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Business Reputation and Labor Efficiency, Productivity, and Cost

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ABSTRACT. Assumed benefits from improved reputation are often used as motives to drive corporate social responsibility (CSR) initiatives. Are improved cost efficiencies among these reputation benefits? Cost efficiencies and cost management have become more relevant as revenue streams dry up in these tough economic times. Can a good reputation aid these efforts to develop cost efficiencies specifically when managing labor costs? Prior research hypothesizes that good reputation can create labor productivity and efficiency benefits. The purpose of this study is to empirically investigate reputation's relationship with labor efficiency, labor productivity, and labor cost. Using a sample of highly reputable firms from *Fortune*'s America's Most Admired Companies list and a corresponding matched sample of firms, we find that reputation is associated with improved labor efficiency and labor productivity. However, we do not find a significant association between reputation and reduced labor costs. Our study contributes to current research hypothesizing and finding efficiency benefits associated with good reputation. Documenting these potential reputation benefits has important implications for CSR activities and initiatives. It supports recent work that incorporates reputation into a more developed model of the relationship between CSR and performance (Vilanova et al.: 2009, *Journal of Business Ethics* **87**, 57–69). This work is useful to businesses and supports strategies focused on "doing well by doing good" and maintaining healthy reputations.

KEY WORDS: corporate social responsibility (CSR), corporate reputation, labor efficiency, labor productivity, labor cost

Data availability: All data used in this study are available from public sources.

Introduction

The current global economic downturn and resulting tough economic times have captured the attention of the American public, the U.S. government and certainly world-wide businesses. Uncertainty in the current recession has caused business activity and revenues to stagnate. Utilizing resources, controlling costs, and improving efficiencies become increasingly critical in this current lean economic environment. What tools can businesses use to create and improve cost efficiencies? In particular, can reputation be used to improve efficiencies and specifically labor efficiencies?

The relationship between reputation and cost efficiencies has implications for corporate social responsibility (CSR) initiatives. Often, improved reputation's potential benefits drive CSR decisions and activities. In fact, recent work proposes that reputation plays a critical role in the relationship between CSR and performance (Vilanova et al., 2009; Wu, 2006, p. 163). Our study investigates and documents reputation's potential labor efficiency benefits.

In general, economic efficiency is a resource utilization concept, which refers to the production of goods and services (i.e., *productivity*) from a given quantity (i.e., *cost*) of resources (Sullivan and Sheffrin, 2003, p. 15).[1] When we specifically apply this general efficiency concept to labor resources, we define labor efficiency as a measure of labor productivity per unit of labor cost. In other words, labor efficiency is a measure of labor resource utilization. Prior work hypothesizes that a good reputation is valuable because, among other benefits, it can create labor resource efficiency advantages (Fombrun, 1996; Podolny, 1993). The idea is that good reputation can *attract* and *motivate* good employees

(Roberts and Dowling, 2002). Employee attraction can result in lower labor *costs*. As good employees are attracted to reputable firms, they may be willing to accept less compensation for the employment opportunity with reputable firms. Economically speaking, high-reputation firms attract employees resulting in a larger labor supply competing for jobs with high-reputation firms. The increased labor supply drives down wages. In addition, employee motivation results in a *productivity* benefit. As good employees are motivated by the firm's reputation, they may work harder for reputable firms. The hypothesized changes in lower labor costs and higher labor productivity should result in increased labor efficiency.

The relationships between reputation, labor costs, labor productivity, and labor efficiency may not be as straightforward as initially presented. Tension exists, particularly when it comes to labor costs. Reputation may not decrease labor costs. High-reputation firms may choose to pay employees more to maintain employee relationships. Market forces may play the determinative role in setting wages regardless of employer or employee preferences. Reputation may actually be associated with higher labor costs. In fact, if increased labor costs trump improved productivity benefits, labor efficiency would decrease. The purpose of our study is to empirically examine these labor efficiency, productivity, and cost hypotheses.

We use a sample of highly reputable firms from *Fortune*'s Most Admired Companies list along with a sample of matched firms to test our hypotheses. We find that reputation is positively associated with labor efficiency. This result is due to a positive association between reputation and labor productivity. We find no association between reputation and labor costs.

Our work adds to research supporting the performance benefits of a good reputation. Our results imply that companies with superior reputation can attract good employees who work more productively and efficiently. These results should be of interest to managers who develop strategies and engage in behavior leading to or maintaining a positive corporate reputation – including CSR initiatives. Also, the results can increase individual investors' confidence in investing in companies with superior reputation.

Literature, motivation, and hypotheses development

Many studies have analyzed the relationship between CSR and financial performance (Chand and Fraser, 2006; McWilliams and Siegel, 2001) and suggested that performance is indeed a key driver for adopting CSR (Bansal and Roth, 2000; Haigh and Jones, 2006; Hess et al., 2002; Juholin, 2004; Porter and Van Der Linde, 1995). Most studies hypothesize a positive association between CSR and financial performance (Griffin and Mahon, 1997; McWilliams and Siegel, 2001) although results are inconclusive (Chand and Fraser, 2006) and the nature of the relationship between CSR and performance is still somewhat unclear (Harrison and Freeman, 1999; McWilliams and Siegel, 2001; Porter and Kramer, 2006; Smith, 2003).

Recent work summarizes the general findings and conclusions from CSR research through literature reviews (Beurden and Gössling, 2008; Roman et al., 1999), meta-analyses (Allouche and Laroche, 2005; Orlitzky et al., 2003; Wu, 2006), and bibliometric analyses (De Bakker et al., 2005). This work generally finds clear empirical evidence for a positive relationship between CSR and financial performance and, in some cases, a positive relationship between reputation measures and financial performance. Recently, Vilanova et al. (2009) built on this work and developed a framework to clarify the nature of the positive relationship between CSR and performance dimensions of competitiveness. If CSR affects performance, the positive CSR–performance relationship can imply that CSR enhances a company's reputation (Nikolai et al., 1976; Wu, 2006, p. 163). Reputation improvements benefit the company's performance in numerous ways. Vilanova et al. (2009, p. 63) use these ideas to model a clear connection between CSR and performance, and this connection begins with issues of image and reputation. CSR strongly influences reputation, and reputation is a key determinant of firm competitiveness (Vilanova et al., 2009, p. 60). In other words, CSR impacts firm competitiveness mainly through reputation; reputation links CSR and performance (Vilanova et al., 2009, p. 63). Figure 1 presents a modified and simplified version of the Vilanova et al. (2009) model along with some selected literature supporting the model's relationships.

