreasing returns to scale.

payroll costs, and all firms will earn zero profits before and after the rise in the minimum wage. Importantly, however, industry prices will only rise as industry output and employment decline.

A search of recent company annual reports reveals many instances in which managers claim to have offset the effect of the 1991 minimum wage increase by raising prices. For example, Sandwich Chef Incorporated stated in their 1992 report:

Many of the Company's employees are paid hourly rates related to the federal minimum wage. Accordingly, inflation related annual increases in the minimum wage have historically increased the Company's labor costs. . . . In most cases, the Company has been able to increase prices sufficiently to match increases in its operating costs, but there is no assurance that it will be able to do so in the future.

C. Hypothetical Example

The following example illustrates the effect of a minimum-wage increase on a hypothetical firm's profitability and market valuation. Consider a restaurant that employs only minimum-wage workers with \$2.0 million in revenues per year. Column 1 of Table 2 presents a hypothetical balance sheet for this firm prior to an increase in the minimum wage. We assume that labor costs equal 30 percent of revenue (\$600,000), and that other costs, including rent and raw materials, equal \$1.2 million.⁶ The firm's annual profit is 10 percent of revenues (\$200,000 per year). If we assume that the firm's

⁶These figures are approximately representative of a larger fast food restaurant. In particular, labor's share of cost is about 30 percent for fast food restaurants.

revenues and costs will continue indefinitely and use a real interest rate of 3 percent to discount future profits, the present discounted value of the firm is \$6.67 million (row 5). Alternatively, if we assume a real interest rate of 10 percent, the discounted present value is \$2,000,000 (row 6).

Now suppose that the minimum wage increases by 15 percent. If the restaurant does not change its employment, labor costs will increase by 15 percent, to \$690,000. Furthermore, if the firm continues to charge the same price and does not cut other inputs, its annual profit will fall by 45 percent. (Observe that this is precisely the first-order effect of a 15 percent increase in wages predicted by equation (1), since the ratio of labor costs to profits is 3). The new balance sheet for this firm, assuming a "passive" employment response to the higher wage, is presented in the second column of Table 2.

How will the decline in profit affect the present value of the firm's profits? The answer depends on how long the minimum wage increase is in effect. Suppose, for example, that the increase in the minimum is fully offset by a burst of inflation after 4 years. In this scenario, the firm's profits are \$110,000 per year for the next four years, but return to \$200,000 thereafter. If we discount future profit with a 3 percent interest rate, the decline in the value of the firm associated with a four-year increase in the minimum wage is 5 percent. If we use a discount rate of 10 percent, the decline in the value of the firm is 12.5 percent.

Of course, the firm may not be passive in responding to the minimum wage. The neoclassical model predicts two responses. First, the firm may cut employment. For example, if the elasticity of labor demand is -1.0, a 15 percent increase in wages leads to a 15 percent decrease in employment, so the

firm's payroll is constant. However, any decline in employment will necessitate a rise in the use of other inputs and/or a fall in output: to first order any savings in payroll will be fully offset. According to equation (1), the second-order effect on profits is $1/2 \cdot w^0 L^0 / \pi^0 \cdot \eta \cdot (\Delta w / w^0)^2 = 3.4$ percent. Taking employment responses into account with an assumed demand elasticity of -1.0, for example, the decline in profit for the next four years is 41.6 percent, rather than 45 percent. Unless the elasticity of demand is large, the second-order effect induced by employment substitution is relatively small.

Second, the firm may be able to raise prices, especially if other firms raise their prices too. Indeed, a 4.5 percent price hike with no reduction in output would fully offset the cost of the minimum wage. More realistically, however, a price increase will lead to some reduction in demand, implying that profits will decline in the short run, although by less than predicted by equation (1). In the longer run, the lower level of profits may eventually lead to exit from the industry and a restoration of "normal" profit levels.⁷

D. Alternative Models

A variety of models that have received much attention from economic theorists in recent years have very different implications for the effect of the minimum wage on profits. First, we consider situations in which firms have the power to set wage rates because of efficiency wages, monopsony, search, or other reasons. Second, we consider models in which firms do not necessarily maximize profits.

⁷In the "textbook" case of a perfectly competitive industry with constant returns to scale, the price increase is fully passed through to consumers in the long run.

The standard model of a competitive firm assumes that each employer can hire all the workers it wants at a fixed market wage rate. In such a model, the first-order effect of a higher wage is to reduce profits in strict proportion to the initial level of employment. By contrast, in any model in which firms have discretionary control over wages, the first-order effect of a higher wage is zero. To see this, assume that a higher wage leads to improved productivity, or enables the firm to attract more productive workers. In this case, output will depend on both employment and wages according to an augmented production function $F(w,L)$. The firm now chooses employment and the wage rate to maximize:

$$\pi = \max_{w,L} p F(w,L) - wL.$$

This yields two first-order conditions:

$$\begin{aligned} pF_L(w^0, L^0) &= w^0, \quad \text{and} \\ pF_w(w^0, L^0) &= L^0. \end{aligned}$$

The first of these conditions sets the marginal revenue product of labor equal to the wage. The second requires that the marginal revenue generated by paying a slightly higher wage is just offset by the higher cost of such a policy.

The maximized value of the firm's profit is $\pi = pF(w^0, L^0) - w^0L^0$, and thus the first-order effect of a policy which forces the firm to pay a slightly higher wage is $d\pi/dw = p F_w(w^0, L^0) - L^0 = 0$. The intuitive explanation for this result is simple: if the firm is forced to pay a slightly

higher wage, and higher wages have some value, then the firm will be able to offset the extra cost by hiring more productive workers, or by having lower turnover, improved morale, etc. Any decline in profitability is of a second-order magnitude, although in this case the second-order effect is negative. There is some anecdotal support for this kind of a model. For example, Dollar General Corporation noted in its 1992 annual report that the impact of the recent minimum wage hike was minimized due to "greater employee productivity."

Elimination of Slack

The standard model assumes that firms operate in such a way as to minimize costs on every margin. A second class of models relaxes the assumption that firms always maximize short-run profits. In this case, a minimum wage increase could force a firm to implement cost-savings or eliminate slack.⁸ Firms may operate with short-run slack for a variety of reasons. Agency relationships may drive a wedge between shareholders' and managers' interests, leading managers to pursue objectives other than pure profit maximization. Maintenance of short-run slack may be strategically advantageous when the minimum wage is low. Alternatively, managers may simply lack sufficient information to fully eliminate slack in the short run.

Although the standard assumption is that firms always negotiate the lowest possible prices from suppliers and always operate at peak efficiency, the annual reports of low-wage companies provide many examples where managers

⁸This idea was known as the "shock theory" in the early minimum wage literature, and was taken fairly seriously by Reynolds and Gregory (1965) as an explanation for the rapid rise in productivity in Puerto Rican manufacturing industries in the 1950s.

claim to have achieved lower input prices or improved efficiency after an increase in the minimum wage. For example, GB Foods Corporation noted in its 1992 annual report that, "the Company has been able to offset the effects of inflation to date, including increases in the statutory minimum wage, through small price increases and economies resulting from the purchase of food products in increased numbers due to the increased number of Green Burrito stores, and efficiencies in the preparation of food in the Company's Commissary." The Nation's Restaurant News (July 18, 1988, p. 66) reported that the International House of Pancakes "would attempt to recoup increased labor costs [from the California minimum wage increase] through intensified efforts to eliminate waste and save energy." A KFC spokesman was recently quoted as saying that his company could "engineer out" a one-half percent cost increase by switching suppliers, reducing packaging, shipping materials in bigger lots, and changing recipes.⁹

Within the context of the standard model it is also possible that a rise in the minimum wage can be offset by reduced prices for industry-specific inputs.¹⁰ For example, many retail firms are affected by a higher minimum wage, and one might expect rental rates for retail locations (malls, shopping centers, etc.) to decline in response to an increase in the minimum wage. Similarly a rise in the minimum wage for agricultural workers might ultimately lower the price of land.

⁹See New York Times, "Hardest Task of the 1990's: Raising Prices," March 1, 1994, p. D1.

¹⁰This possibility was explicitly considered by Marshall and Hicks in their derivations of the "rules" of derived demand.

E. Stock Market Valuation

According to modern finance theory, the market value of a firm is an efficient forecast of the firm's discounted future profit stream. How should the stock market valuation of low-wage firms respond to news about a minimum wage increase? The answer depends on two issues. The first is the sensitivity of profits to minimum-wage changes. As shown by equation (1), the profit flows of a competitive firm with a significant share of minimum wage workers may be relatively sensitive to minimum wage changes. If firms can offset higher wages by improved labor productivity, reduced turnover, or elimination of slack, however, then future profit flows may be much less sensitive to minimum wage changes.

The second issue is how much "news" of a minimum wage change is already built-in to investors' forecasts. For example, consider a Congressional vote to increase the minimum wage by 15 percent. Prior to the vote, investors have already had a chance to assign probabilities to the possible outcomes of the vote. Suppose that market participants believe that the bill has an 80 percent chance of success. On the day of the actual vote, the "news" associated with successful passage of the bill is only a 20 percent upward revision in the probability of a higher minimum wage. If a 15 percent rise in the minimum wage lowers the value of a firm by 5 percent, then the "news" on the day the bill is actually passed will lead to only a 1 percent ($= 20$ percent \times 5 percent) reduction in the value of the firm. As this example makes clear, one needs to know what investors expected prior to the release of a particular piece of news, and how the news altered their forecasts of the future minimum wage, in order to assess the likely effect on the market value of low-wage firms.

Another aspect of this problem concerns the timing of future minimum wage increases. Suppose that investors believe the minimum wage will eventually increase by 15 percent, but that they do not expect the increase to occur for another 4 years. And suppose that, contrary to expectations, Congress votes to increase the minimum wage immediately. In this case, the fact that the minimum wage is 15 percent higher for the next four years is "news". This is one possible interpretation of the comparisons in Table 2. According to the results in that table, the news of a sooner-than-expected increase would lower the stock market value of the hypothetical restaurant by 5-15 percent, depending on the interest rate used to discount profit flows.

III. The Effect of the Minimum Wage on Firm's Profitability: Evidence

A. Stock Market Event Study Methodology

Increasingly, economists are using stock market event studies to evaluate the impact of labor market interventions. Past studies have examined the market reaction to unionization drives, strikes, union wage settlements, and the passage of the Wagner Act.¹¹ As far as we are aware, however, no study has estimated the impact of the minimum wage on shareholder wealth.

To analyze the effect of the minimum wage we collected stock market price data for two samples of publicly traded firms. Membership in the first sample, which we call Sample A, is based on a company's primary industry affiliation. This sample contains 110 firms in the restaurant, department store, grocery store, merchandise store, variety store, hotel and motel, linen

¹¹For example, see Olson and Becker (1989) on the Wagner Act, Neumann (1980) and Becker and Olson (1986) on strikes, Liberty and Zimmerman (1986) and Abowd (1989) on contract renegotiations, and Ruback and Zimmerman (1984) on unionization.

supply, and motion picture theater industries. A complete list of firms in this sample is included in Appendix Table 1.

