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## Performance and Growth in Entrepreneurial Firms: What do Unions do?

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### Abstract

This paper explores the effects of union presence on the performance of entrepreneurial firms in the mid-1990s (both at the initial public offering (IPO) and after the event). Contrary to prior studies, we find that within our sample, union presence raises Tobin's q by 14.5 percent. For the critical outcomes of earnings growth and growth in share price, union presence raises earnings over three years by 10.1 percent and raises stock price by 15.7 percent. We interpret these findings using the exit/voice framework. We suspect that union bargaining power in the highly competitive environment of entrepreneurial firms is limited, and therefore, the union effects on compensation are also likely to be limited. In addition, we suspect that unions provide a mechanism for employee voice that constrains managerial prerogative in ways that reduce short-term decision-making and support longer term investment in human capital and the adoption of higher performing production systems.

### Keywords

research, union, industrial, earnings, employee, performance, earnings, investment

### Comments

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WORKING PAPER SERIES

# Performance and Growth in Entrepreneurial Firms: What Do Unions Do?

Theresa M. Welbourne  
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Working Paper 99-02



## **PERFORMANCE AND GROWTH IN ENTREPRENEURIAL FIRMS: WHAT DO UNIONS DO?**

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This paper has not undergone formal review or approval of the faculty of the ILR School. It is intended to make results of Center research available to others interested in preliminary form to encourage discussion and suggestions.

## FOREWORD

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## **ABSTRACT**

This paper explores the effects of union presence on the performance of entrepreneurial firms in the mid-1990s (both at the initial public offering (IPO) and after the event). Contrary to prior studies, we find that within our sample, union presence raises Tobin's  $q$  by 14.5 percent. For the critical outcomes of earnings growth and growth in share price, union presence raises earnings over three years by 10.1 percent and raises stock price by 15.7 percent. We interpret these findings using the exit/voice framework. We suspect that union bargaining power in the highly competitive environment of entrepreneurial firms is limited, and therefore, the union effects on compensation are also likely to be limited. In addition, we suspect that unions provide a mechanism for employee voice that constrains managerial prerogative in ways that reduce short-term decision-making and support longer-term investment in human capital and the adoption of higher performing production systems.

## **PERFORMANCE AND GROWTH IN ENTREPRENEURIAL FIRMS: WHAT DO UNIONS DO?**

Research on the relationship between unions and firm performance has generally found a positive relationship between unionization and productivity and a negative relationship between unions and financial performance, or profitability (Addison and Hirsch 1989; Belman 1992; Freeman 1992). The exit/voice model is most commonly used to explain this paradox (Freeman and Medoff 1984). Freeman and Medoff argued that the “monopoly power” of unions creates high union wages and restrictive work rules, both of which raise the costs of production; but unions may also lower production costs by reducing turnover (exit) and providing incentives for effort through “collective voice.” Under this model, the effect of unions on firm performance is an empirical question that depends on the net effect of opposing forces. Even where unions raise productivity, however, they may lower profit margins by taking a greater share of the gains from productivity than would otherwise accrue to nonunion workers. This economic argument is consistent with research in industrial relations which argues that the effect of unions in the workplace is highly contingent on many factors, including external market and institutional factors, managerial and union strategy, the history of collective bargaining, and the level of trust and cooperation between management and labor.

If the effect of unions is context specific, however, why have researchers consistently found a significant negative effect of unions on profitability? Under what conditions might unionization contribute positively to firm financial performance? The exit/voice framework would suggest that unionization might benefit profitability under conditions where the monopoly power of the union is small and the effect of the collective voice role is strong and positive. The empirical literature offers some support for this idea. First, there is some evidence that unions reduce profit margins by sharing in monopoly rents, but that the negative union effect is significantly reduced or zero in competitive markets. The empirical research, therefore, is mixed as to whether unions reduce profits only in monopoly markets or in all market conditions. Second, the human resource and industrial relations literature suggests that firms that invest in their workforce, or adopt “high performance work systems” may outperform their competitors on cost, quality, innovation, and time-to-market (e.g., MacDuffie 1995; Ichniowski et. al. 1996). High performance work systems are defined as those in which management adopts a coherent set of practices to provide employees with a) the opportunity to influence operational decisions; b) the skills and abilities to effectively participate in these decisions; and c) the

incentives to motivate discretionary effort (e.g., Appelbaum et. al. 1998). If union presence and collective voice induce firms to take this approach, then unionized workplaces may outperform their non-union counterparts on many dimensions. The combined effect of moderated wage demands in competitive markets and the use of high performance workplace practices may lead to higher profitability in unionized firms.