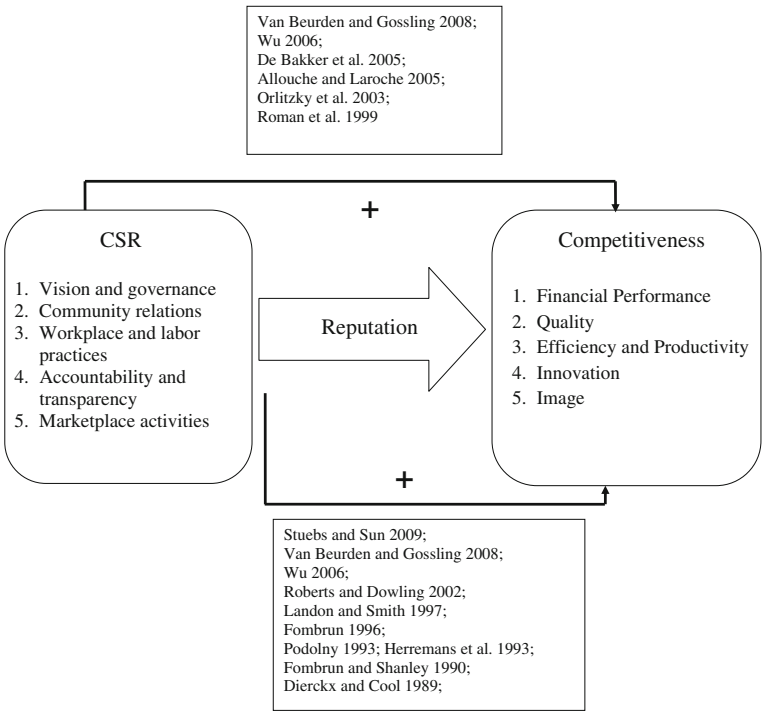

Figure 1. Modified CSR and competitiveness framework. *Source*: Vilanova et al. (2009).

In its 2001 Green Paper, the European Union defines CSR as "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis… [This] means not only fulfilling legal expectations, but also going beyond compliance and *investing "more" into human capital*, the environment and the relations with stakeholders" (Commission of the European Communities, 2001, p. 6, emphasis added).[2] Vilanova et al. (2009) identify five categories of CSR activities in Figure 1. As identified in Figure 1, investing "more" into human capital, workplace, and labor practices is an important CSR component that could influence subsequent labor efficiency performance through reputation effects. Fombrun (1996, p. 72) defines reputation as "a perceptual representation of a company's past actions and future prospects that describe the firm's overall appeal to all its key constituents when compared to other leading rivals." Roberts and Dowling (2002) suggest that corporate reputation is a general organizational attribute that reflects the extent to which external stakeholders view the company as "good" or "bad." As a key constituent stakeholder group, employees' views of company reputation and appeal can affect labor efficiency, productivity, and cost which, in turn, can affect the company's overall performance and competitiveness. Vilanova et al. (2009, pp. 59–60) propose that competitiveness can be defined and grouped on five key dimensions of performance listed in Figure 1: (1) financial performance (Hamel and Prahalad, 1989), (2) quality and customer satisfaction (Barney, 1991), (3) innovation (Mintzberg, 1993), (4) image (Kay, 1993), and (5) productivity and efficiency (Porter, 1985). Note that productively and efficiently utilizing resources – including labor resources, the focus of our work – is among the key performance dimensions of competitiveness.

Reputation's performance effects are an important driver used to sell CSR policies within organizations. Since reputation is currently an accepted and valued intangible asset (Schnietz and Epstein, 2005), managers seem to focus on reputation to force corporate change toward implementing CSR (Vilanova et al., 2009, p. 63). As a result, reputation acts as a fundamental driver to initiate and implement CSR (Vilanova et al., 2009, p. 64). Given the importance of reputation's performance effects in driving CSR activity, the purpose of this article is to build on the

work of Vilanova et al. (2009) by empirically investigating the link between reputation and performance.

Reputation becomes an increasingly valuable asset in turbulent economic times. Strategic management theory suggests that good reputation can create competitive advantages for firms (Fombrun, 1996). These advantages can buffer financial performance in a variety of ways insulating reputable businesses from the full impact of tough economic times (Dowling, 2001). First, reputation can protect revenues (Fombrun, 1996) from economic downturns. Customers value relationships with high-reputation firms and may pay a premium for offerings of high-reputation firms especially in uncertain markets and economies (Shapiro, 1983). Second, good reputation can help create cost advantages (Podolny, 1993, pp. 838–841) and is associated with firm efficiencies (Stuebs and Sun, 2009). Good reputation can improve trust and relationships with a number of stakeholders, which can lead to reduced costs and improved efficiencies. Podolny (1993, pp. 838–841) notes a number of cost reductions that can result from improved reputation. Since good reputation attracts customers, advertising costs for attracting business are lower. Good reputation improves stakeholder relationships and trust and lowers transaction costs. A good reputation can also lower financial costs. Finally, if employees are willing to accept lower compensation in exchange for a good reputation (Frank, 1985), they should be willing to accept less compensation to work for a firm with a better reputation.

Labor costs generally provide a ready target for utilization, cost control, and efficiency efforts since they are a significant cost component of operations and production (Blinder, 1990; Freeland et al., 1979).[3] Given the significance of labor costs, improving the efficiency of labor and labor costs is critical in the current environment. Traditionally, tying compensation to performance through forms of contingent compensation[4] has been used as a *tangible, extrinsic* approach to *control, motivate*, and *improve* labor efficiency. In general, forms of variable compensation and monetary incentives are intended to increase employee effort, which increases employee performance, productivity, and efficiency (Bonner and Sprinkle, 2002).[5] In reality, the flexibility and adaptability of contingent, pay-for-performance compensation also shifts risk from the firm to employees. Note that using contingent compensation does *not* necessarily increase total compensation; it makes compensation more flexible and volatile. In fact, firms use contingent compensation as a way to manage and mitigate risk in response to demand uncertainty, labor supply uncertainty, and turbulence (Bloom and Milkovich, 1998; Clinton, 1997; Milner and Pinker, 2001; Pinker and Larson, 2003; Stroh et al., 1996). In sum, compensation policies have been used as an *extrinsic* approach to increase labor productivity, reduce risk, and improve labor efficiency by tying compensation to performance.

Whereas contingent compensation provides an *extrinsic* approach to managing labor, reputation provides an *intrinsic* approach. Research (e.g., Dierickx and Cool, 1989; Fombrun and Shanley, 1990; Herremans et al., 1993; Landon and Smith, 1997) examining the relation between reputation and performance generally supports a positive relationship between reputation and various performance dimensions. Since reputation can create cost advantages and is associated with cost efficiencies (Stuebs and Sun, 2009), can a firm's reputation be used as a complementary, *intangible, intrinsic* approach to *control, motivate*, and *improve* labor efficiency? Literature has hypothesized that reputation can generate labor benefits because "*ceteris paribus*, employees prefer to work for high-reputation firms" (Roberts and Dowling, 2002, p. 1079). This employee preference is hypothesized to yield two results both of which positively affect efficiency. First, there is a *productivity* result. A good reputation is a company asset that can attract talented and skilled employees. In addition, these employees will work harder for firms with higher reputations (Roberts and Dowling, 2002, p. 1079). Second, there could be a *cost* advantage. As employees prefer high-
reputation firms, they are willing to work for a lower cost *ceteris paribus* (Podolny, 1993; Roberts and Dowling, 2002). Economically, this employee preference for high-reputation firms increases the labor supply competing for jobs with high-reputation firms. An increased labor supply drives down wages. Improved labor productivity with lower cost leads to improved labor efficiency. Our study empirically examines these ideas around the relationship between reputation and labor costs.

H1: Labor efficiency increase hypothesis: Reputation is positively associated with labor efficiency.
H1a: Labor productivity increase hypothesis: Reputation is positively associated with labor productivity.
H1b: Labor cost decrease hypothesis: Reputation is negatively associated with labor costs.