Firms in the second sample, which we call Sample B, were identified by a computerized search of the 1992 10-K reports on the Compact Disclosure database (see Appendix Table 2). We included all firms that cited either the 1990 or 1991 minimum wage increase as a source of higher labor costs. Most of the 28 firms in this sample are in the restaurant industry -- two-thirds are also included in Sample A. Since companies in Sample B specifically mentioned the minimum wage as a cost factor, we can be reasonable sure that they were directly affected by recent legislation to raise the minimum wage.

We have identified a total of 23 recent news events that might have led investors to revise their expectations about the likelihood or magnitude of a minimum wage increase. Twenty of these news events, from early 1987 to mid-1989, pertain to the legislative progress of a bill to raise the minimum wage from its 1981 value of \$3.35 per hour. A final version of this bill, raising the federal minimum wage to \$4.25 per hour, was signed into law in November 1989. Three additional news events pertain to the more recent (1993) debate to raise the federal minimum wage above its current level.

Daily stock return information for companies in the two samples was obtained from the Center for Research in Security Prices (CRSP). In examining stock price movements in response to news about the minimum wage, we control for the effect of overall market movements by estimating a standard market model.¹² More formally, for each of the companies in Sample A and Sample B, we estimate a daily return model of the form:

¹²See e.g. Brown and Warner (1985). We calculate standard errors for our estimated average excess returns on each trading day using the formula provided by Brown and Warner.

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

where R_{it} is the return on the common stock of firm i on day t , adjusted for stock splits and dividends; R_{mt} is the return on the equally-weighted NYSE/AMEX index on day t ; α_i and β_i are firm-specific regression coefficients; and ϵ_{it} is an error term for firm i on day t . For our analysis of events in 1987-1989, the market model is estimated using observations on returns for 1987. For our analysis of events in 1993, we estimate the market model using data for 1992.¹³

Estimated excess returns are calculated for each firm and each day in the analysis period by

$$ER_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt})$$

where $\hat{\alpha}_i$ and $\hat{\beta}_i$ are the estimates of α_i and β_i . Average excess returns across all firms (in Sample A and Sample B) are then cumulated to provide a series of cumulative excess returns for various time windows around each event.¹⁴

B. A Brief History of Events Leading to the 1989 Minimum Wage Legislation

To examine the stock market reaction to news about the minimum wage it is important to identify events that significantly altered investor's expectations about the future value of the minimum wage. We used past issues

¹³We also performed the analysis by calculating excess returns using the difference between a stock's return and the market return (i.e., restricting $\beta_i = 1$ for all firms). The results are quite similar to results based on the estimated market models. We also obtained similar results when we used the value-weighted market return instead of the equally-weighted market return.

¹⁴Returns data are unavailable for some stocks on some trading days. For each firm in our sample we used all available trading days in 1987 to estimate the market model. Similarly, we used the stock prices that were available on any particular day to calculate the unweighted average excess return on that day.

of the Wall Street Journal and other sources to identify the key events connected with recent legislation on the minimum wage. What follows is a brief summary of the evolution of minimum wage legislation in the late 1980s.

Since 1938, Congress has periodically amended the Fair Labor Standards Act (FLSA) to raise the level of the minimum wage. In the years between increases, the real value of the minimum was steadily eroded by inflation, leading to a sawtooth pattern in the real minimum wage over time. In 1977 Congress amended the FLSA to raise the minimum wage to a level of \$3.35 by January 1981. Under President Reagan, the historical pattern of periodic increases in the minimum wage was halted. In all likelihood, investors came to regard the prospects of a minimum wage increase in the Reagan era as remote, and lowered their forecasts of the long run level of the minimum wage.

In March 1987, well into President Reagan's second term, Senator Edward Kennedy and Representative Augustus Hawkins introduced legislation to increase the minimum wage to \$4.65 per hour by 1990. In June of 1987, President Reagan signalled that he might soften his opposition to this legislation if the bill was amended to lower the level of the minimum wage and allow a subminimum wage for youths. Congressional hearings on the proposed minimum wage hike were held over the next year. On September 1988, Vice President Bush announced during the presidential campaign that he could support an increase in the minimum wage. Later that month, however, a Republican-led filibuster in the Senate thwarted the Democrat's effort to raise the minimum wage. A final vote fell five votes short of reaching cloture.

In March 1989, Congress again considered the issue of the minimum wage. The Bush administration signalled that it would support an increases in the minimum wage to \$4.25 per hour by 1992, provided that employers were allowed

to pay a "training wage" of \$3.35 to youths. Shortly thereafter the Senate Labor Panel voted in favor of raising the minimum to \$4.65 per hour. The administration signalled its resolve to veto any legislation that went beyond its initial proposal. On March 23, 1989 the House voted by a 248 to 171 margin on H.R. 2 to raise the minimum wage to \$4.55 per hour by 1991, with no provision for a youth subminimum. The White House reiterated its resolve to veto this legislation. Nonetheless, the Senate followed the lead of the House and voted 62 to 37 in favor of a corresponding senate bill, S. 4, on April 12, 1989. In mid-May 1989, both houses of Congress approved a conference bill to raise the minimum to \$4.55 per hour. The number of votes in favor of this legislation, however, fell short of the required number to override a Presidential veto, and President Bush vetoed the legislation on June 13, 1989.¹⁵ Although a veto had been threatened, the actual veto may have been significant because it was the first of Bush's Presidency. The day after, the House again considered H.R. 2, and as expected the vote fell well short of the margin to override a veto.

Congress took up the issue of the minimum wage again in the fall of 1989. The House Labor Panel voted to increase the minimum to \$4.25 per hour over two years and to institute a youth subminimum wage. Labor Secretary Elizabeth Dole reiterated the President's intention to veto any bill that increased the minimum wage to more than \$4.25 per hour in fewer than three years.¹⁶ On November 1, 1989, the Wall Street Journal reported that the Bush administration and Congressional Democrats had reached a compromise agreement on the minimum wage, clearing the way for the eventual legislation. On

¹⁵See Wall Street Journal, June 14, 1989, p. A3.

¹⁶See Wall Street Journal, September 20, 1989, p. A14.

November 1, 1989 the House passed H.R. 2710 by a margin of 382-37. This bill increased the minimum wage to \$3.80 on April 1, 1990, and to \$4.25 on April 1, 1991, and created a 60-day youth subminimum wage. The Senate passed identical legislation by a vote of 89-8 one week later.

It is hard to identify the specific events in this chronology that contained significant new information about the minimum wage. Three events, however, strike us as particularly newsworthy. First, the successful Republican filibuster of the Kennedy-Hawkins bill in September 1988 probably caused investors to lower their forecasts of the likelihood of a near-term minimum wage increase. Second, although many investors probably expected President Bush to veto H.R. 2, the actual veto may have led others to revise their views on the President's resolve to block more liberal minimum wage legislation. Finally, the compromise agreement reached by the President and Congressional Democrats in November 1989 may have taken some investors by surprise. We turn to an examination of the stock market reaction to these and other events surrounding the 1989 legislation.

C. The 1989 Legislation: Results for Sample A

The left-hand column of Table 3 briefly describes 20 specific events leading up to the 1989 amendments to the FLSA. The descriptions are based on the headlines of the corresponding Wall Street Journal articles. The dates in the table correspond to the publication dates of the articles; in most cases the event occurred on the preceding day. In column 1 we present our ex ante prediction as to whether investors would have interpreted the event as signalling higher or lower future profits for minimum-wage employers. These predictions are based on the assumption that a minimum wage increase has a

negative effect on profits, and try to take into account investors' expectations prior to the event. For example, we expect that President Bush's veto of H.R. 2 lowered the probability that some investors attached to a immediate minimum wage increase, even though the veto had been threatened.

In the remaining columns of Table 3 we present estimates of the average excess return for stocks in Sample A (the sample of 110 firms in low-wage industries). The excess returns in column 2 are for a particular trading day (denoted $t=0$), usually the day that the event was reported in the Wall Street Journal. Because information about the event could have leaked out prior to the publication date, or could have been slow to affect market prices, we have also calculated excess returns over longer windows around the event dates. We present cumulative excess returns between the day of the event and five trading days after the event in column 3; between five days prior to the event and five days after the event in column 4; and between ten days prior to the event and ten days after the event in column 5.

A striking feature of the data in Table 3 is that almost all of the average excess returns are small and statistically insignificant. On the day that the event was described in the Wall Street Journal, for example, only two of the 20 average excess returns are statistically significantly different from zero at the 10 percent level. In a sample of 20 events, one would expect 2 events to achieve statistical significance at the 10 percent level just by chance. Nevertheless, for the two event days in which the average excess returns are statistically significant, the values of low-wage firms declined, as we hypothesized. The unexpected declines in the value of Sample A firms on these days averaged 0.6 and 0.7 percent.

When we expand the observation window to include 20 trading days surrounding the event date, the average cumulated excess return is statistically significant for four events. The cumulative excess return in each of these cases is positive, even though the news conveyed by three of the four events probably would have been interpreted as having a negative effect on profits. In fact, the cumulative excess return has the anticipated sign in fewer than half of the 16 events for which we give an unambiguous prediction of the sign of the impact of the event. The predictions also perform poorly when the window is limited to 10 days (plus and minus five trading days) surrounding the event.

Figures 1-7 present the cumulative excess returns over the period starting 10 trading days before the event and ending 10 days after the event, for seven particularly newsworthy events. Figure 1 shows that stock prices of Sample A firms began to rise about 3 days before the Wall Street Journal reported that Ronald Reagan might ease his stance on the minimum wage. The modest rally for Sample A firms continued after the story appeared. Another perverse pattern is evident in Figure 3, where positive excess returns continued unabated after the Wall Street Journal ran a story claiming that the prospects for a minimum wage hike had increased following a campaign announcement by Vice-President Bush.

Figure 4 contains perhaps the strongest evidence that investors view a minimum wage hike as having negative consequences for corporate profits. This figure shows the cumulative excess returns around the time of the final cloture vote on the Republican-led filibuster of the Kennedy-Hawkins minimum wage bill. The cumulative excess return in the 20-day interval around the successful filibuster was nearly 4 percent. Moreover, the positive excess

returns began a few trading days before the final cloture vote, coinciding with an earlier unsuccessful cloture vote. Nevertheless, the inconsistent results for the other events in Table 3 might lead one to wonder if the pattern in Figure 4 truly reflects the market reaction to news about the minimum wage, or to some other factor.