To explore this argument, we studied the effects of unions in an unusual set of companies: entrepreneurial firms in the mid-1990s at the time of their initial public offering (IPO) and thereafter. This is an appropriate population for studying the question of unions and profitability because competitive market pressures are very high and the monopoly power of unions is likely to be low. The effects of the collective voice role of unions is an empirical question. If on the one hand, unions help create inflexibility in production systems, then they are likely to negatively affect firm performance in competitive markets. If on the other hand, unions help curb short-term strategies and counter-productive cost-cutting of managers as they respond to tough market conditions, then union presence is likely to contribute positively to performance by supporting long term investment in human capital and higher performing production systems. This is an important test for the role of unions in economic growth because entrepreneurial firms are a major source of growth and innovation in the economy as a whole.

### **PRIOR LITERATURE**

A fairly consistent body of research in the U.S. empirically demonstrates a negative relationship between unions and financial performance, as measured by price-cost margin, net revenues per unit of capital, tobin's q, and stock market value of firms. Addison and Hirsch's (1989) review of sixteen studies that used various methodologies and measures of profitability found consistently large negative effects of unions on financial performance. In some studies, the evidence clearly supported a monopoly voice view in which unions gained quasi rents at the expense of shareholders (e.g., Abowd 1987). In other cases, lower profits in unionized firms were due to slower sales and poorer earnings (e.g. Liberty and Zimmerman 1986). Belman's subsequent (1992) review of the literature reached similar conclusions; and Freeman (1992) noted that studies of unions in the UK provide consistent results. Bronars and Deere (1990) and Bronars, Deere, and Stacey (1994) found that union elections were associated with significant declines in Tobin's q, the ratio of excess market value to sales, and the ratio of net operating income to sales.



## **Unions and Monopoly Power**

Despite this seeming consistency, however, the empirical research also supports the argument that the union effect on profits varies considerably by context. Hirsch (1991, 1992), for example, found a large negative effect of unions on profitability, but variation across industries. Allen (1986a, 1986b, 1987, 1988) reported no negative effect of unions on profits in the construction industry. Others have found that market conditions influence the extent to which unions reduce profitability. One argument is that unions extract quasi-rents in monopoly markets with “abnormally high returns” (Freeman and Medoff 1984). This is supported by Karier (1985, 1988), who found that unions were associated with lower price-cost margins in high concentration industries, but had no effect in low concentration industries. Voos and Mishel (1986) found a negative effect on supermarket profitability, and some support for a larger effect in concentrated industries. Hirsch and Connolly (1987), by contrast, found no variation in union effect by the degree of market concentration, but did find evidence that other market conditions such as the degree of foreign competition and a firm's market share were significant predictors of union rent-sharing (see also Hirsch 1990).

Other researchers have found that the union effect varies over time. For example, Kendrick and Grossman (1980) reported that unions had a negative effect on productivity growth from 1948-1966, but a positive one between 1967 and 1978. Connerton, Freeman, and Medoff (1983, cited in Belman 1992) found that union mines were 30% more productive than non-union mines in the 1960s, but only 15% more productive in the 1970s. This variation across industries and over time may be attributed to many factors including variation in union power, market conditions, and the changing strategies and relations between union and management.

A large literature also demonstrates that the relationship between unions and firm performance varies by the degree of labor-management conflict rather than union presence per se. Kendrick and Grossman (1980), for example, noted that when they included measures of strike activity, the positive effects of unions between 1967 and 1978 were eliminated. Connerton et. al., (1983, cited in Belman 1992) attributed the reduction in productivity in unionized mines in the 1970s to increased labor-management conflict and strike-related activity. Kochan, Katz, and Gobielle (1983) found that a better industrial relations climate led to improvements in quality (but not output) in a study of eighteen General Motors plants in the mid-1970s. Kochan, Katz, and Mower (1985) demonstrated the positive effects of better conflict management systems and worker attitudes on quality and productivity in twenty-five

durable goods plants in the same period. Similarly, Keefe (1992) reviewed empirical studies of unions and technological innovation and found that that outcomes were context specific. Martinello et. al. (1995) conducted a study of the effects of union certification on expected financial performance of firms. They reported no strong negative reaction to certification in general, but found increased negative returns where the certification process was more conflictual.

Given the importance of industry, market conditions, and the labor-management context on firm outcomes, therefore, an important limitation of the research that finds a negative relationship between unions and financial performance is that much of evidence is based on data from U.S. manufacturing in the 1960s and 1970s, ending in about 1982 (see Addison and Hirsch 1989; Belman 1992; also Becker and Olson 1989, 1992; Hirsch 1990, 1991, 1992). This represents a specific historical context in which oligopolistic markets and national bargaining agreements gave unions considerable monopoly leverage for extracting quasi-rents. At the same time, labor-management relations were highly adversarial and industrial unions engaged in “job control unionism”. Under job control unionism, unions bargained wages for specific jobs and enforced adherence to job descriptions in order to increase job security in the absence of explicit security agreements. This approach resulted in arguably greater inflexibility in the organization of work, which constrained productivity and process innovations (some empirical research has found that combining job classifications modestly improves economic performance, Keefe and Katz 1990). In sum, it is plausible that much of the evidence showing a negative effect of unions on financial performance may be understood as the negative effect of a particular kind of unionism in a particular historical context.