Tension exists in our hypotheses, however, particularly the labor cost hypothesis. While a good reputation can improve labor productivity and, as a result, labor efficiency, there are several reasons why a good reputation may not lead to decreased labor costs even if employees would be willing to work for a lower cost *ceteris paribus*. First, high-reputation firms may not reduce compensation to employees even if they *could*. Reputation is built by valuing and maintaining stakeholder relationships, not by taking advantage of them to gain cost advantages. Firms may choose to pay employees more to maintain employee relationships. Second, market forces play a role in determining compensation levels across firms even if employees are willing to work for less. In addition, firms with higher reputations could attract higher quality employees (i.e., more productive employees) at comparable compensation levels. As a result, a positive relationship between reputation and labor costs can be hypothesized. In fact, if increased labor costs trump productivity benefits, reputation may be negatively associated with labor efficiency. These tensions result in the following alternative "labor cost increase" and "labor efficiency decrease" hypotheses. Note that we use H2b to label the labor cost increase hypothesis to maintain consistency with our first set of hypotheses above.

H2: Labor efficiency decrease hypothesis: Reputa tion is negatively associated with labor efficiency.
H2b: Labor cost increase hypothesis: Reputation is positively associated with labor costs.

Research design

Measurement of labor and reputation variables

In this article, we specifically hypothesize a positive relationship between reputation and labor efficiency, and then disaggregate labor efficiency into productivity and cost components to further explore the fundamental drivers of labor efficiency. We use the following model to explain the relationship between efficiency, productivity, and cost[6]:

$$\text{Labor efficiency} = \frac{\text{Labor productivity}}{\text{Labor cost}} \quad (1)$$

Labor efficiency is a labor resource utilization measure that is a function of labor productivity per unit of labor cost.[7] In this study, we measure and operationalize the labor variables in Eq. 1 as follows: Labor efficiency = Income/Labor Costs, Labor productivity = Income/employees, Labor cost = Labor costs/employees.

"Income" in the labor efficiency and labor productivity measures above refers to income before labor costs. We chose income before labor costs as our labor output measure because we feel that it best isolates output attributable to labor given the limitations of our data. Using Eq. 2 to conceptualize income helps us communicate our choice:

$$\text{Income} = \text{Sales} - \text{Labor costs} - \text{Capital costs} \quad (2)$$

Labor and capital are the two primary productive economic resource categories. Income represents sales less labor and capital costs. We then rearrange terms by moving labor costs to yield Eq. 3:

$$\text{Income} + \text{Labor costs} = \text{Sales} - \text{Capital costs} \quad (3)$$

Sales is a total, joint output measure resulting from both labor and capital resources. We are only interested in the output from labor resources. Removing capital costs from sales isolates labor productivity assuming unit productivity for all capital costs used. Equation 3 shows that income plus labor costs can be used as an equivalent approach to calculating sales less capital costs. We feel that income plus labor costs results in a better measure of labor output, productivity and efficiency than other output measures like sales.[8] In addition, we also use assets as a control variable in our subsequent regression analyses to help isolate labor productivity and labor efficiency. This is described in more detail later in the article.

Substituting these variable measurements into Eq. 1 yields Eq. 4:

$$(\text{Income/Labor costs}) = \frac{(\text{Income/Employees})}{(\text{Labor costs/Employees})} \quad (4)$$

Labor cost measures the average labor cost per employee. Labor productivity measures the income generated per employee. Labor efficiency then measures the income generated per unit of labor cost.

Reputation is hypothesized to be associated with these labor variables. We use *Fortune*'s list of America's Most Admired Companies to measure reputation in two ways.[9] The first way we measure reputation is by a simple, dichotomous presence/absence indicator measurement. We compare firms on America's Most Admired Companies list to a similar set of matched firms[10] not on America's Most Admired Companies list. Our second measure of reputation uses the actual reputation scores for firms on the Most Admired list and is a more detailed measure of reputation. *Fortune*'s reputation score can range from 0 to 10. Higher scores represent better reputation. The overall score is the mean score averaging ratings ranging from 0 to 10 from several key attributes of reputation including: (1) quality of management, (2) quality of products/service offered, (3) innovativeness, (4) value as a long term investment, (5) soundness of financial position, (6) ability to attract/develop/keep talented people, (7) responsibility to the community and environment, and (8) wise use of corporate assets.

The disaggregated elements of *Fortune*'s reputation scores point to positive relationships among CSR, reputation and labor productivity. The reputation score contains elements related to CSR (e.g., responsibility to the community and environment). Many of the reputation elements also identify corporate responsibilities to various stakeholder groups, for example: (1) *customers*: quality of products/services offered and innovativeness, (2) *employees*: ability to attract/develop/keep talented people. In addition, the reputation element ''ability to attract/develop/keep talented people'' gives reason to believe that the reputation score should be positively related to labor productivity.

Sample selection, descriptive statistics, and preliminary tests

The criteria for our reputation and labor variables drive our sample selection. Our sample data come from two sources. We obtain reputation data from *Fortune*'s company lists of America's Most Admired Companies from 2006 to 2008.[11] The available sample of listed reputation firms consists of 926 firm-year observations. Labor and financial data come from Compustat. Since the list of America's Most Admired Companies is published in March, we use the prior year's Compustat financial data in our analysis (e.g., firms on *Fortune's* 2006 Most Admired Companies list use 2005 Compustat data). After matching our sample of reputable firms with available Compustat labor and financial data, our final sample consists of 112 firm-year observations.[12] Table I Panel A reconciles the sample selection process. Panel B presents the sample's distribution across broad industry categories. For instance, 43 out of the 112 firm-year observations are from the manufacturing industries, while 30 sample firm-year observations come from the finance industries.

We refer to the sample of 112 firm-year observations obtained from *Fortune's* Most Admired Companies list as our ''reputation sample.'' For each reputation sample firm, a matched firm within the same industry[13] and with similar firm size (measured by total assets) is selected. We refer to this sample of matched firms as our ''matched sample.'' Together, our reputation sample and matched sample create our ''full sample'' of 224 firm-year observations. Table II presents selected descriptive statistics for reputation sample and matched sample firms (Panel A) along with tests for mean differences between the two samples (Panel B).

The mean labor efficiency for reputation sample firms in Table II (1.571) is significantly higher than the mean labor efficiency for matched sample firms (1.033) ($p_{t\text{-test}} < 0.0001$, $p_{\text{Wilcoxon}} < 0.0001$). This result provides initial support for our first hypothesis of a positive relationship between reputation and labor efficiency (H1). Additional results in Table II indicate that this labor efficiency relationship is primarily driven by labor productivity. The significant ($p_{t\text{-test}} < 0.0001$, $p_{\text{Wilcoxon}} < 0.0001$) increase in mean labor productivity between reputation sample

TABLE I

Sample selection and industry distribution

	Sample size
Panel A: sample selection	
Most Admired Firm list (2006–2008)	926
Firms missing Compustat labor data	−814
Final reputation sample	112
Industry	**Number of firms**
Panel B: industry distribution	
Agriculture, forestry and fisheries (SIC 01–09)	0
Mineral Industries (SIC 10–14)	0
Construction Industries (SIC 15–17)	1
Manufacturing Industries (SIC 20–39)	43
Transportation, communication and utilities (SIC 40–49)	22
Wholesale (SIC 50–51)	0
Retail (SIC 52–59)	7
Finance (SIC 60–69)	30
Service (SIC 70–89)	7
Public administration (SIC 90–99)	2
Total	112

firms (118.469) and matched sample firms (68.354) provides preliminary support for a positive association between reputation and labor productivity (H1a). There is, however, no difference in labor cost per employee between sample and matched firms providing no initial support for either labor cost hypothesis (H1b, H2b). The mean labor cost per employee is slightly and non-significantly ($p_{t\text{-test}} = 0.3842$, $p_{\text{Wilcoxon}} = 0.0638$) higher for reputation sample firms (73.362) relative to matched sample firms (69.449). The increase in labor efficiency for high-reputation firms is primarily due to an increase in labor productivity.