Figure 8 provides a longer-term perspective on the value of Sample A firms. The figure shows the cumulative (unweighted) excess returns for all firms in the sample from 1986 through 1993, with the initial value normalized to 100 on the last day of 1985.¹⁷ Dates marked 1-20 on the graph correspond to the events listed in Table 3, while dates marked 21-23 correspond to events listed in Table 5 (discussed below). Several conclusions can be drawn from the figure. First, the Sample A portfolio of stocks is highly variable. Second, these firms outperformed the market over the 1986-93 period. Third, over the 1987-89 period, as the prospects for a minimum wage hike increased, Sample A firms outperformed the market. Finally, in the period since the most recent federal minimum wage increase took effect, Sample A firms have outperformed the market by some 40%.

It is worth noting that in 1988 many analysts were predicting that stock prices of restaurants and other low-wage employers would fall because of an impending rise in the minimum wage. For example, on July 18, 1988 securities analyst Steven Rockwell predicted in the Nation's Restaurant News (p. 64) that there was "little hope" for the restaurant industry "from an investor's point of view." He elaborated that, "Investors are focusing on several issues to

¹⁷For each day in this period, excess returns were calculated by subtracting the firm-specific return from the average market return. We then cumulated the average excess return using the formula $\Pi_t 100(1 + AER_t)$, where AER_t is the average excess return for all firms in the sample on day t . Similar results were found when we used a market model to estimate excess returns.

justify their negative stance toward the group. Most prominent among them are concerns over an increase in the minimum wage and the possibility of rising food costs." The positive excess returns shown in Figure 8 do not seem to bear out this concern.

Results for Sample B

A possible criticism of the findings in Table 3 is that many of the firms in Sample A were not significantly affected by the recent minimum wage increases. Although the sample was selected by choosing firms in low-wage industries, one cannot be certain that minimum-wage labor accounts for a significant share of costs in these firms. We attempt to overcome this criticism by studying Sample B firms which specifically mentioned the 1990 or 1991 minimum wage increase in their annual reports.

Table 4 presents the event study results for Sample B. On the actual event days for the 20 events in the table, the excess returns are all small and statistically insignificant. Because Sample B contains only 28 (relatively small) firms, the average excess returns are less precisely estimated than the excess returns for Sample A. Nevertheless, the typical daily standard error for the estimates is about 0.7 percent, so an excess return of 1.4 percent or more would be detectable. Moreover, expanding the observation window around the event date does not provide any stronger evidence that news about a minimum wage hike lowers shareholder wealth. For 11 of the 16 events that we can unambiguously sign, the cumulative excess return over a 20 day-period surrounding the event has the "wrong" sign.

Figure 9 shows the cumulative average excess return for Sample B firms from 1986 through 1993. Although the general impression given by Figure 9 is

similar to that of the comparable figure for Sample A firms (Figure 8), there are some notable differences. First, the value of Sample B firms was relatively stable over the 1988-89 period, when the minimum wage legislation was inching forward. Second, during the 1990-93 period, Sample B firms far outperformed both the market and Sample A firms. On the other hand, as was the case for Sample A firms, it is difficult to conclude that Sample B stocks performed poorly in 1989, a year in which investors' expectations about a minimum wage increase most likely were revised upward.

D. Evidence from Recent Proposals to Raise the Minimum Wage

As we have stressed, it is difficult to know for certain whether a particular event conveys new information about the minimum wage to shareholders and investors. One interpretation of the results in Tables 3 and 4 is that the market values of low-wage employers do not respond systematically to news about minimum wage hikes. Another interpretation is that the events conveyed no new information. The 20 events could have had very small effects on investors' expectations, or could have been anticipated prior to publication in the Wall Street Journal. To address this issue, we performed an event study to examine the effect of a recent memorandum on the minimum wage written by Secretary of Labor Robert Reich and subsequently leaked to the press.

The memo to the President from the Secretary of Labor was dated July 20, 1993, and was reported in the Wall Street Journal on August 12, 1993.¹⁸ The substance of the memo was that the Labor Department would step up efforts to

¹⁸See Daily Labor Report, August 19, 1993, D1-D2 for the text of the memo.

review the minimum wage, with the intention of raising the minimum to at least \$4.50 per hour and then indexing the minimum to the cost of living. Although the memo stated that the Labor Department would report back in 90 days with further recommendations, the memo stated, "To achieve the goal of making work pay, the minimum should be raised and then indexed." We suspect that many investors were surprised by Secretary Reich's interest in raising the minimum wage, because the administration was concurrently attempting to pass a universal health insurance bill -- largely funded by an employer mandate. It is also worth emphasizing that the intention to index the minimum wage to a constant real value probably implied a significantly higher long-run level of the minimum wage.

Two subsequent events related to this episode are also relevant. On October 13, 1993, the Wall Street Journal reported, "Labor Secretary Robert Reich is ready to propose raising the minimum wage to \$4.75 an hour, an even bigger boost than he was expected to recommend." On November 1st, however, the Journal reported that Secretary Reich issued a statement on October 29th "recommending that the administration wait until next year to seek an increase in the minimum wage".¹⁹

An unusual feature of this episode is that we know the exact date the memo was written, the date it was leaked, and the dates of subsequent statements on the minimum. We can use these dates to conduct another event study. Excess returns for the three events are reported in Table 5 for Sample A, and Table 6 for Sample B. On the day the Secretary of Labor's memo was first reported in the Wall Street Journal, the average excess returns for the

¹⁹Because of the lag in the Journal's reporting on this issue, we date the event as October 29, 1993 in our analysis.

two samples are small and of opposite signs (-0.6 percent for Sample A; 0.1 percent for Sample B). Neither is statistically significant. Figure 10 shows the cumulative excess returns for both samples in the 10 days before and after this event. The figure gives no indication of abnormal returns around the date the memo was reported in the press. If we cumulate excess returns over the period from the date the memo was written to the date it was reported (i.e., from July 19 to August 12), the excess return for Sample A firms is 2.4 percent and the excess return for Sample B firms is 0.9 percent. Neither sample shows any indication that Reich's memo had an effect on the stock market value of low-wage firms.

The two subsequent events connected to this episode provide more support for the view that news about minimum wage hikes lowers the value of affected firms. Cumulative excess returns for these events are shown in Figures 11 and 12. In both samples, the average excess return was negative on the day the Wall Street Journal reported that Secretary Reich would seek a rise in the minimum wage to \$4.75. Furthermore, the average excess return for both samples was positive on the day that Secretary Reich stated he would recommend that the administration postpone seeking an increase in the minimum wage. In the first event, the value of Sample B companies declined by 2.1 percent, and in the second event it increased by 2.1 percent. It is also worth noting that the average excess returns on both days were smaller for Sample A firms, which is consistent with the notion that many companies in this broader sample may have been little affected by the news of a minimum wage increase.

To probe the results further, we examined the correlation across companies between the excess returns on October 13th and 29th. Among the companies in our sample, the sensitivity of profits to changes in the minimum

wage is likely to vary substantially. If stock movements on October 13 and October 29 were mainly a response to new information on the minimum wage, we would expect to see a negative correlation in excess returns across companies for the two events. In fact, the correlation across Sample B companies between the excess returns on these two days is large and negative ($r = -0.70$).²⁰ Curiously, however, the cumulative excess returns over longer holding periods around the two events are far less strongly correlated. Nevertheless, our finding that those stocks which declined on October 13th tended to rebound on October 29th suggests that the market was responding to news about the minimum wage. Of course the absence of a market reaction to the original July 20 memo may lead one to question whether the measured market response to the subsequent news is truly a reflection of the minimum wage.

This caveat aside, if we assume that the October 13 memo signalled to investors that the minimum wage would be 5.6 percent higher than they had anticipated (i.e., \$4.75 per hour versus \$4.50 per hour), and that investors believed the minimum wage would be indexed to a constant real value, and if we further assume that the cost share of minimum-wage labor in Sample B companies is between 10 and 20 percent, and that these companies have an operating profit margin of around 10 percent, then we might have expected the market value of these firms to decline by 5-11 percent, absent any price increases or other offsets.²¹ The observed decline in market value (2.1 percent) suggests that either investors did not expect the higher minimum wage to persist indefinitely (or to be implemented with certainty), or that they expected

²⁰One company in the sample (Family Steak Houses of Florida) had an excess return of 0.19 on October 13th and of -0.24 on October 29th. If we eliminate this company, the correlation falls to -0.51.

²¹This calculation uses the first-order term of equation (1).

firms to be able to raise prices or take other actions to mitigate the negative profit effects of the minimum wage.

IV. Summary

This paper provides an initial attempt to quantify the impact of minimum wage legislation on the value of firms that hire minimum-wage workers. Our analysis of 23 specific events associated with news on the minimum wage provides mixed evidence that the stock market value of low-wage firms varies with the level of the minimum wage. The strongest evidence of such an effect comes from an examination of excess returns in late 1993, as information was revealed about the Clinton Administration's plan for a minimum wage hike. An interesting feature of this episode is that we can compare the market's reaction to the initial announcement and subsequent withdrawal of a plan to significantly raise the minimum wage. By contrast, excess returns associated with legislative developments on the minimum wage between 1987 and 1989 are small and unsystematic. Because it is difficult to identify events that unambiguously raise or lower investors' expectations about the future level of the minimum wage, our conclusions must be viewed as tentative. Nevertheless, our findings suggest that news about potential minimum wage hikes rarely generates changes in shareholder wealth in excess of 1 or 2 percent.

In future research, it may be useful to study the effect of minimum wages on accounting profits. It may also be worthwhile to analyze the effect of the minimum wage on the transaction prices of franchise restaurants and other similar establishments. Finally, it may be useful to study the effect of the minimum wage on firms' locational decisions, and on the rate of business openings and closings. Evidence from the McDonald's restaurant chain

(Card and Krueger (1994)) suggests that the state-specific minimum wages have at most small effects on restaurant opening and closing rates. In our opinion, however, a better understanding of the overall effect of the minimum wage on the economy will require more attention to the behavior and reactions of firms.

REFERENCES

Abowd, John M. 1989. "The Effect of Wage Bargains on the Stock Market Value of the Firm." American Economic Review, 79:774-90.

Becker, Brian E., and Craig A. Olson. 1986. "The Consequences of Strikes for Shareholder Equity." Industrial and Labor Relations Review, 39:425-38.

_____. 1989. "Unionization and Shareholder Interests." Industrial and Labor Relations Review, 42:246-61.

Brown, Charles and James Medoff. 1989. "The Employer Size-Wage Effect." Journal of Political Economy. 97:1027-59.

Brown, Jared J., and Jerold B. Warner. 1985. "Using Daily Stock Returns: The Case of Event Studies." Journal of Financial Economics, 14:3-31.

Card, David and Alan B. Krueger. 1994. "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania." American Economic Review, 84:772-793.

_____. 1995. Myth and Measurement: The New Economics of the Minimum Wage. Princeton New Jersey: Princeton University Press (forthcoming).

Dollar General Corporation. 1992. 10-K Report Filed with the U.S. Security and Exchange Commission. Taken from Disclosure SEC Database (1994 edition).