In fact, more recent studies indicate that the negative union effect fell in the 1980s. This could be interpreted as a reflection of declining union power, concession bargaining, or the changing content of union-management relations. Hirsch and Morgan’s 1994 study, for example, found an overall negative relationship between unions and shareholder rates of return between 1973 and 1987, but also variation over time. The differences in shareholder risk in union and nonunion firms were small and insignificant by the mid-1980s; and they found no systematic relationship between union coverage and shareholder returns in the mid-1970s or mid-1980s. Menezes-Filho (1997) analyzed data on unions and firm financial performance in the U.K. in the 1980s and demonstrated that the negative union effect declined sharply over the course of the decade. Becker (1995) found that shareholders’ average returns from

takeover activity in the 1980s were higher for unionized target firms compared to non-union target firms, with unionized workers losing the equivalent of 50 percent of the wage premium normally associated with union coverage. If the negative relationship between unions and firm profits is a function of union monopoly power, then we would expect to see even smaller effects of unions on profits in the 1990s when unionization and union power have continued to decline in the U.S.

A perhaps more serious issue is whether unions negatively effect economic growth or firm investment in research and development. Hirsch and Connolly (1987), among others, argue that measuring profitability in terms of price-cost margin (PCM), as is common in many studies of unions and financial performance, is a limited and static indicator. They argue that stock market valuations such as Tobin's q (the ratio of a firm's market value to replacement value) and investment in research and development (R&D) are more important indicators of firm value and dynamic growth. A negative effect of unionization on Tobin's q is interpreted to mean that unions negatively affect intangible rents. In this area, researchers have found mixed results as well. Several studies found that U.S. unions reduced Tobin's q or measures of R&D investment (e.g., Connolly, Hirsch, and Hirschy 1986; Hirsch and Connolly 1987). By contrast, Wadhvani (1989) found no effect for British unions; and in a recent study, Menezes-Filho et. al. (1998) found that a negative association between unions and R&D investment became statistically insignificant when appropriate controls for industry and cohort effects were added.

### **Unions and Collective Voice**

If monopoly power and conflictual union-management relations are the main factors that lower firm profits, under what conditions might unions improve financial performance? There are several possibilities. First, unionized workers may "shock" management to remove unfair or incompetent managers or provide better supervisory training (Slichter 1941). Second, unions usually bargain contracts that provide due process clauses such as grievance procedures which reduce the costs of voluntary turnover (Freeman and Medoff 1984). Ichniowski and Lewin (1987), for example, found that grievance procedures reduced quit rates among nurses by fourteen percent, and arbitration procedures by another two percent. Rees (1991) similarly found that voluntary quit rates among teachers were reduced by stronger, rather than weaker, grievance procedures. Better management and due process guarantees provide incentives for workers to make a longer term commitment to the employer and to increase discretionary effort. In addition, by raising relative wages and reducing turnover,

unions provide incentives for firms to compete on the basis of quality (Streeck 1991), rather than primarily on the basis of low cost. With lower turnover, for example, firms are more likely to invest in training because they are more likely to reap the benefits.

Unions may also support the adoption and sustainability of “high performance work systems.” Firm competitiveness and performance in global markets of the 1990s rests significantly on their ability to compete on quality, customization, and innovation, as well as cost. High performance systems involve greater use of employee participation, teams, investment in training, performance-based pay, and a commitment to employment security; and there is considerable evidence that the implementation of such practices results in better firm performance, including financial performance (e.g., Appelbaum and Batt 1994; Pfeffer 1998; Appelbaum, Bailey, Berg, and Kalleberg 1998). While many unions resisted these types of work innovations in the 1970s and 1980s, unions have increasingly embraced such practices in the last decade in order to save U.S. jobs. The AFL-CIO and many national unions have official policies supporting union-management partnerships, employee participation, and “high performance work practices” (e.g., AFL-CIO 1994; Communications Workers of America 1994; International Brotherhood of Electrical Workers 1993). Union support for high performance systems often results in better and more sustainable implementation and greater acceptance of change on the part of workers (Eaton and Voos 1992; Kochan and Osterman 1994; Lawler et. al. 1995; Batt 1997). More recently, a study of a nationally representative set of establishments in 1994 by Black and Lynch (1998) found that the use of high performance work systems led to a ten percent increase in productivity in non-union establishments, but to a twenty percent increase in unionized workplaces.