There are no significant differences between reputation sample and matched sample firms on other control variables according to *t*-test results: assets, leverage, and the market-to-book ratio. In addition, descriptive statistics on reputation score are reported for reputation sample firms. The mean score is 6.904.

The Pearson correlation matrix in Table III also provides initial support for a positive association between reputation and labor efficiency consistent with the mean differences results.

Labor efficiency is positively (0.3089) and significantly ($p < 0.0001$) correlated with the dichotomous reputation variable, *REPU*. It is also statistically ($p < 0.0001$) positively (0.4377) correlated with *Fortune's* reputation score, *Score*. Both correlations lend additional initial support for the positive association between reputation and labor efficiency (H1). This result is primarily driven by positive correlations between labor productivity and the reputation variables which provide additional support for our labor productivity increase hypothesis (H1a). Labor productivity is significantly ($p < 0.0001$) positively (0.3116) correlated with *REPU* and significantly ($p < 0.0001$) positively (0.4317) correlated with *Score*. There are non-significant positive correlations between labor cost and the reputation variables, which provide no initial support for H1b or H2b.

Table III reports some interesting correlations between the labor variables and the additional control variables. Specifically, the correlation results indicate why it is important to include these control variables in subsequent analyses. The central issue is that capital resources (i.e., assets) can also affect our labor efficiency and labor productivity metrics. Income before labor costs – the numerator in our labor efficiency and productivity metrics – is not solely a perfect measure of labor production. Instead,

TABLE II

Descriptive statistics

	Reputation sample firm-year observations (n = 112)			Matched sample firm-year observations (n = 112)		
	Mean	SD	Median	Mean	SD	Median
Panel A: basic descriptive statistics						
Labor efficiency	1.571	0.755	1.454	1.033	0.903	1.185
Labor productivity	118.469	77.998	112.260	68.354	75.492	68.021
Labor cost	73.362	28.545	76.662	69.449	37.956	69.457
Assets	127,307.559	269,580.553	42,240.500	106,519.289	320,740.082	8,744.400
LEV	0.386	0.264	0.332	0.409	0.294	0.335
MTB	3.506	2.957	2.450	2.945	4.427	1.976
Score	6.904	0.846	6.910			
		t-test (p-value)			Wilcoxon test (p-value)	
Panel B: paired difference in mean						
Labor efficiency		<0.0001			<0.0001	
Labor productivity		<0.0001			<0.0001	
Labor cost		0.3842			0.0638	
Assets		0.5991			<0.0001	
LEV		0.5418			0.7150	
MTB		0.2649			0.0011	

Variable definition: Labor efficiency = (Net Income [Compustat #18] + Labor costs [Compustat #42])/Labor costs [Compustat #42]; Labor productivity = (Net Income [Compustat #18] + Labor costs [Compustat #42])/Employees [Compustat #29]; Labor cost = Labor costs [Compustat #42]/Employees [Compustat #29]; Assets = total assets [Compustat #6]; LEV = leverage ratio (total liabilities [Compustat #9 + #34]/total assets [Compustat #6]); MTB = market [Compustat #199 * #25] to book [Compustat #60] ratio; *Score* = reputation score assigned to firms on *Fortune's* Most Admired Company list.

income is a joint measure of *total* company production from all company resources – *both* labor resources *and* capital resources.[14] In other words, the income numerator is influenced by both the productivity of labor resources and the productivity of capital resources. However, our labor efficiency and labor productivity denominators (i.e., labor costs and employees, respectively) are only influenced by the quantity of labor resources. Thus, it is possible to influence and inflate our labor efficiency and productivity metrics simply by shifting the composition of production resources from labor to capital.

Additional capital assets can be used to generate more income with the same amount of labor resources. Our labor efficiency and productivity measures would increase as a result. An illustrative example would be automating a production process to generate the same or an increased amount of income. A portion of production resources would shift from labor to capital machinery. The decrease in labor would increase labor efficiency and productivity. This issue influences our correlation results. We find that companies with more assets are associated with significantly (p = 0.0085) increased (0.1755) labor efficiency and significantly ($p < 0.0001$) increased (0.3112) labor productivity. Additional asset resources can generate additional income and increase labor efficiency and productivity as a result.

The same issues influence the market-to-book (MTB) ratio correlations with labor efficiency and labor productivity. Similar to the efficiency and productivity measures, the MTB ratio's numerator, the market value of equity, is influenced by production from *both* labor resources *and* capital resources.

TABLE III

Pearson correlations among the variables

	Labor efficiency	Labor productivity	Labor cost	REPU	*Score*	Asset	LEV
Labor productivity	0.8248						
(*p*-Value, two-tailed)	<0.0001						
Labor Cost	0.0149	0.4549					
(*p*-Value, two-tailed)	0.8243	<0.0001					
REPU	0.3089	0.3116	0.0584				
(*p*-Value, two-tailed)	<0.0001	<0.0001	0.3842				
Score	0.4377	0.4317	0.1526	N/A			
(*p*-Value, two-tailed)	<0.0001	<0.0001	0.1082	N/A			
Asset	0.1755	0.3112	0.2512	0.0352	0.1383		
(*p*-Value, two-tailed)	0.0085	<0.0001	0.0001	0.5991	0.1440		
LEV	0.0862	−0.0361	−0.1883	−0.0409	−0.1408	0.0680	
(*p*-Value, two-tailed)	0.1987	0.5910	0.0047	0.5418	0.1368	0.3096	
MTB	−0.2378	−0.2332	0.0856	0.0746	0.1561	−0.1249	0.0193
(*p*-Value, two-tailed)	0.0003	0.0004	0.2016	0.2649	0.0987	0.0615	0.7732

Variable definition: Labor efficiency = (Net Income [Compustat #18] + Labor costs [Compustat #42])/Labor costs [Compustat #42]; Labor productivity = (Net Income [Compustat #18] + Labor Costs [Compustat #42])/Employees [Compustat #29]; Labor cost = Labor costs [Compustat #42]/Employees [Compustat #29]; $REPU_i$ = 1 if firm *i* is selected from *Fortune's* Most Admired Company list, otherwise 0; *Score* = reputation score assigned to firms on *Fortune's* Most Admired Company list; Assets = total assets [Compustat #6]; LEV = leverage ratio (total liabilities [Compustat #9 + #34]/total assets [Compustat #6]); MTB = market [Compustat #199 ⋆ #25] to book [Compustat #60] ratio.