Disclosure Incorporated: Bethesda, Maryland.

GB Foods Corporation. 1992. 10-K Report Filed with the U.S. Security and Exchange Commission. Taken from Disclosure SEC Database (1994 edition).
Disclosure Incorporated: Bethesda, Maryland.

Katz, Lawrence, and Alan Krueger. 1992. "The Effect of the Minimum Wage on the Fast Food Industry." Industrial and Labor Relations Review, 46:6-21.

Liberty, Susan E., and Jerold L. Zimmerman. 1986. "Labor Union Contract Negotiations and Accounting Choices." Accounting Review, 61:692-712.

Neumann, George R. 1980. "The Predictability of Strikes: Evidence from the Stock Market." Industrial and Labor Relations Review, 33:325-35.

Reynolds, Lloyd and Peter Gregory. 1965. Wages, Productivity, and Industrialization in Puerto Rico. Homewood: Richard Irwin, Inc.

Ruback, Richard S., and Martin B. Zimmerman. 1984. "Unionization and Profitability: Evidence from the Capital Market." Journal of Political Economy, 1134-57.

Sandwich Chef Incorporated. 1992. 10-K Report Filed with the U.S. Security and Exchange Commission. Taken from Disclosure SEC Database (1994 edition).
Disclosure Incorporated: Bethesda, Maryland.

SG&A Company. 1992. 10-K Report Filed with the U.S. Security and Exchange Commission. Taken from Disclosure SEC Database (1994 edition). Disclosure Incorporated: Bethesda, Maryland.