### **Expected Findings**

Prior research, therefore, supports the idea that the relationship between unions and firm financial performance is an empirical question that depends upon market and organizational context. In this study we chose a context in which markets are highly competitive and the monopoly power of unions is low. In addition, we chose a set of firms -- entrepreneurial firms -- where job control unionism is likely to be less prevalent. The age of entrepreneurial firms is on average quite low. In this sample, eighty percent are less than ten years old. They are relatively small and are likely to have constructed new plants for innovative products in greenfield sites so that rigid job classification systems and job control unionism associated with older plants in mass production industries are less likely to occur.

Entrepreneurial firms also are typically short on cash and high on work demands. The typical owner/founder is the inventor and entrepreneur who is under intense competitive pressure, is managing most or all aspects of the business, and who has little training in human resource management or employment relations. Under these conditions, there is a great temptation on the part of management to deal with competitive pressures through short-term solutions and cost-cutting that are often counterproductive to performance and long-term growth. Surveys by Wyatt and Associates (e.g., 1993) and the American Management Association (e.g., 1994) as well as academic research (e.g., Cascio et al. 1996) have demonstrated that short term cost cutting and downsizing are often deleterious to firm performance. In this context, therefore, unions may constrain counterproductive management decisions and push firms to take a longer term view of investing in human capital. A longer-term view is required for firms to successfully implement high performance work systems (Appelbaum and Batt 1994; Pfeffer 1998).

In addition, if unionization is a relatively recent phenomenon, as in many entrepreneurial firms, then research shows that unions generally make only modest economic gains in negotiating first contracts: the voice effects in early contracts are more important, including grievance and third party arbitration, seniority rights, and just cause and due process procedures (Freeman and Kleiner 1990). These collective voice benefits support the implementation of high performance work practices by helping to create an environment of trust and employment security that reduces worker resistance to process innovations. In sum, the context for this study is a group of firms where union wage demands are likely to be moderate or unsuccessful, and where union benefits for workers are likely to accrue in areas affected by collective voice: greater employee participation in workplace decisions, procedural justice, and employment security. To the extent that these firms attempt to adopt high performance work practices, the collective voice role of unions is likely to reduce worker resistance to change, enhance implementation, and support competitiveness.

These contextual factors lead us to hypothesize that in this group of firms, unions will be positively associated with firm financial performance and growth in profitability. It is also true, however, that financial analysts generally hold a negative view of unions because analysts assume that unions will depress profits and shareholder value. As a result, the positive relationship between unions and financial performance is less likely to hold for measures of financial performance that are influenced by analysts' perceptions of unions (such as Tobin's q). Tobin's q provides an indication of how well the firms did at their initial public

offering, and it is influenced by analysts' assessments and the reactions of initial investors. Welbourne and Andrews (1996), for example, found that analysts had a negative evaluation of those firms at initial public offering which emphasized a commitment to investing in human resources. For this reason, we believe that the net effect of union presence on Tobin's  $q$  is an empirical question for this group of firms, and we explore this issue in the analyses below.

## **METHODS**

Our research strategy involved selecting a specific cohort of IPO firms that went public in a given year and then tracking those same firms over time to study the effects of their early organization structure (whether unionized or not) on subsequent firm performance. We selected a sample of firms that went public in 1993 so that we could study long-term performance after the IPO (e.g. performance from 1993 to year-end 1996). The number of firms that went public in 1993 and that produced a good or service (we excluded real estate trusts and financial groups with no employees) was 585; of those companies we were able to obtain the prospectuses (which are one of our primary data sources) for 535 firms. The sample was further reduced to 476 as a result of missing data for 2 of the dependent variables: stock price and earnings per share in 1996. Fifty-nine firms no longer reported this data as of December, 1996. Of the firms that no longer reported stock price (or earnings), we found that 50 had engaged in a merger or acquisition, 2 filed for bankruptcy, 1 went private, and for 6 no information was available. In order to examine potential survival bias (the firms that dropped out were in some way inferior performers), we conducted an ANOVA to determine how those firms for which we did not have complete data (that dropped out of the sample) differed from the overall sample. We found that there were no significant differences in any of the variables used in the analyses for this research (e.g. risk factors at time of IPO, age of firm, size measured by sales and number of employees, and net profitability). The lack of significant differences, we speculate, is due to the fact that mergers may be conducted for healthy as well as financially troubled firms, and most of the firms for which we could no longer find data had engaged in a merger or acquisition. In addition to missing cases due to firms no longer being in existence, our final sample was reduced to 464 due to missing data that were randomly distributed among the variables used in the analyses.

### **Data Collection and Coding**

The primary data source was the prospectus of each firm. The prospectus is the document provided to the Securities and Exchange Commission (SEC) prior to the public offering, and it is also the document circulated by the underwriter to assess demand for the

firm's stock. The SEC requires that firms follow strict guidelines in the format. In fact, the firm is legally liable for any information that might mislead investors (O'Flaherty 1984). As noted by Beatty and Zajac (1994), top management is accountable to the SEC and to stockholders regarding the contents of the prospectus. The Securities Act of 1933 sets the requirements for the prospectus, thus assuring consistency in the type of information that is included in the document. The typical prospectus writing process involves at least three lawyers (one for the company and one for each of the investment bankers), two investment banking firms, and at least one certified public accountant. Each party has a vested interest in providing the public with an honest view of the company. Thus, we can be reasonably assured that the prospectus is a useful data source (Marino, Castaldi, & Dollinger 1989).