However, the denominator, the book value of equity, is only influenced by capital resources. Unlike capital assets, labor resources represent ''off balance sheet'' resources. They are not included and reported in a company's book value (i.e., the denominator of the MTB ratio).

Shifting resources between capital and labor will have an opposite effect. Shifting resources from labor to assets increased labor efficiency and productivity by reducing the ratios' labor resource denominators *ceteris paribus*. However, shifting resources from labor to assets reduces the MTB ratio. Such a shift will increase the assets reported in book value, which will decrease the MTB ratio *ceteris paribus*. Both labor efficiency and labor productivity are significantly ($p = 0.0003$ and $p = 0.0004$, respectively) negatively (−0.2378 and −0.2332, respectively) correlated with the MTB ratio.

Addressing these labor efficiency and labor productivity issues is important. It is difficult to impossible to separate out the component of income attributable to labor resource utilization. However, an alternative is to control for assets and the MTB ratio in subsequent regression analyses.

Except for a marginally significant ($p = 0.0987$) positive (0.1561) correlation between the market-to-book ratio and reputation score (*Score*), none of the additional variables in Table III are significantly correlated with the reputation variables.

Before moving on to more advanced regression and empirical tests, we can perform additional correlation tests to preliminarily explore the nature of the causal relationship between reputation and our labor performance variables. Similar to Preston and O'Bannon (1997), we compute correlation coefficients between *Fortune's* reputation score and the labor performance variables in both contemporaneous and lead–lag combinations to assess the directional nature of the relationships. Designating each focal year as Year 2, we compute three reputation correlation coefficients for each of the three labor performance variables ($3 \times 3 = 9$ total reputation–labor performance correlation coefficients in Table IV):

Contemporaneous correlation: Reputation score variable (Year 2) versus Labor performance variable (Year 2),

TABLE IV

Correlation between reputation performance indicator and labor performance indicators (n = 46)

	Contemporaneous	Reputation lead	Reputation lag
Panel A: reputation performance and labor efficiency			
Coefficient	0.5587	0.3253	0.4772
p-Value	<0.0001	0.0274	0.0008
Panel B: reputation performance and labor productivity			
Coefficient	0.3367	0.2611	0.2470
p-Value	0.0222	0.0797	0.098
Panel C: reputation performance and labor cost			
Coefficient	−0.0147	0.0643	−0.0853
p-Value	0.9226	0.671	0.5729

Variable definition: Labor efficiency = (Net Income [Compustat #18] + Labor costs [Compustat #42])/Labor costs [Compustat #42]; Labor productivity = (Net Income [Compustat #18] + Labor costs [Compustat #42])/Employees [Compustat #29]; Labor cost = Labor costs [Compustat #42]/Employees [Compustat #29]; Reputation = reputation score assigned to firms on *Fortune's* Most Admired Company list.

Reputation lead correlation: Reputation score variable (Year 1) versus Labor performance variable (Year 2),
Reputation lag correlation: Labor performance variable (Year 1) versus Reputation score variable (Year 2).

There are a total of 46 usable firm-year observations with available data for all the contemporaneous and lead–lag correlation calculations. Contemporaneous correlations are relevant both as indicators to reaffirm the direction of the reputation–labor performance relationships and as reference points to compare the lead–lag results. Our test criterion for analysis is that the strongest (magnitude and significance) of the three correlation test statistics in each triad of Table IV's lead–lag correlations indicates the most important relationship.

The positive (0.5587) contemporaneous correlation between reputation and labor efficiency is the strongest ($p < 0.0001$) correlation in Panel A. Similarly, Panel B reports that the strongest ($p = 0.0222$) positive (0.3367) correlation between reputation and labor productivity is the contemporaneous correlation. These results support a contemporaneous positive synergy between reputation and both labor efficiency and labor productivity. Panel C reports no significant consistent relationship between reputation and labor costs. Based on these results, the relationship between reputation and performance competitiveness may need to be modified in Figure 1 in the case of labor performance variables. The line connecting reputation and competitiveness should have arrows going in both directions reflecting the contemporaneous synergistic relationship between reputation and labor performance variables. We will use contemporaneous reputation and labor performance variables in our regression analyses based on these results.

Preston and O'Bannon (1997) mention several qualifications to this mode of analysis. First, there are probably some "halo effects" (Wu, 2006, p. 164) among the reputation ratings, and some of the underlying data are known to be serially correlated. Hence, the data used cannot be assumed to be entirely independent. In addition, the interpretation of numerical differences among correlation coefficients is an unsettled issue in statistical theory. For purposes of analysis, we take all significant numerical results at face value.

Empirical tests

We use regression analyses to test our hypotheses. The dependent variable in our analyses is one of the labor performance variables of interest (i.e., labor efficiency, labor productivity, or labor cost) depending on the hypothesis being tested. The independent variable of interest in our regressions is

one of the reputation variables (i.e., *REPU* or *Score*) depending on the sample used in the regression. As a result, we run three different regression analyses on two samples (i.e., 6 regression analyses = 3 dependent labor variables ⋆ 2 independent reputation variables). The independent reputation variables (i.e., *REPU* and *Score*) vary between the two samples' regressions, while the dependent labor variables (i.e., labor efficiency, labor productivity, and labor cost) are used in separate regressions within each sample to test our three hypotheses. First, we use the full sample of both highly reputable and matched firms. In this regression, we use the dichotomous indicator variable *REPU* to differentiate between reputation sample firms (*REPU* = 1) and matched sample firms (*REPU* = 0). Consistent with the labor efficiency increase and labor productivity increase hypotheses, *REPU* should be positive and significant when labor efficiency and labor productivity are used as dependent variables. *REPU* could be positive (H2b) or negative (H1b) when labor cost is used as the dependent variable according to the labor cost hypotheses. In addition to reputation, we include control variables for size, leverage, and the MTB ratio. Size (i.e., assets) and the MTB ratio are important control variables given our correlation results in Table III and our resulting discussion. Our first complete model is as follows:

$$\text{Labor variable}_{it} = \alpha_0 + \alpha_1 \star \text{REPU}_{it} + \alpha_2 \star \text{LTA}_{it} + \alpha_3 \star \text{LEV}_{it} + \alpha_4 \star \text{MTB}_{it} + \varepsilon_{it}, \quad (5)$$

where *Labor variables*: Labor efficiency$_{it}$ = (Net Income [Compustat #18] + Labor costs [Compustat #42])/Labor costs [Compustat #42] for firm *i* in year *t*; Labor productivity$_{it}$ = (Net Income [Compustat #18] + Labor costs [Compustat #42])/employees [Compustat #29] for firm *i* in year *t*; Labor cost$_{it}$ = Labor costs [Compustat #42][15]/employees [Compustat #29] for firm *i* in year *t*.

REPU$_{it}$ = 1 if firm *i* is selected from *Fortune's* Most Admired Company list in year *t*, otherwise 0; LTA$_{it}$ = natural log of total assets [Compustat #6] for firm *i* in year *t*; LEV$_{it}$ = leverage ratio for firm *i* (total liabilities [Compustat #9 + #34]/total assets [Compustat #6]) in year *t*; MTB$_{it}$ = market [Compustat #199 ⋆ #25] to book [Compustat #60] ratio for firm *i* in year *t*.