Figure 1: June 12, 1987
Reagan May Ease Minimum Wage Stand

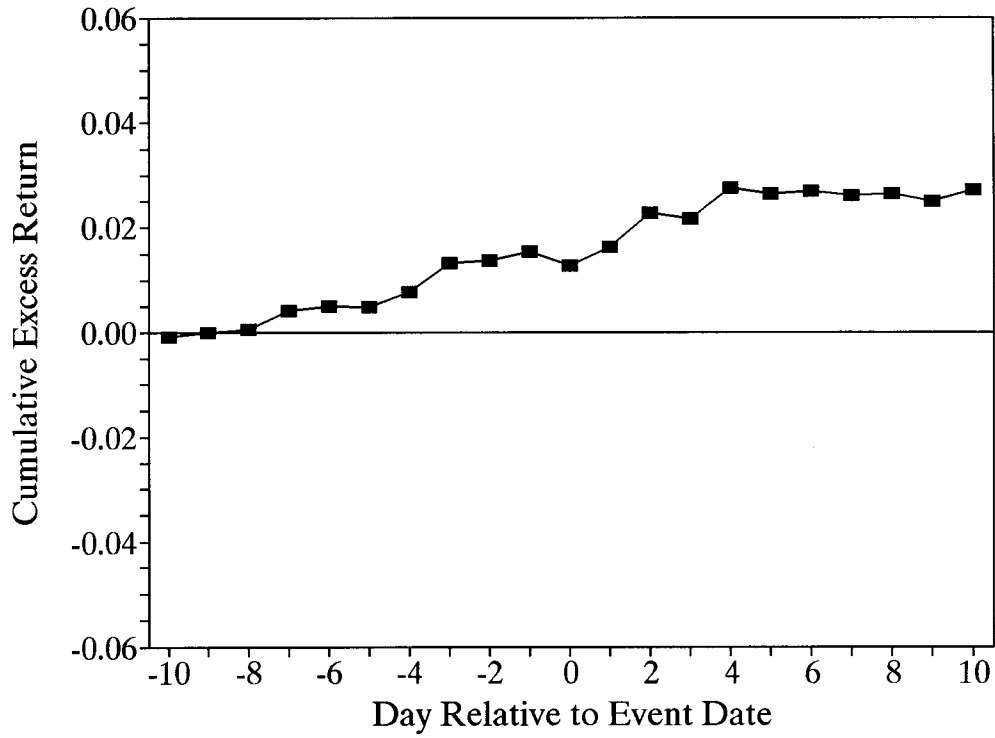


Figure 2: March 4, 1988
Panel Votes to Boost Minimum Wage

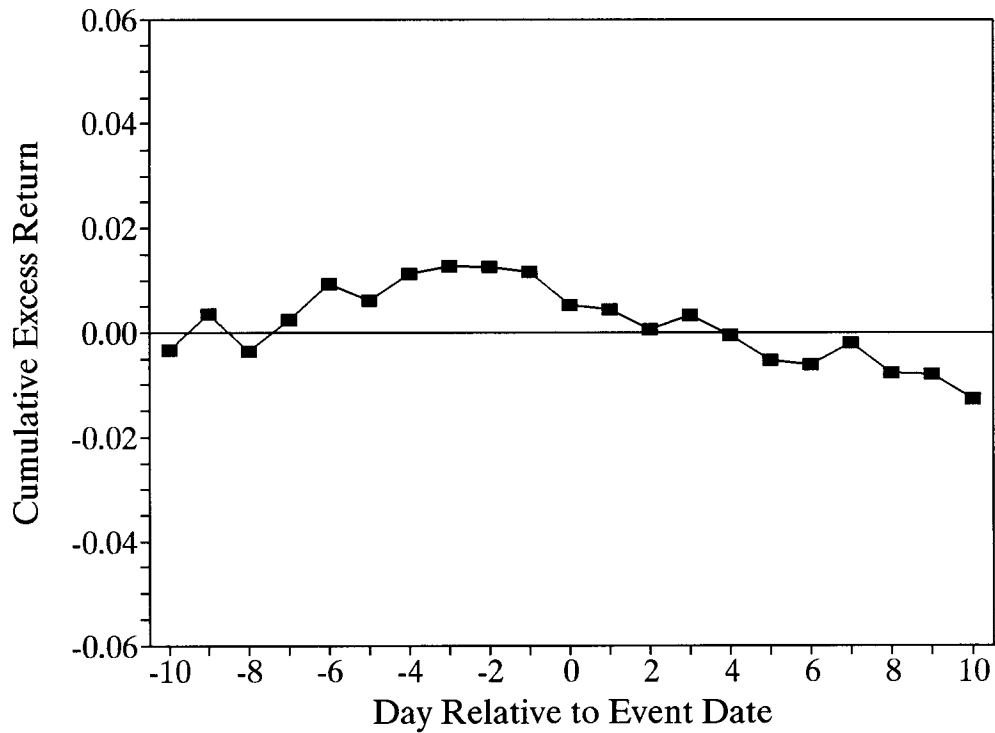


Figure 3: September 19, 1988
Bush Supports Minimum Wage Increase

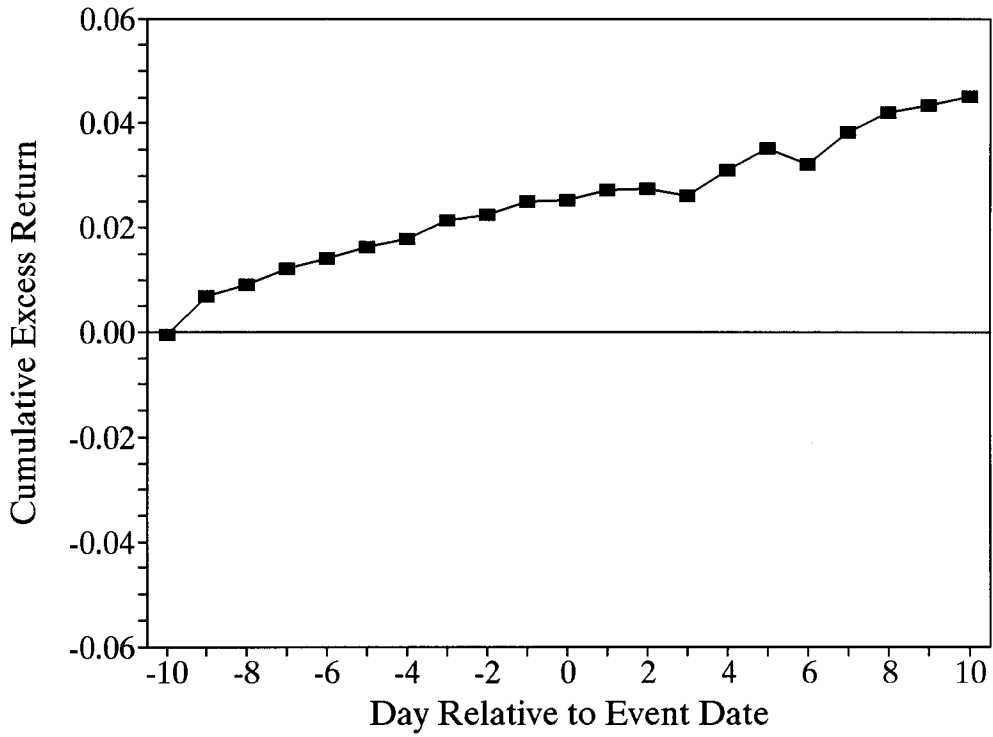


Figure 4: September 27, 1988
Bid to Boost Minimum Thwarted by GOP

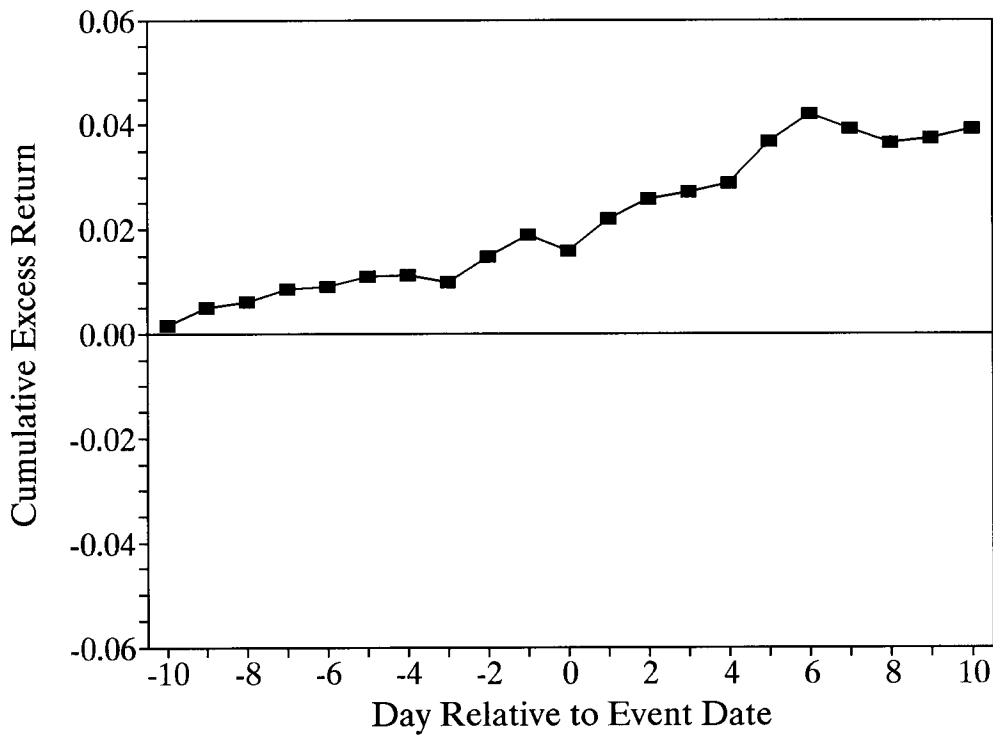


Figure 5: March 3, 1989
Bush to Propose Raising Minimum Wage

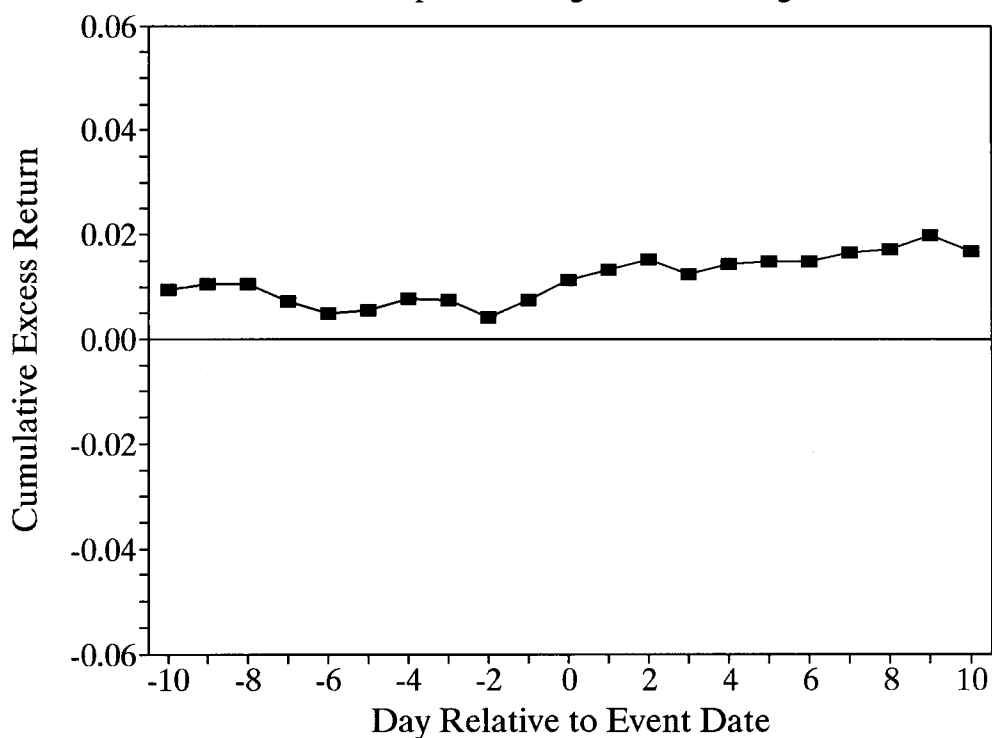


Figure 6: June 14, 1989
Bill on Minimum Wage Vetoed by Bush

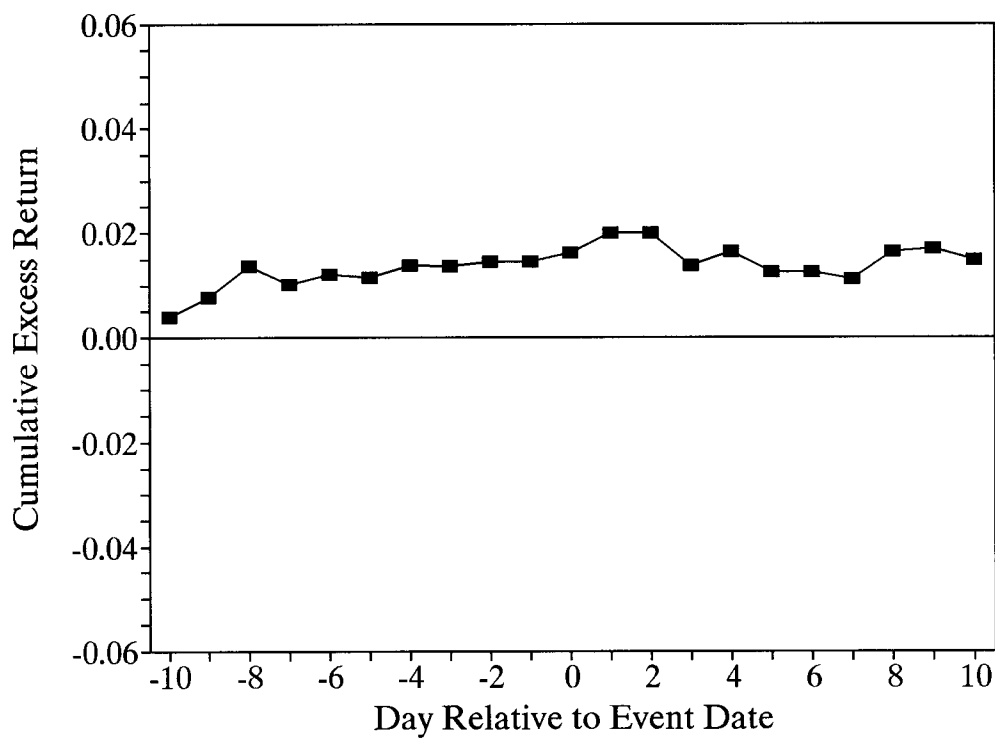
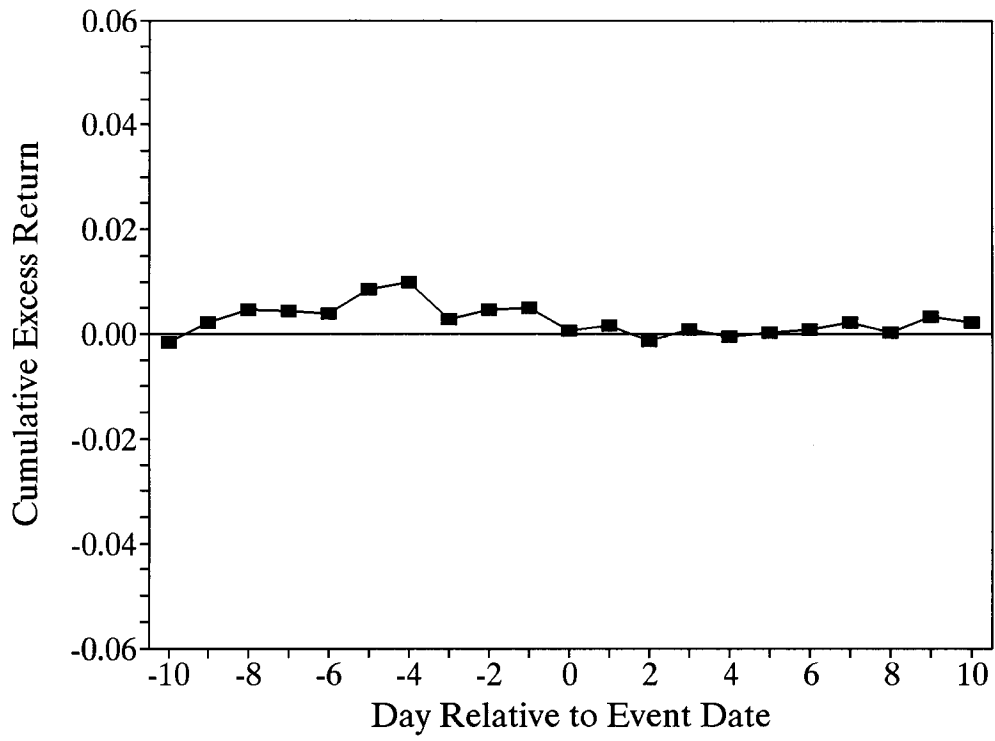


Figure 7: November 1, 1989
Compromise on Minimum Wage Reached



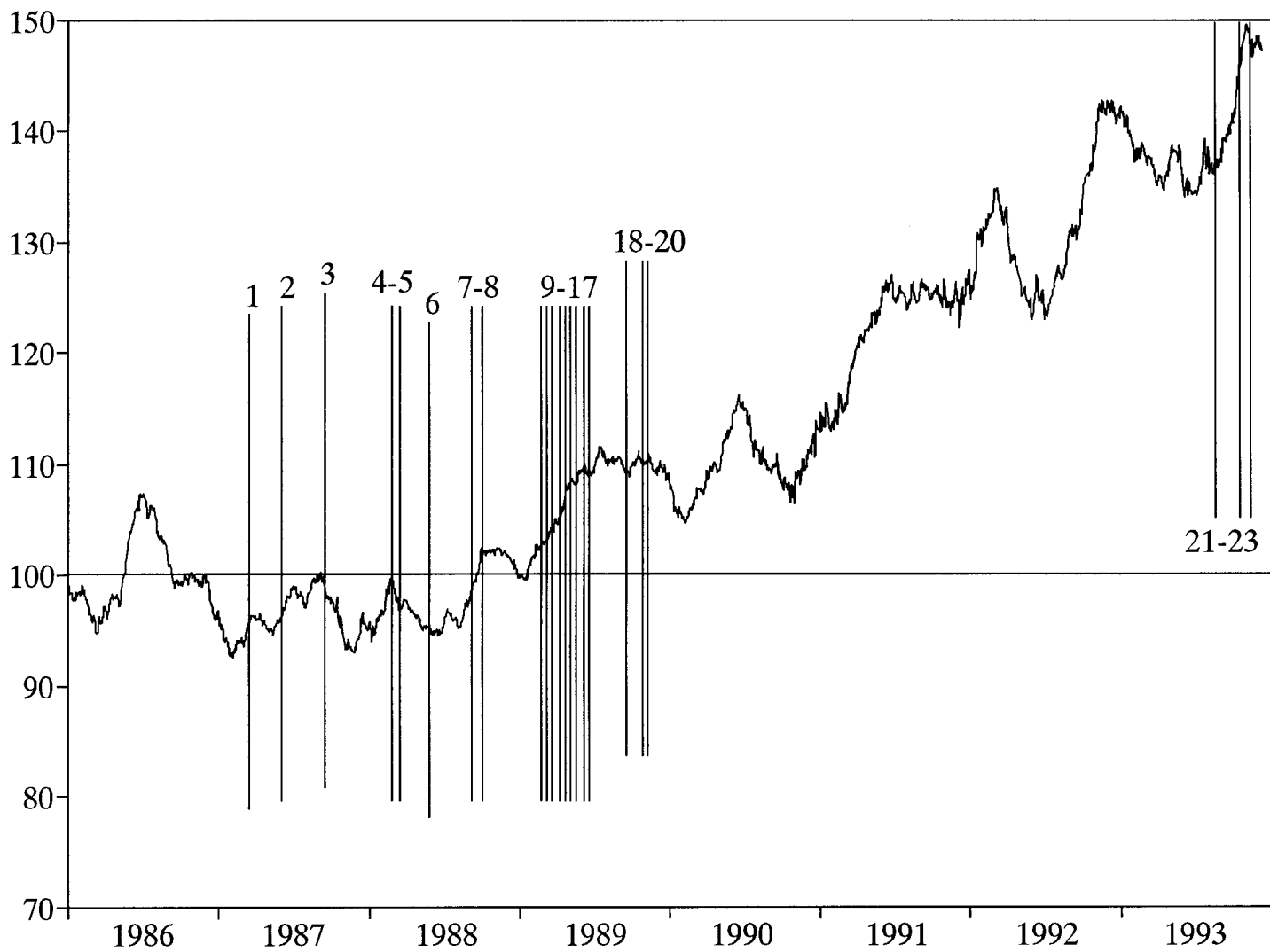


Figure 8: Cumulative Excess Return for Sample A Firms.