Our coding strategy was developed and refined based on earlier research on IPO firms (see method used by Welbourne and Andrews 1996). Code sheets and a coding handbook were given to each coder after each individual attended an initial training session. A total of five coders worked on the data. In addition, weekly meetings were held with coders to go over problems and/or inconsistencies in the prospectuses. Finally, we randomly cross coded prospectuses (every 10th prospectus). For the variables used in this study, agreement was 90% or higher among the coders. Financial data were also obtained from COMPUSTAT, Going Public: The IPO Reporter (for financial data at the time of the IPO), and from a database obtained from the Securities Data Corporation.

### **Sample Characteristics**

Table 1 provides the distribution of firms by industry and geographic location. For each industry and location, it also reports the percentage of firms that are unionized. The most striking observation is that IPO firms are located across most major industrial sectors and geographic regions. They are not concentrated, for example, among high tech companies or in the Silicon Valley. The firms in the sample are roughly equally divided between manufacturing (48.9%) and services (44.7%), with an additional 3.3 percent in extractive industries, and 2 percent in construction. Utilizing industry codes suggested by the Small Business Administration, we grouped firms into more detailed categories. The largest single category of firms was in apparel and accessory stores (26.9 percent), followed by industrial machinery (9.1%), utilities (8.7%), electronic equipment (8%), instruments and related products (6.5%) and chemicals and related products (6.5%). The companies are located in all geographic areas within the United States with higher concentrations of firms in the Pacific

(22%), South Atlantic (13%), Mid-Atlantic (11.7%), and Northeast (10.6%). In addition, 8% of the firms in the sample were based in foreign countries.

A total 95 firms (21%) reported having a union at the time of the IPO. This represents a higher rate of unionization than the national average of 13 percent because there are disproportionately more manufacturing firms in sample than in the economy as a whole. The rate of unionization varied widely from none in miscellaneous services to over 80 percent in stone, glass, and metal fabrication.

Table 2 reports the means and standard deviations of the variables. At the time of its IPO, the average firm in the sample was 4.79 years old (s.d. 10.65). The median firm, however, was 6 years old, and the range was from 1 to 47 years old, with most of the firms (80%) being less than 10 years old. The average firm in the sample employed 1,107 people (s.d. 3,208). The median firm had 190 employees, with a range from 2 to 10,299.

**Table 1**  
**Distribution of Sample Firms by Industry and Geographic Location**

<b>Two-Digit SIC Industry</b>	<b>Percent of Total Sample</b>	<b>Percent Unionized</b>
Metal, mining, oil & gas extraction	3.3	11.8
General building contractors & heavy construction	2.0	11.1
Food & kindred products, textile mills & apparel, and other textile products	6.0	16.7
Lumber, wood products, furniture, paper products	1.7	60.0
Printing & publishing	1.7	37.5
Chemical and allied products	6.5	11.8
Rubber, plastics, and leather products	2.2	36.4
Stone & glass - Metal, fabricated metal	4.8	82.6
Industrial machinery & equipment	9.1	20.0
Electronic & other electronic equipment	8.0	15.4
Transportation equipment	1.7	40.0
Instruments & related products	6.5	5.7
Miscellaneous manufacturing industries	2.4	8.3
Railroad & other transit	2.4	57.1
Communication	3.9	20.0
Electric, gas, & sanitary	1.1	33.3
Wholesale trade & building supplies	8.7	17.0
Apparel & accessory stores	26.9	12.9
Miscellaneous services	1.3	0.0



<b>Geographic Location</b>	<b>Percent of Total Sample</b>	<b>Percent Unionized</b>
Foreign country	8.0	57.9
Northeast	10.6	13.0
Middle Atlantic	11.7	19.4
East North Central	8.7	45.5
West North Central	6.7	13.2
South Atlantic	13.0	16.2
East South Central	2.8	31.3
West South Central	9.8	14.5
Mountain	5.4	10.7
Pacific	22.1	10.2

### **Independent Variables**

We coded union status from the prospectuses of each company. If the firm reported a union, we coded the variable as one, and if there were no unions reported, we coded the variable as zero. Unfortunately, not all firms reported the percentage of employees that were unionized or which union was representing the company. However, some firms did, and we coded this data in order to obtain some additional descriptive data for those firms that are unionized at the time of their IPO. Of the 49 firms reporting the number of employees that were unionized, we found that the average percentage was 46.94 (s.d. = 31.06). The median is 40.5% with a minimum of 1.5% and maximum of 100%. Firms in the sample are represented by unions such as: United Steelworkers (total of 8 firms ranging from having 414 to 2,558 employees), Teamsters (5 companies ranging from having 146 to 3,300 employees), the United Auto Workers (6 companies, with number of employees from 536 to 5,200). In addition to these unions that are reported representing multiple companies, the sample includes other unions such as: The United Brotherhood of Carpenters and Joiners of America, Graphic Communications Union, International Alliance of Theatrical Stage Employees, Association of Flight Attendants, Office and Professional Employees International Union, Amalgamated Clothing and Textile Workers Union, and the Moving Picture Machine Operators Union.