We also run our regression analysis using only the reputation sample. This analysis supplements our initial regression model and should support the initial regression results. As each of the firms in our reputation sample has a reputation score, we use that reputation score (i.e., *Score*) as our independent reputation variable in our regression. *Score* should be positive when labor efficiency and labor productivity are the dependent labor variables consistent with the labor efficiency increase and labor productivity increase hypotheses, respectively. According to the labor cost hypotheses, *Score* could have a positive (H2b) or negative (H1b) coefficient when labor cost is the dependent labor variable. Our second, modified regression model is presented below:

$$\text{Labor variable}_{it} = \alpha_0 + \alpha_1 \star \textit{Score}_{it} + \alpha_2 \star \text{LTA}_{it} + \alpha_3 \star \text{LEV}_{it} + \alpha_4 \star \text{MTB}_{it} + \varepsilon_{it} \quad (6)$$

where *Labor variables*: Labor efficiency$_{it}$ = (Net Income [Compustat #18] + Labor costs [Compustat #42])/Labor costs [Compustat #42] for firm *i* in year *t*; Labor productivity$_{it}$ = (Net Income [Compustat #18] + Labor costs [Compustat #42])/employees [Compustat #29] for firm *i* in year *t*; Labor cost$_{it}$ = Labor costs [Compustat #42]/employees [Compustat #29] for firm *i*; *Score*$_{it}$ = reputation score assigned to firm *i* on *Fortune's* Most Admired Company list in year *t*; LTA$_{it}$ = natural log of total assets [Compustat #6] for firm *i* in year *t*; LEV$_{it}$ = leverage ratio for firm *i* in year *t* (total liabilities [Compustat #9 + #34]/total assets [Compustat #6]); MTB$_{it}$ = market [Compustat #199 ⋆ #25] to book [Compustat #60] ratio for firm *i* in year *t*.

Figure 2 presents a diagram to improve visualization and understanding of our research design and regression model.

The direction of the hypothesized relationships between variables of interest is indicated in parentheses in Figure 2. We operationalize the conceptual reputation variable with two measures based on *Fortune's* Most Admired Company list, *REPU* and *Score*. We operationalize the conceptual dependent variable, performance, with labor efficiency, productivity, and cost variables. We also include variables to control for size, leverage, and the market-to-book ratio.

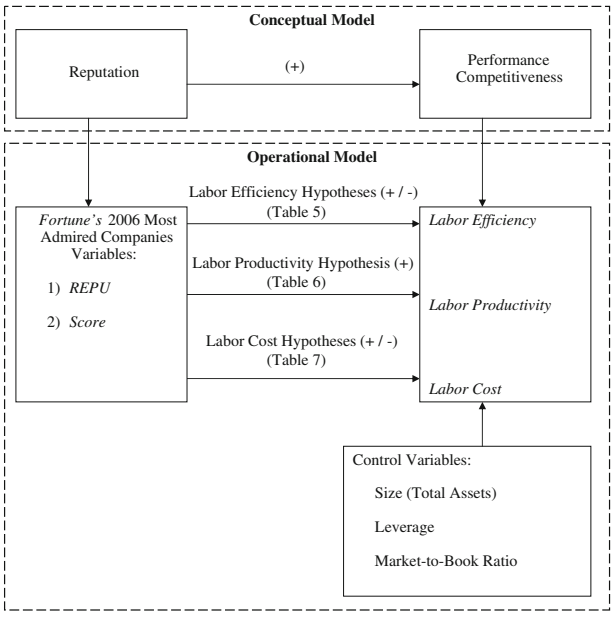

Figure 2. Diagram of investigated relationships.

Results

Labor efficiency hypotheses

We present the regression results for the labor efficiency hypotheses in Table V. Panel A reports the regression results for the full sample of both reputation and matched firms (i.e., Eq. 5). Panel B reports the regression results for the firms in the reputation sample only (i.e., Eq. 6).

The labor efficiency regression results provide consistent support for our labor efficiency increase hypothesis (H1) and no support for our labor efficiency decrease hypothesis (H2). The *REPU* coefficient is positive (0.3821) and significant ($p = 0.0004$) in Panel A. The *Score* coefficient is positive (0.4234) and significant ($p < 0.0001$) in Panel B. Both results support the conclusion of a positive association between reputation and labor efficiency. The assets and MTB ratio control variables are significant ($p < 0.0001$ and $p = 0.0013$, respectively) in Panel A. The coefficient on assets is positive (0.1252) while the coefficient on the MTB ratio is negative (−0.0447). These results are consistent with our discussion of the Pearson correlation results in Table III. Controlling for assets helps us isolate reputation's relationship with labor efficiency. The next step is to explore the drivers of this positive association between reputation and labor efficiency.

Labor productivity increase hypothesis

Panel A of Table VI reports the regression results testing the labor productivity hypothesis for the full sample of all firms (i.e., Eq. 5). Regression results for the reputation sample (i.e., Eq. 6) are presented in Panel B.

The labor productivity regression results support the labor productivity increase hypothesis. *REPU*'s coefficient is positive (27.6907) and significant ($p = 0.003$) in Panel A. The *Score* coefficient is positive (28.5309) and significant ($p = 0.0013$) in Panel B. Both results support a positive association between reputation and labor efficiency. Assets are positive (16.1752, 13.7821) and significant ($p < 0.0001$, $p = 0.0008$) in both Panels A and B, respectively. The MTB ratio is negative (−3.2806) and significant ($p = 0.0063$) in Panel A. Again, these results are consistent with our discussion of the Pearson correlation results in Table III. It is important to control for assets to help us isolate reputation's relationship with labor productivity. Also, the leverage ratio is negative (−72.2270) and significant

TABLE V

Labor efficiency regression analysis

Panel A: reputation sample and matched sample firm-year observations (n = 224)

Model: Labor Efficiency$_{it}$ = β_0 + β_1 ⋆ REPU$_{it}$ + β_2 ⋆ LTA$_{it}$ + β_3 ⋆ LEV$_{it}$ + β_4 ⋆ MTB$_{it}$ + β_5 ⋆ YEAR07$_{it}$ + β_6 ⋆ YEAR08$_{it}$ + ρ_{it}

Results: (adjusted R^2 = 0.2638)

Variable	Parameter estimate	SE	*t*-Value	*Pr* > l t l	Variance inflation
Intercept	0.3107	0.2769	1.12	0.2631	0
REPU	0.3821	0.1063	3.59	0.0004⋆	1.1274
LTA	0.1252	0.0224	5.59	<0.0001⋆	1.2083
LEV	−0.1989	0.2876	−0.69	0.4899	2.5523
MTB	−0.0447	0.0137	−3.26	0.0013⋆	1.0619

Panel B: reputation sample firm-year observations only (n = 112)

Model: Labor efficiency$_{it}$ = β_0 + β_1 ⋆ *Score*$_{it}$ + β_2 ⋆ LTA$_{it}$ + β_3 ⋆ LEV$_{it}$ + β_4 ⋆ MTB$_{it}$ + β_5 ⋆ YEAR07$_{it}$ + β_6 ⋆ YEAR08$_{it}$ + ρ_{it}

Results: (Adjusted R^2 = 0.1955)

Variable	Parameter estimate	SE	*t*-Value	*Pr* > l t l	Variance inflation
Intercept	−1.2052	0.6717	−1.79	0.0756	0
Score	0.4234	0.0875	4.84	<0.0001⋆	1.3388
LTA	−0.0084	0.0403	−0.21	0.8347	1.4095
LEV	0.3140	0.4430	0.71	0.4801	3.2885
MTB	−0.0293	0.0237	−1.24	0.2194	1.1930

⋆Significant at 0.01, two-tailed test.