Note: numbers refer to event dates in Table 3

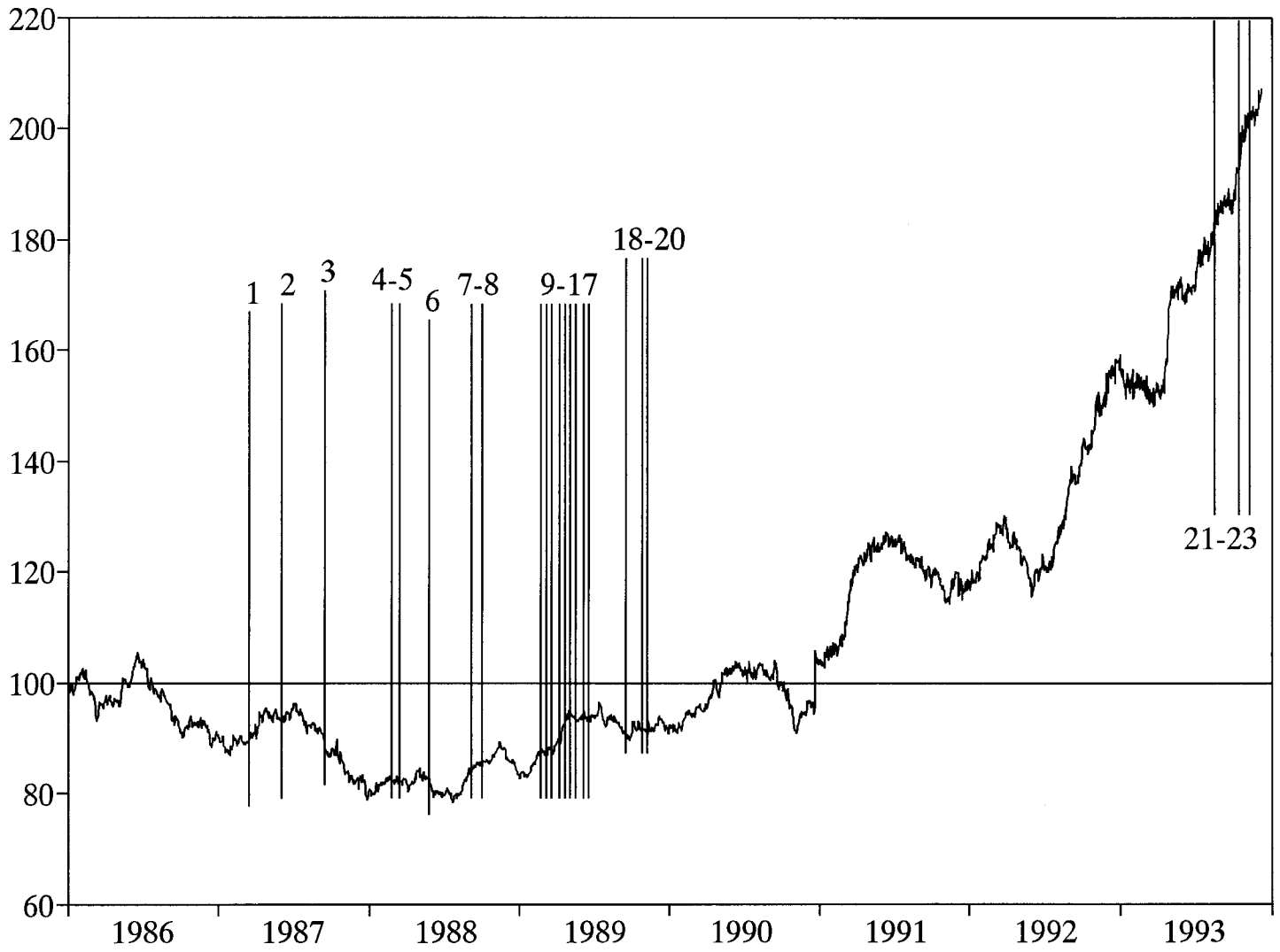


Figure 9: Cumulative Excess Return for Sample B Firms.

Note: numbers refer to event dates in Table 4

Figure 10: August 12, 1993
Reich Plans Push to Raise Minimum Wage

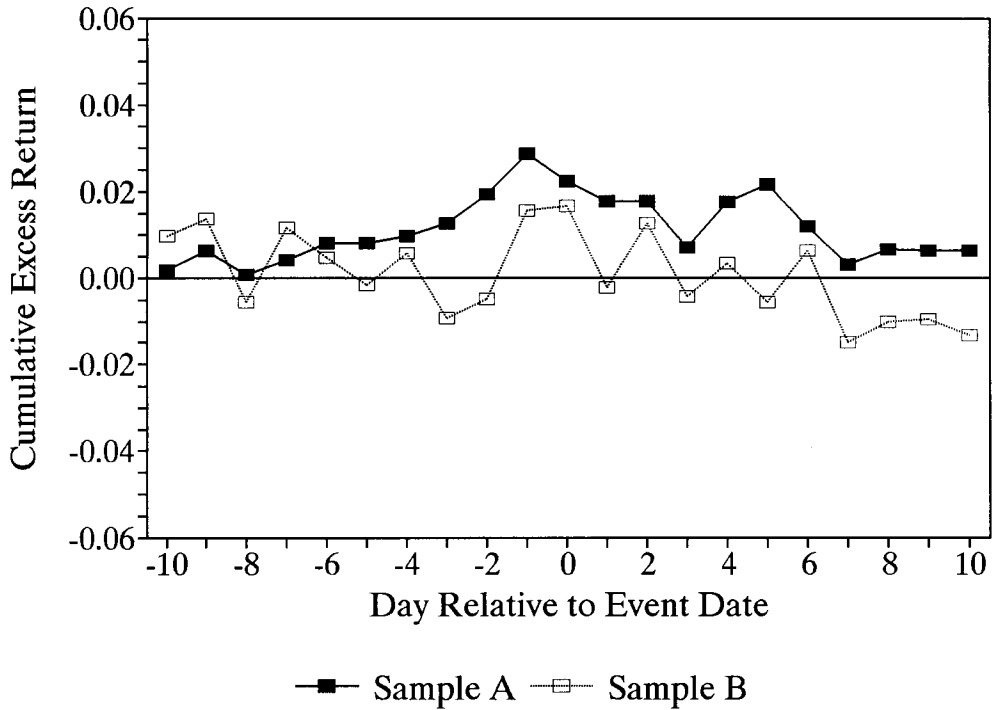


Figure 11: October 13, 1993
Reich to Seek Rise in Minimum to \$4.75

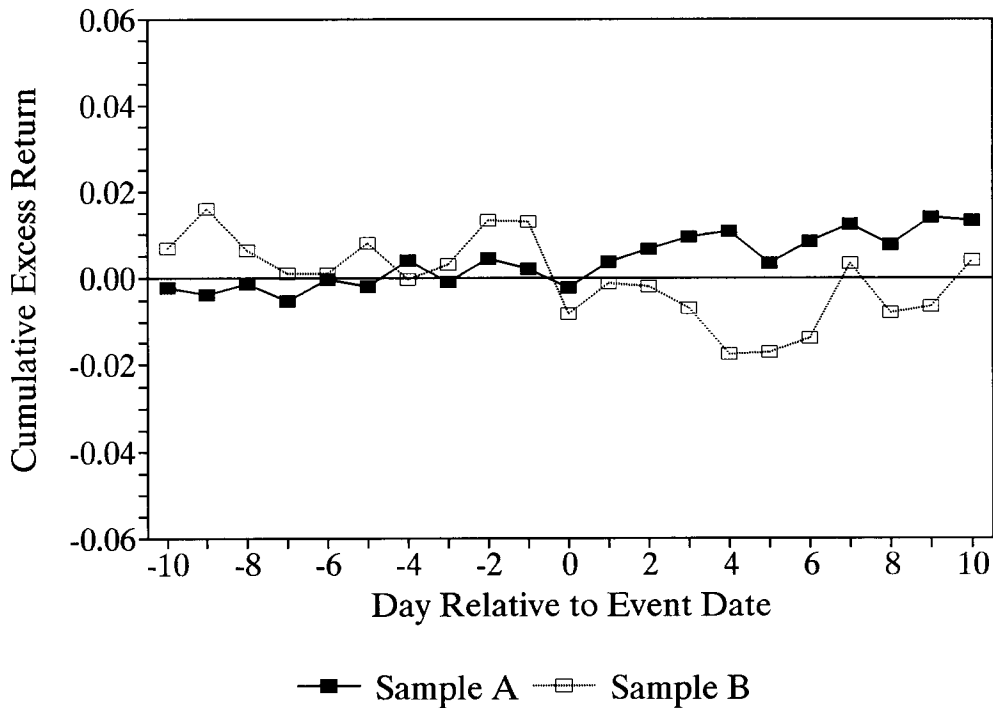


Figure 12: October 29, 1993
Reich Advises President to Delay

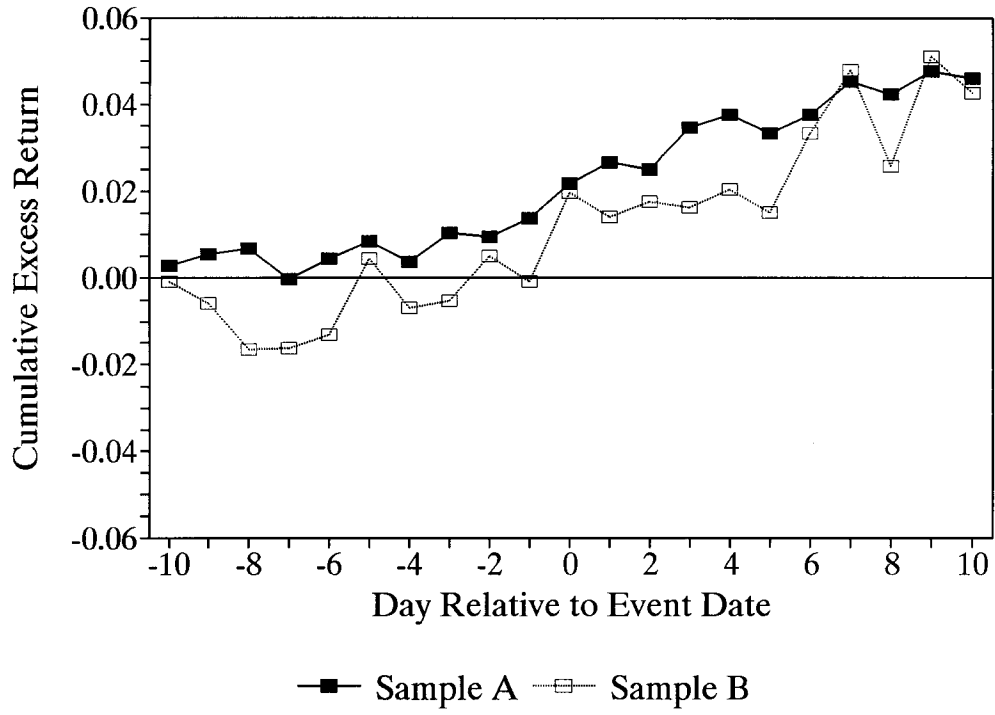


Table 1: Characteristics of Firms that Employ Minimum-Wage and Near-Minimum-Wage Workers