### **Dependent Variables**

As indicated above, there is considerable debate in the literature as to which measures of firm financial performance are most appropriate. We used three measures of financial performance in this study: Tobin's q at the time of the IPO, growth in earnings, and growth in stock price. Tobin's q is the ratio of market value to book value at the initial public offering and represents the value of what the shareholder would get if the stock were liquidated at that

point. At the time of the IPO, Tobin's  $q$  is influenced by many factors, including information in the prospectus, how well the owners are able sell their company to investors (partly due to how many orders for stock are taken prior to the IPO), and how well the overall stock market is doing. It is a good indicator of investors' assessment of the potential value of the firm. Growth in earnings per share is measured from the time of the IPO in 1993 to end-of-year 1996. Earnings per share (EPS) is a measure of internal performance that is often used by analysts and investors to assess future value of the firm. In the EPS analyses, we included earnings per share at the time of the IPO as a control variable. By conducting the analyses in this way, we eliminate measurement issues surrounding the use of change scores. However, we did run the analyses with change scores (percentage change from IPO to year-end 1996 as dependent variables), and the patterns of results (including significance levels) did not change.

Given that the primary reason investors choose to put money into an IPO is to make money when the firm's stock price increases over time, we also studied growth in stock price. Market-based measures represent the most prevalent and relevant firm performance measures in the IPO literature (see Ibbotson and Ritter, 1995 for a review). After controlling for initial stock price (adjusted for splits, buybacks, or any other events that affect unit price of the stock), our analysis reflects the increase in value of the firm in the first three years following the IPO.

### **Control Variables**

Selecting appropriate controls is an important consideration in this research because unionization may be correlated with other firm characteristics, including industry, geographic region, age, and size; and studies may suffer from omitted variable problems (e.g., Menezes-Filho et. al. 1998). We chose several control variables based on a review of both the human resource and industrial relations literatures and the initial public offering literature (e.g. Welbourne & Andrews, 1996; Huselid, 1995; Beatty & Zajac, 1994). Age of the firm is included because it is correlated with unionization. For company age, we obtained the year the company was incorporated from the prospectus and used that number to calculate company age (calculated as 1993 - date incorporated). The sample included firms that ranged from 0 to 77 years of age. The median is 6 years old at the time of the IPO (mean is 4.79, s.d. = 10.65). Unionization also varies with size of firm, which we measured by the number of employees and by total sales at the time of IPO. In addition, we included two measures of firm economic performance: total assets and net profit per share at the time of the IPO. For our

analysis of stock price, we include an additional control for adjusted stock price (adjusted for splits, etc.) at the time of the IPO.

To control for industry characteristics we included nineteen (one omitted) dummy variables based on two-digit industry classifications as reported by the Small Business Administration. In addition, we included nine geographic dummy codes (one omitted) because union power is likely to vary by region (stronger in the northeast and midwest where union density is higher; weaker in the southern and western states where right-to-work legislation weakens union power). The conditions and characteristics of entrepreneurial firms are also likely to vary by region, as for example, in the agglomeration economies found in the Silicon Valley (Saxenian 1994) (See Table 1 for industry and geographic categories used).

Although our sample of IPO firms consists of companies that are considered to be higher risk investments than companies currently in the public market (due to their having no prior stock price history), we expect that each firm will be subject to varying degrees of risk. Therefore, an additional control variable obtained from the firm's prospectus. We counted all paragraphs in the risk section. Each prospectus contains a section listing all risk factors faced by the firm. These risk factors must be disclosed to meet the requirements of the Securities and Exchange Commission. Prior research on initial public offering firms found that this measure was a useful way to code risk (Beatty and Zajac, 1994; Rasheed and Datta, 1994).

## **RESULTS**

Tables 2 and 3 provide the means and standard deviations for the entire sample, the means for the union and non-union subsamples, and the results of a oneway analysis of variance by union status. The results indicate that the union and non-union firms are significantly different on many dimensions. As expected, on average union firms are older and larger (in sales and employees); and are significantly more likely to be located in the northeast and in foreign countries, and less likely to be located in the Pacific west. While shareholder risk is statistically significantly less in union than non-union firms, firm performance is higher, as measured by total assets at the IPO, earnings per share in 1996, and stock price in 1996. Unions, however, are negatively related to Tobin's  $q$ .