Variables: Labor efficiency$_{it}$ = (Net Income [Compustat #18] + Labor costs [Compustat #42])/Labor costs [Compustat #42] for firm *i* in year *t*; REPU$_{it}$ = 1 if firm *i* in year *t* is selected from *Fortune's* Most Admired Company list, otherwise 0; *Score*$_{it}$ = reputation score assigned to firm *i* on *Fortune's* Most Admired Company list in year *t*; LTA$_{it}$ = natural log of total assets [Compustat #6] for firm *i* in year *t*; LEV$_{it}$ = leverage ratio for firm *i* in year *t* (total liabilities [Compustat #9 + #34]/total assets [Compustat #6]); MTB$_{it}$ = market [Compustat #199 ⋆ #25] to book [Compustat #60] ratio for firm *i* in year *t*; YEAR07$_{it}$ = 1 if year *t* is 2007 for observation *i*, otherwise 0; YEAR08$_{it}$ = 1 if year *t* is 2008 for observation *i*, otherwise 0.

(p = 0.0041) in Panel A. The relation between reputation and labor productivity appears to be a driver of the relation between reputation and labor efficiency.

Labor cost hypotheses

The regression results for the labor cost hypothesis are in Table VII. The results for the full sample are in Panel A (i.e., Eq. 5) while the results for the reputation sample are in Panel B (i.e., Eq. 6).

We find no significant support for either labor cost hypothesis (H1b or H2b). Both *REPU* and *Score* coefficients are insignificantly (p = 0.3663, p = 0.3757, respectively) negative (−4.0354, −2.7919, respectively), which provides no significant support for any hypothesized association between reputation and labor costs. However, two of the control variables have consistent, significant relationships with labor cost. Assets are strongly ($p < 0.0001$, $p <$ 0.0001) positively (4.4414, 8.5133) associated with labor costs in Panels A and B, respectively. Larger firms are associated with higher labor costs per employee. Also, the leverage ratio is significantly (p = 0.0001, p = 0.0018) negatively (−46.9607, −50.9611) associated with labor costs per employee. This result is consistent with the work of Rosett

TABLE VI

Labor productivity regression analysis

Panel A: reputation sample and matched sample firm-year observations (n = 224)
Model: Labor Productivity$_{it}$ = α_0 + α_1 ⋆ REPU$_{it}$ + α_2 ⋆ LTA$_{it}$ + α_3 ⋆ LEV$_{it}$ + α_4 ⋆ MTB$_{it}$ + α_5 ⋆ YEAR07$_{it}\alpha_6$ ⋆ YEAR08$_{it}$ + ε_{it}
Results: (Adjusted R^2 = 0.3515)

Variable	Parameter estimate	SE	*t*-Value	*Pr* > l t l	Variance inflation
Intercept	−14.0690	23.9872	−0.59	0.5581	0
REPU	27.6907	9.2090	3.01	0.0030⋆	1.1274
LTA	16.1752	1.9399	8.34	<0.0001⋆	1.2083
LEV	−72.2270	24.9119	−2.9	0.0041⋆	2.5523
MTB	−3.2806	1.1883	−2.76	0.0063⋆	1.0619

Panel B: reputation sample firm-year observations only (n = 112)
Model: Labor Productivity$_{it}$ = α_0 + α_1 ⋆ *Score*$_{it}$ + α_2 ⋆ LTA$_{it}$ + α_3 ⋆ LEV$_{it}$ + α_4 ⋆ MTB$_{it}$ + α_5 ⋆ YEAR07$_{it}$ α_6 ⋆ YEAR08$_{it}$ + ε_{it}
Results: (Adjusted R^2 = 0.2646)

Variable	Parameter estimate	SE	*t*-Value	*Pr* > l t l	Variance inflation
Intercept	−162.9755	66.3629	−2.46	0.0157	0
Score	28.5309	8.6456	3.3	0.0013⋆	1.3388
LTA	13.7821	3.9778	3.46	0.0008⋆	1.4095
LEV	−68.3042	43.7640	−1.56	0.1216	3.2885
MTB	−2.0315	2.3391	−0.87	0.3871	1.1930

⋆Significant at 0.01, two-tailed test.
Variables: Labor productivity$_{it}$ = (Net Income [Compustat #18] + Labor Costs [Compustat #42])/Employees [Compustat #29] for firm *i* in year *t*; REPU$_{it}$ = 1 if firm *i* in year *t* is selected from *Fortune's* Most Admired Company list, otherwise 0; *Score*$_{it}$ = reputation score assigned to firm *i* on *Fortune's* Most Admired Company list in year *t*; LTA$_{it}$ = natural log of total assets [Compustat #6] for firm *i* in year *t*; LEV$_{it}$ = leverage ratio for firm *i* in year *t* (total liabilities [Compustat #9 + #34]/total assets [Compustat #6]); MTB$_{it}$ = market [Compustat #199 ⋆ #25] to book [Compustat #60] ratio for firm *i* in year *t*; YEAR07$_{it}$ = 1 if year *t* is 2007 for observation *i*, otherwise 0; YEAR08$_{it}$ = 1 if year *t* is 2008 for observation *i*, otherwise 0.

(2001, 2003). He finds that labor costs increase firm risk. He finds that firms decrease their leverage in response. In summary, our results consistently show that reputation is contemporaneously positively associated with labor efficiency, and this result is primarily driven by the contemporaneous positive association between reputation and productivity.

Conclusion

Controlling and containing costs is a relevant topic for businesses in our current, turbulent economic environment. In this study, we explored whether there is an association between reputation and labor efficiency. Our work builds on research that hypothesizes cost advantages for highly reputable firms (Fombrun, 1996; Podolny, 1993; Roberts and Dowling, 2002). We find that reputation is positively associated with labor efficiency. While we do not find that reputation is associated with a labor cost advantage, we do find that it is positively associated with a labor productivity advantage. Our results contribute to and extend current work that finds that highly reputable firms are more efficient (Stuebs and Sun, 2009). This work is important because it expands our understanding of the benefits and importance of reputation and is useful to business. It also supports reputation's connections to performance in Vilanova et al.'s (2009) model of the

TABLE VII

Labor cost regression analysis

Panel A: reputation sample and matched sample firm-year observations (n = 224)

Model: Labor $\text{Cost}_{it} = \lambda_0 + \lambda_1 \star \text{REPU}_{it} + \lambda_2 \star \text{LTA}_{it} + \lambda_3 \star \text{LEV}_{it} + \lambda_4 \star \text{MTB}_{it} + \lambda_5 \star \text{YEAR07}_{it} + \lambda_6 \star \text{YEAR08}_{it} + \mathcal{L}_{it}$