Employer Characteristics	Distribution of Workers by Hourly Wage Range				Wage Distribution of Workers in Each Row Category			
	<4.25	4.25	4.26-4.75	>4.75	<4.25	4.25	4.26-4.75	>4.75
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>Establishment Size:</u>								
1. 1-24	59.2	59.7	51.4	32.0	5.0	3.9	6.2	85.0
2. 25-99	27.3	24.2	27.4	24.7	3.2	2.2	4.6	90.1
3. 100-249	6.7	7.9	12.0	15.1	1.3	1.2	3.4	94.1
4. 250+	6.8	8.3	9.2	28.1	0.7	0.7	1.5	97.1
<u>Employer Operates Multiple Establishments:</u>								
5. Yes	38.2	63.9	59.4	71.3	1.6	2.0	3.5	92.9
6. No	61.8	36.1	40.6	28.8	5.8	2.7	5.5	86.0
<u>Firm Size:</u>								
7. 1-24	50.5	35.3	35.0	20.2	6.6	3.4	6.2	83.9
8. 25-99	16.9	14.9	11.9	13.0	3.7	2.4	3.6	90.4
9. 100-249	4.3	3.7	8.2	8.8	1.4	0.9	3.7	93.9
10. 250+	28.2	46.1	44.9	58.0	1.4	1.7	3.1	93.8
<u>Industry:</u>								
11. Agriculture	6.1	2.7	3.0	1.3	11.5	4.5	8.1	76.0
12. Mining	0.1	0.0	0.0	0.7	0.7	0.1	0.2	99.1
13. Construction	1.6	1.1	1.1	5.2	1.0	0.6	0.9	97.5
14. Manufacturing	5.7	8.9	9.3	19.1	0.9	1.2	2.1	95.7
15. Transp/Comm/Utilities	2.6	1.0	1.7	8.2	1.0	0.3	0.9	97.8
16. Wholesale Trade	1.3	1.2	1.3	4.0	1.0	0.8	1.5	96.8
17. Retail Trade	39.1	51.3	50.6	13.9	6.6	7.5	12.3	73.5
18. Finance/Ins/Real Estate	3.2	1.0	1.7	7.2	1.4	0.4	1.1	97.2
19. Services	38.9	31.7	30.4	34.4	3.3	2.3	3.7	90.7
20. Public Administration	1.4	1.3	0.9	6.0	0.7	0.6	0.7	98.0
21. All	100.0	100.0	100.0	100.0	2.9	2.5	4.2	90.4

Source: Establishment size and firm size distributions are from April 1993 Employee Benefit Supplement of the CPS. Industry distributions are from the 1993 merged monthly earnings supplement files.

Table 2: Effect of Minimum Wage Increase on the Present Value of a Hypothetical Firm.

	Before Minimum Wage Increase (1)	After Minimum Wage Increase (2)
1. Annual Sales	\$2,000,000	\$2,000,000
2. Labor Cost	600,000	690,000
3. Other Costs (Food, materials, rent, etc)	1,200,000	1,200,000
4. Annual Profit	200,000	110,000
5. Present Value of Profits (3% discount rate)	6,666,667	6,332,128
6. Present Value of Profits (10% discount rate)	2,000,000	1,749,581

Note: Comparison of before and after situation assumes that the minimum wage increase causes the wage to rise by 15 percent for the next 4 years, with no effect on labor costs thereafter.

Table 3: Cumulative Excess Returns of Sample A Firms, 1987-1989

Event	Predicted Effect	Cumulative Excess Returns			
		t=0	t=0 to 5	t=-5 to 5	t=-10 to 10
1. March 26, 1987 Democrats seek higher min. wage, White House quickly opposes it.	?	0.000	-0.002	0.008	0.018
2. June 12, 1987 Reagan may ease min. wage stand.	-	-0.003	0.011	0.021*	0.027*
3. Sept. 22, 1987 Move in Congress to boost the min. wage revives the perennial debate on possible loss of jobs.	?	-0.006*	-0.005	-0.013	-0.020
4. March 4, 1988 Panel votes bill to sharply boost min. wage.	-	-0.007*	-0.017**	-0.015	-0.013
5. March 11, 1988 Panel delays wage vote; raises minimum to \$5.05.	-	-0.005	-0.012	-0.024**	-0.019
6. June 3, 1988 Labor's push to boost min. wage draws unexpected opposition from some democrats.	+	-0.005	-0.003	-0.000	0.001
7. Sept. 19, 1988 Prospects wax for the minimum-wage rise, helped by Bush's support for increase.	-	0.000	0.010	0.021*	0.045***

8. Sept. 27, 1988 Democrats' bid to boost min. wage this year is thwarted by GOP filibuster.	+	-0.003	0.018**	0.028**	0.039**
9. March 3, 1989 Bush to propose raising min. wage to \$4.25 an hour, a lower training pay.	-	0.004	0.007	0.010	0.017
10. March 9, 1989 Congress moves to increase min. wage.	-	0.002	0.007	0.016	0.017
11. March 24, 1989 House votes major increase in hourly wage.	-	0.001	0.007	0.012	0.021
12. April 12, 1989 Senate votes to raise min. wage, but measure faces a threatened veto.	?	0.000	0.007	0.008	0.018
13. May 3, 1989 Conferees agree on min. wage of \$4.55, hope for accord with Bush.	-	0.003	0.007	0.026**	0.039**
14. May 12, 1989 Minimum-wage rise is approved by House.	-	0.003	0.004	0.010	0.022
15. May 18, 1989 Senate clears a wage bill Bush opposes.	-	-0.000	-0.001	0.005	0.021
16. June 14, 1989 Bill on raising min. wage vetoed by Bush.	+	0.002	-0.002	0.000	0.015
17. June 15, 1989 Bush's veto on wage bill survives House.	+	0.004	-0.004	0.001	0.010

18. Sept. 20, 1989	-	-0.004	-0.003	-0.007	-0.009
House Labor Panel passes bill to raise the min. wage.					
19. Nov. 1, 1989	-	-0.004	-0.005	-0.004	0.002
Compromise on min. wage reached.					
20. Nov. 10, 1989	?	0.001	0.003	0.002	-0.007
Bush criticized for minimum-wage compromise.					

- * Significant at the .10 level
- ** Significant at the .05 level
- *** Significant at the .01 level

Notes: Sample size ranges between 102 and 108. Coefficients for market model are estimated with 1987 returns data.

Table 4: Cumulative Excess Returns of Sample B Firms, 1987-1989

Date	Predicted Effect	Cumulative Excess Returns			
		t=0	t=0 to 5	t=-5 to 5	t=-10 to 10
1. March 26, 1987 Democrats seek higher min. wage, White House quickly opposes it.	?	-0.009	0.020	0.044*	0.046
2. June 12, 1987 Reagan may ease min. wage stand.	-	-0.010	0.012	0.022	0.018
3. Sept. 22, 1987 Move in Congress to boost the min. wage revives the perennial debate on possible loss of jobs.	?	-0.006	-0.009	-0.035	-0.031
4. March 4, 1988 Panel votes bill to sharply boost min. wage.	-	-0.002	0.003	-0.004	0.007
5. March 11, 1988 Panel delays wage vote; raises minimum to \$5.05.	-	0.004	0.002	0.001	0.002
6. June 3, 1988 Labor's push to boost min. wage draws unexpected opposition from some democrats.	+	-0.003	-0.014	-0.018	-0.026
7. Sept. 19, 1988 Prospects wax for the minimum-wage rise, helped by Bush's support for increase.	-	0.002	0.016	0.032	0.040

8. Sept. 27, 1988 Democrats' bid to boost min. wage this year is thwarted by GOP filibuster.	+	0.003	0.004	0.019	0.028
9. March 3, 1989 Bush to propose raising min. wage to \$4.25 an hour, a lower training pay.	-	0.001	0.008	0.017	0.035
10. March 9, 1989 Congress moves to increase min. wage.	-	0.001	-0.001	0.015	0.030
11. March 24, 1989 House votes major increase in hourly wage.	-	0.001	-0.001	0.017	0.027
12. April 12, 1989 Senate votes to raise min. wage, but measure faces a threatened veto.	?	0.005	0.002	0.022	0.059*
13. May 3, 1989 Conferees agree on min. wage of \$4.55, hope for accord with Bush.	-	0.002	0.001	0.032	0.066*
14. May 12, 1989 Minimum-wage rise is approved by house.	-	0.001	-0.005	0.015	0.025
15. May 18, 1989 Senate clears a wage bill Bush opposes.	-	-0.001	-0.006	0.005	0.006
16. June 14, 1989 Bill on raising min. wage vetoed by Bush.	+	0.010	0.004	0.004	0.024
17. June 15, 1989 Bush's veto on wage bill survives House.	+	0.001	-0.003	0.009	0.021

18. Sept. 20, 1989 House Labor Panel passes bill to raise the min. wage.	-	-0.006	0.001	-0.006	-0.016
19. Nov. 1, 1989 Compromise on min. wage reached.	-	0.002	0.002	0.009	-0.010
20. Nov. 10, 1989 Bush criticized for minimum-wage compromise.	?	0.001	-0.005	-0.000	-0.004

* Significant at the .10 level

Notes: Sample size is 28. Coefficients for market model are estimated with 1987 returns data.