**Table 2**  
**Means and Standard Deviations of Variables:**  
**All Firms, Union Firms, and Non-union Firms Compared**

<b>Variable</b>	<b>All Firms Mean (s.d.) (N=464)</b>	<b>Non-Union Firms Mean (s.d.) (N=369)</b>	<b>Union Firms Mean (s.d.) (N=95)</b>
<b>Dependent Variables</b>			
Tobin's Q at time of IPO	3.51 (9.13)	4.93*** (18.31)	-3.21 (51.41)
Earnings per share 1996	-.08 (1.56)	-.24*** (1.54)	.57 (1.48)
Stock price 1996	12.04 (10.73)	10.87*** (10.35)	16.60 (10.86)
<b>Independent &amp; Control Variables</b>			
Union Status	.21 (.40)		
Company age	4.79 (10.65)	4.35 (8.98)	5.13 (14.65)
Number of employees, time of IPO	1,107 (3,208)	674*** (2,394)	2,761 (4,791)
Sales at time of IPO	143,390,980 (335,243,460)	85,776,280*** (258,957,860)	368,887,000 (502,436,260)
Total assets at time of IPO	152,599,420 (446,778,780)	105,664,600*** (411,441,590)	344,661,540 (544,392,510)
Earnings per share at time of IPO	.01 (1.70)	.12*** (.58)	.41 (.61)
Risk factors (total paragraphs in prospectus)	15.83 (4.88)	16.57*** (5.04)	13.38 (4.01)

### Tests of Hypotheses

We tested the effect of unions on financial performance by using ordinary least squares (OLS) regression equations for each of the three dependent variables. Each equation included the independent variable of interest and all of the control variables. As noted earlier, the first two measures of performance are at time 1 (time of the IPO); the second two measures are longitudinal in nature, including controls for time 1 and predicting performance three years after the IPO (i.e. year-end 1996). These results are presented in Table 3. In time one, at the point of the IPO, the presence of a union has a statistically significant positive and large effect on Tobin's q. Union presence raises Tobin's q by 14.5 percent.

For the critical outcomes of earnings growth and growth in share price, union presence raises earnings over three years by 10.1 percent and raises stock price by 15.7 percent. As noted above, these outcomes control for important firm characteristics at time one, including size, age, industry, location, as well as assets, sales, level of risk, net income per share, and initial stock price adjusted for splits. Several control variables are statistically significant and in most instances behave as expected. Net income per share at time one is positively associated with earnings and stock price growth. Risk and assets are positively related to Tobin's q, but negatively affect stock price in 1996. Controls for age, size, industry, and location are statistically significant in several equations, indicating the importance of controlling for these factors. In addition, in equations not shown, we controlled for other factors that we thought might be relevant, such as the percentage of the owner's compensation at risk, the percentage of the employees compensation at risk, and the presence of an HR department and statements concerning the value of human resources. The findings (not reported) were robust to these alternate specifications.

**Table 3**  
**Means and Standard Deviations of Industry Codes and Locations**  
**with Significant Differences between Union and Non-Union Firms**

Variable	Non-Union Firms Mean (s.d.) (N=369)	Union Firms Mean (s.d.) (N=95)
Lumber / paper products	.009*** (.09)	.06 (.23)
Stone, glass, metal fabrication	.009*** (.09)	.18 (.38)
Instruments/related products	.08* (.27)	.02 (.14)
Railroad and other transit	.01*** (.12)	.07 (.26)
Apparel and accessory stores	.28** (.45)	.16 (.37)
Foreign country	.04*** (.19)	.22 (.41)
East north central U.S.	.06*** (.23)	.10 (.39)
Pacific West U.S.	.24*** (.43)	.10 (.31)

Note: no significant differences on dummy code for high tech (software or internet company) \* p < .05; \*\* p < .01; \*\*\* p < .001

## DISCUSSION

In this study we analyzed the relationship between unions and financial performance among entrepreneurial firms that conducted an IPO in 1993. Surprisingly, we find a positive relationship between unions and Tobin's  $q$  at the IPO. We interpret this to mean that analysts' positive assessment of the firm's potential to produce shareholder value was not negatively affected by the fact that a union was present. Consistent with our main hypothesis, we find a strong positive relationship between unionization and financial growth over time (earnings per share and stock price). These results are contrary to most prior empirical studies on this topic and to conventional wisdom more generally. There is abundant prior research suggesting that the union effect in general should be negative; and particularly in our sample of entrepreneurial firms, common wisdom would suggest that unions introduce inflexible work practices that are contrary to what is needed in an entrepreneurial, growth-oriented firms.

The strongest alternative hypothesis for these findings is selection bias. That is, arguably the better performing privately-held firms became the target of unionization as unions perceived they would be better able to extract rents from the more profitable firms. While we cannot completely discount this argument, we believe that it is less plausible for the set of entrepreneurial firms in this study for a number of reasons. The most important one is that the profitability of privately-held firms is not publicly available, making it difficult for competitors, let alone unions, to know which firms to target. Second, most of these firms are small; and unions are less likely to target them because they bring in fewer members and involve higher administrative costs for the union. Another possibility is that the unionized firms were really spin-offs of highly profitable, previously unionized firms. We examined the data to explore this explanation, and found that only a small group of IPOs fit this description. For these reasons, we find the selection-bias argument to be less applicable to this study. Finally, we are encouraged by the longitudinal findings of better financial performance after three years, controlling for profitability at the time of the IPO.

It is important to note that our interpretation of these findings is not that unions directly "cause" better performance. Rather, we suspect that two forces are at play. First, union bargaining power in the highly competitive environment of entrepreneurial firms is limited, and therefore, we suspect that the union effects on compensation are also limited. Second, we suspect that unions provide a mechanism for employee voice that constrains managerial prerogative in ways that reduce short-term decision-making and support longer-term investment in human capital. Unfortunately, our research design and data do not allow us to

explore these explanations; future research will be needed to study the process we suggest may be working in these IPOs.

This is the first study that we know of which examines the relationship between unions and financial performance in entrepreneurial firms using longitudinal measures of growth in earnings and stock price. We believe that these findings have important implications for the economic literature because the strongest criticism of unions in recent economic research is that they undermine investment and economic growth. We chose to study entrepreneurial firms because they are widely viewed as a major source of economic growth for the U.S. economy. Many economists have argued that start-up firms are particularly important as a source of U.S. comparative advantage because of their innovation and flexibility in responding to rapidly changing market demand. Unions are conventionally viewed as barriers to change and anathema to the type of flexibility and quick response needed to compete in entrepreneurial markets. Our results provide initial support to challenge that view. Unionization does not inevitably reduce financial performance; rather under some circumstances, union presence may create constraints or incentives for managerial practices that in turn lead to better financial performance and economic growth.

These findings also have implications for research in human resource studies and industrial relations. Much of the research in human resources has been conducted in Fortune 500 or large bureaucratic organizations. Similarly, much industrial relations research has focused on large-scale manufacturing enterprises. Our study shows the importance of questioning results of studies that have been conducted in the limited context of large organizations in highly institutionalized environments. When we examined what was thought to be an 'accepted' conclusion – that unions have a negative effect on financial performance – in a sample that had not been studied before, we found very different results.

### **Limitations**

There are several limitations to this study. First, we were only able to study the presence or absence of unions in this data set even though prior research has demonstrated that firm performance varies with union density. More importantly, we have only a limited understanding of the dynamics of human resource management and industrial relations in this group of companies. We know very little about the way people are managed in smaller, entrepreneurial firms and how those management techniques affect firm performance. We need to know much more about the mechanisms through which unions affect firm performance -- both directly and indirectly. In future qualitative and quantitative research, we hope to build a

stronger theoretical model of the mechanisms through which unions affect managerial decision-making in entrepreneurial firms and to build a more detailed understanding of the range of variation in human resource and industrial relations practices.

Additionally, there are many ways to measure firm performance, and although ours focuses on those that are of particular interest to IPO firms and to investors, future research may benefit by examining other measures of performance. Industry-specific studies may add even more value to knowledge in this area as they would allow for even more refined performance measures based on accepted business practices.

### **Conclusion**

Although we acknowledge that there is much more work to be done in this area, we think that our study, which extends prior work on the unionization effect to the domain of entrepreneurial (in particular IPO) firms, takes a fresh look at the role of unions in business. Many industrial relations scholars have documented the fact that unions are increasingly accepting the importance of being a “business partner.” Most empirical studies, however, have focused on unions and firms with deeply institutionalized relationships that pose difficult barriers to change. Entrepreneurial firms provide a context in which to explore the role of unions without those embedded constraints. Lessons learned from research in these firms can supplement our current knowledge and perhaps have important implications for both theory and practice.



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**Table 4: Regression Results:  
Union Effects on Financial Performance and Growth  
(standardized betas)**

	<b>Tobin's q At IPO (1993)</b>	<b>Earnings Per Share (1996)</b>	<b>Stock Price (1996)</b>
Union Status	.145**	.101+	.157**
Company age	-.122*	-.072	-.023
Number of employees	-.005	.076	.097
Sales at time of IPO	-.557***	-.030	.159*
Total assets	.276***	.066	-.123*
Earnings per share at time of IPO	-.128*	.141**	.166***
Risk factors	-.062	-.192***	-.290***
Initial stock price			-.234***
<b>Adjusted R<sup>2</sup></b>	.132	.252	.297
<b>Sample Size</b>	444	434	460

Controls for industry and location not shown.

Significance: +  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$