Table 5: Cumulative Excess Returns of Sample A Firms, 1993

Event	Predicted Effect	Cumulative Excess Returns			
		t=0	t=0 to 5	t=-5 to 5	t=-10 to 10
21. August 12, 1993 Reich plans a push to raise min. wage.	-	-0.006	-0.007	0.013	0.006
22. October 13, 1993 Reich to seek rise in min. wage to \$4.75 an hour, an increase of 12%.	-	-0.004	0.001	0.004	0.013
23. October 29, 1993 Reich advises President to delay min. wage recommendation until next year.	+	0.008*	0.019*	0.030**	0.046*

* Significant at the .10 level.

** Significant at the .05 level.

Notes: Sample size is 110. Coefficients for market model are estimated with 1992 returns data.

Table 6: Cumulative Excess Returns of Sample B Firms, 1993

Event	Predicted Effect	Cumulative Excess Returns			
		t=0	t=0 to 5	t=-5 to 5	t=-10 to 10
21. August 12, 1993 Reich plans a push to raise min. wage.	-	0.001	-0.021	-0.010	-0.013
22. October 13, 1993 Reich to seek rise in min. wage to \$4.75 an hour, an increase of 12%.	-	-0.021**	-0.030	-0.018	0.004
23. October 29, 1993 Reich advises President to delay min. wage recommendation until next year.	+	0.021**	0.016	0.028	0.042

* Significant at the .10 level.

** Significant at the .05 level.

Notes: Sample size is 27. Coefficients for market model are estimated with 1992 returns data.

Appendix Table 1
Sample A: 110 Companies used in Event Study

Company Name	Primary Industry	Market Value (thousands)
Albertson's Inc.	Grocery Stores	6,776,443
AMC Entertainment Inc.	Motion Picture Theaters, Except Drive-in	221,508
American Stores Co.	Grocery Stores	3,062,890
Ampal American Israel Corp.	Hotels and Motels	178,284
Angelica Corp.	Linen Supply	256,594
Arden Group Inc.	Grocery Stores	82,263
Ark Restaurants Corp.	Eating Places	34,305
Bayport Restaurant Group Inc.	Eating Places	40,220 ^a
Benihana National Corp.	Eating Places	17,874
Brendle's Inc.	Variety Stores	10,067
Brinker International Inc.	Eating Places	2,107,858
Bruno's Inc.	Grocery Stores	692,436
Buffets Inc.	Eating Places	788,465
Carl Karcher Enterprises Inc.	Eating Places	194,717
Carmike Cinemas Inc.	Motion Picture Theaters, Except Drive-in	143,460
Carter Hawley Hale Stores Inc.	Department Stores	427,272 ^a
Casey's General Stores Inc.	Grocery Stores	272,195
Cineplex Odeon Corp.	Motion Picture Theaters, Except Drive-in	278,795
Cintas Corp.	Linen Supply	1,586,882
Chart House Enterprises Inc.	Eating Places	97,476 ^b
Club Med Inc.	Hotels and Motels	328,161
Consolidated Products Inc.	Eating Places	62,120
Consolidated Stores Corp.	Variety Stores	923,458
Cracker Barrel Old Country Store Inc.	Eating Places	1,638,780
Craig Corp.	Grocery Stores	75,208
Crowley Milner & Co.	Department Stores	11,640
Dairy Mart Convenience Stores Inc.	Grocery Stores	34,512
Dayton Hudson Corp.	Variety Stores	4,761,264
Delchamps Inc.	Grocery Stores	97,873
Dial Corp. DE	Eating Places	1,895,411
Dillard Department Stores Inc.	Department Stores	4,284,690
Dollar General Corp.	Variety Stores	1,254,030
El Chico Restaurants Inc.	Eating Places	66,591
Family Dollar Stores Inc.	Variety Stores	957,984
Family Steak Houses of Florida Inc.	Eating Places	6,569
Federated Department Stores Inc.	Department Stores	NA ^a
Food Lion Inc.	Grocery Stores	3,202,107
Foodarama Supermarkets Inc.	Grocery Stores	16,065
Frisch's Restaurants Inc.	Eating Places	91,551
G & K Services Inc.	Linen Supply	212,252

Appendix Table 1 -- Continued

Company Name	Primary Industry	Market Value (thousands)
Gander Mountain Inc.	Miscellaneous Merchandise Stores	38,849
Giant Food Inc.	Grocery Stores	1,537,352
Gottschalks Inc.	Department Stores	83,288
Ground Round Restaurants Inc.	Eating Places	87,317
Hannaford Bros Co.	Grocery Stores	885,155
Healthcare Services Group Inc.	Linen Supply	92,249
Hilton Hotels Corp.	Hotels and Motels	2,904,943
Ingles Markets Inc.	Grocery Stores	198,022
Jamesway Corp.	Department Stores	11,261
JB's Restaurants Inc.	Eating Places	28,320
Kahler Corp.	Hotels and Motels	23,037
Kmart Corp.	Department Stores	8,776,708
Kroger Co.	Grocery Stores	2,157,688
L. Luria & Son Inc.	Miscellaneous Merchandise Stores	80,820
La Quinta Inns Inc.	Hotels and Motels	712,719
Luby's Cafeterias Inc.	Eating Places	612,607
Mac Frugal's Bargain Close Outs Inc.	Variety Stores	581,674
Marcus Corp.	Hotels and Motels	360,167
Max & Erma's Restaurants Inc.	Eating Places	32,556
May Department Stores Co.	Department Stores	9,780,846
McDonald's Corp.	Eating Places	20,121,684
Mercantile Stores Co. Inc.	Department Stores	1,335,595
Morgan's Foods Inc.	Eating Places	52,151
Morrison Restaurants Inc.	Eating Places	948,150
Motts Holdings Inc.	Grocery Stores	16,503
National Convenience Stores Inc.	Grocery Stores	NA ^a
National Pizza Co.	Eating Places	162,669
Neiman Marcus Group Inc.	Department Stores	711,487
Orient Express Hotels Inc.	Hotels and Motels	14,634
Pancho's Mexican Buffet Inc.	Eating Places	53,373
PEC Israel Economic Corp.	Grocery Stores	586,218
Penn Traffic Co.	Grocery Stores	392,551 ^b
Pepsico Inc.	Eating Places	32,586,264
Piccadilly Cafeterias Inc.	Eating Places	123,724
Proffitt's Inc.	Department Stores	205,556
Quality Food Centers Inc.	Grocery Stores	478,739
Rio Hotel & Casino Inc.	Hotels and Motels	333,504
Riser Foods Inc.	Grocery Stores	56,567 ^b
Rose's Stores Inc.	Variety Stores	12,755
Ruddick Corp.	Grocery Stores	530,633
Ryan's Family Steak Houses Inc.	Eating Places	480,636
S K I Ltd.	Hotels and Motels	68,772

Appendix Table 1 -- Continued

Company Name	Primary Industry	Market Value (thousands)
Sbarro Inc.	Eating Places	596,899
Schultz Sav O Stores Inc.	Grocery Stores	41,053 ^b
Sears Roebuck & Co.	Department Stores	18,540,504
Seaway Food Town Inc.	Grocery Stores	26,910
Service Merchandise Co Inc.	Miscellaneous Merchandise Stores	993,420
Shoney's Inc.	Eating Places	938,810
Sizzler International Inc.	Eating Places	265,665
Smith's Food & Drug Centers Inc.	Grocery Stores	623,303
Spaghetti Warehouse Inc.	Eating Places	55,597
Stop & Shop Cos. Inc.	Grocery Stores	NA ^a
Strawbridge & Clothier	Department Stores	232,852
Stuarts Department Stores Inc.	Variety Stores	11,976
Thousand Trails Inc.	Hotels and Motels	31,814
TPI Enterprises Inc.	Eating Places	199,166
Tuesday Morning Corp.	Variety Stores	43,703
Unifirst Corp.	Linen Supply	317,781
United Inns Inc.	Hotels and Motels	20,784
Unitog Co.	Linen Supply	148,344 ^b
Uno Restaurant Corp.	Eating Places	86,349
Vicorp Restaurants Inc.	Eating Places	182,083
Vie de France Corp.	Eating Places	66,100
Volunteer Capital Corp.	Eating Places	56,254
Vons Cos. Inc.	Grocery Stores	693,424
Wal Mart Stores Inc.	Department Stores	57,463,050
Wall Street Deli Inc.	Eating Places	48,125
Walt Disney Co.	Amusement Parks	22,805,280
Warehouse Club Inc.	Miscellaneous Merchandise Stores	3,401
Weis Markets Inc.	Grocery Stores	1,182,708
Wendy's International Inc.	Eating Places	1,733,612
Winn Dixie Stores Inc.	Grocery Stores	4,018,121
Woolworth Corp.	Variety Stores	3,346,226
WSMP Inc.	Eating Places	11,786

Notes: Market values are as of December 31, 1993. Sample was selected on the basis of primary industry affiliation.

^a Not included in the 1993 period.

^b Not included in the 1987-89 period.

Appendix Table 2
Sample B: 28 Companies used in Event Study

Company Name	Primary Industry	Market Value (thousands)
Brinker International Inc.	Eating Places	\$2,107,858
Buffets Inc.	Eating Places	788,465
Chefs International Inc.	Eating Places	63,846
Ciatti's Inc.	Eating Places	NA
Consolidated Products Inc.	Eating Places	62,120
Cucos Inc.	Eating Places	4,481
Dairy Mart Convenience Stores Inc.	Grocery Stores	34,512
Dollar General Corp.	Variety Stores	1,254,030
El Chico Restaurants Inc.	Eating Places	66,591
Family Steak Houses of Florida Inc.	Eating Places	6,569
Hancock Fabrics Inc.	Sewing, Needlework and Piece Goods	203,366
JB's Restaurants Inc.	Eating Places	28,320
Kenwin Shops Inc.	Women's Clothing Stores	2,389
Morgan's Foods Inc.	Eating Places	52,151
Morrison Restaurants Inc.	Eating Places	948,150
National Pizza Co.	Eating Places	162,669
One Price Clothing Stores Inc.	Women's Clothing Stores	159,823
Pancho's Mexican Buffet Inc.	Eating Places	53,373
Piccadilly Cafeterias Inc.	Eating Places	123,724
Ryan's Family Steak Houses Inc.	Eating Places	480,636
Sizzler International Inc.	Eating Places	265,665
Sunbelt Nursery Group Inc.	Retail Nurseries and and Garden Stores	NA ^a
Sunshine Jr. Stores Inc.	Gasoline Service Stations	10,416
Valhi Inc.	Beet Sugar	559,037
Vicorp Restaurants Inc.	Eating Places	182,083
Volunteer Capital Corp	Eating Places	56,254
Wall Street Deli Inc.	Eating Places	48,125
Wendy's International Inc.	Eating Places	1,733,612

Notes: Market values are as of December 31, 1993. Sample was selected by a search over the term "minimum wage" in the text fields of the 1992 10-K reports of firms in the Compact Disclosure database. Sample includes firms that mentioned 1990 or 1991 minimum wage increase as a factor in higher labor costs.

^a Not included in the 1993 period.