Results: (Adjusted R^2 = 0.1239)

Variable	Parameter estimate	SE	*t*-Value	*Pr* > | t |	Variance inflation
Intercept	53.7754	11.6107	4.63	<0.0001	0
REPU	−4.0354	4.4575	−0.91	0.3663	1.1274
LTA	4.4414	0.9390	4.73	<0.0001★	1.2083
LEV	−46.9607	12.0583	−3.89	0.0001★	2.5523
MTB	1.4289	0.5752	2.48	0.0137★★	1.0619

Panel B: reputation sample firm-year observations only (n = 112)

Model: Labor $\text{cost}_{it} = \lambda_0 + \lambda_1 \star \textit{Score}_{it} + \lambda_2 \star \text{LTA}_{it} + \lambda_3 \star \text{LEV}_{it} + \lambda_4 \star \text{MTB}_{it} + \lambda_5 \star \text{YEAR07}_{it} + \lambda_6 \star \text{YEAR08}_{it} + \mathcal{L}_{it}$

Results: (Adjusted R^2 = 0.2764)

Variable	Parameter estimate	SE	*t*-Value	*Pr* > | t |	Variance inflation
Intercept	34.6787	24.0911	1.44	0.1530	0
Score	−2.7919	3.1385	−0.89	0.3757	1.3388
LTA	8.5133	1.4440	5.9	<0.0001★	1.4095
LEV	−50.9611	15.8872	−3.21	0.0018★	3.2885
MTB	0.0589	0.8491	0.07	0.9449	1.1930

★Significant at 0.01, two-tailed test; ★★Significant at 0.05, two-tailed test.

Variables: Labor Cost_{it} = Labor Costs [Compustat #42]/Employees [Compustat #29] for firm i in year t; REPU_{it} = 1 if firm i in year t is selected from *Fortune's* Most Admired Company list, otherwise 0; $\textit{Score}_{it}$ = reputation score assigned to firm i on *Fortune's* Most Admired Company list in year t; LTA_{it} = natural log of total assets [Compustat #6] for firm i in year t; LEV_{it} = leverage ratio for firm i in year t (total liabilities [Compustat #9 + #34]/total assets [Compustat #6]); MTB_{it} = market [Compustat #199 ★ #25] to book [Compustat #60] ratio for firm i in year t; YEAR07_{it} = 1 if year t is 2007 for observation i, otherwise 0; YEAR08_{it} = 1 if year t is 2008 for observation i, otherwise 0.

relationship between CSR and competitiveness. In other words, these results generate implications for the use of CSR activities to improve reputation.

The measures we used for labor efficiency and labor productivity created an inherent limitation in our study. Operating income before labor costs was used as the numerator in both measures. However, income is a measure of *total* company production, not just an exclusive measure of *labor resource* production. Disaggregating and isolating labor production from capital production is a limiting challenge if not impossible. We used assets as a control variable in our regressions to address and control for the potential production effects that capital assets could have on income in our labor efficiency and labor productivity measures. Future work can explore alternative ways of isolating labor production and developing alternative labor production measures.

Additionally, future work can continue to develop our understanding of the cost efficiency benefits of reputation. For example, Podolny (1993) posits that reputation affects a number of costs including inventory and transaction costs with suppliers, advertising costs, and financing costs in addition to labor costs. Future work can look at whether reputation is associated with efficiencies related to these other costs as well. This work adds to the literature uncovering the benefits of a good reputation. It encourages businesses to continue ''doing well by doing good'' and maintain a healthy reputation.

Notes

[1] This definition of efficiency is also consistent with Data Envelopment Analysis (DEA), a nonparametric technique that produces measures of performance efficiency by using the ratio of outputs produced to the cost of inputs (i.e., a comparison of production with cost) (Charnes et al., 1978; Cooper et al., 2000; Stuebs and Sun, 2009).

[2] This definition of CSR is similar to other CSR definitions presented over the years (Carroll, 1979, p. 500; Gössling and Vocht, 2007; Holme and Watts, 1999, p. 3; Wood, 1991, p. 693). Vilanova et al. (2009, pp. 58–59) group CSR activities into five categories presented in Figure 1: (1) CSR vision and governance activities (Carter et al., 2003; Freeman, 1999; Humble et al., 1994; Joyner and Payne, 2002; Pruzan, 2001; Sison, 2000), (2) community relations activities (Freeman, 1999; Frooman, 1999; Grey, 1996; Hess et al., 2002; Jones, 1995, Jones and Wicks, 1999), (3) workplace and labor practices activities (Sum and Ngai, 2005), (4) accountability and transparency activities (Elkington, 1998), and (5) marketplace activities (Fan, 2005; Schnietz and Epstein, 2005; Whetten et al., 2001).

[3] For example, Blinder estimates that labor accounts for at least 70% of total costs in his book on labor practices in the U.S., *Paying for Productivity* (1990).

[4] Contingent compensation can also include forms of contingent labor. Contingent labor is "any job in which an individual does not have an explicit or implicit contract for long-term employment or one in which the minimum hours worked can vary in a non-systematic manner" (Polivka, 1996; Polivka and Nardone, 1989, p. 10). Examples can include part-time employees, temporary employees, temporary agency workers, employees whose hours vary from week to week, employees on annual hours contracts, and flextime employees (Casey et al., 1997).

[5] There is an extensive body of research documenting that monetary incentives result in performance improvements (Banker et al., 1996; Lazear, 2000; Nayar and Willinger, 2001; Wagner et al., 1988). Sales force compensation literature suggests that performance-based contracts improve performance (Basu et al., 1985; Rao, 1990). Banker et al. (2000) found that contingent compensation increases performance in two ways: (1) a selection effect and (2) an effort effect.

[6] Note that this decomposition of labor efficiency into productivity and cost components is similar (after rearranging terms) to the Du Pont model decomposition of return on investment (ROI) (Groppelli and Nikbakht, 2000, pp. 444–445). ROI (income/assets) is a measure of a firm's asset *productivity*. The Du Pont model decomposes this productivity measure into efficiency and cost elements. Asset turnover (sales/assets) measures how *efficiently* a firm uses assets to generate sales. Return on sales (income/sales) measures how well a firm controls *costs* and expenses to generate income from sales. The Du Pont model relates these elements: ROI (productivity) = Asset Turnover (efficiency) * Return on Sales (cost control). Efficiency, productivity, and cost terms can be rearranged to yield the relationships in Eq. 1.

[7] Note that this labor efficiency ratio of productivity to cost is consistent with the (outputs/inputs) ratio used in Data Envelopment Analysis (DEA), a nonparametric statistical technique used to produce measures of performance efficiency (Charnes et al., 1978; Cooper et al., 2000; Stuebs and Sun, 2009).

[8] We also calculated our labor productivity and labor efficiency measures using Sales instead of Income before Labor Costs. Unreported regression results and analyses were qualitatively similar.

[9] Using the list of America's Most Admired Companies as a proxy for good corporate reputation is consistent with prior work (e.g., Anderson and Smith, 2006; Damodaran, 2003; McLaughlin et al., 1996; Wang and Smith, 2008).

[10] As explained in the next section, for each reputation sample firm, a matched firm within the same industry and with similar firm size (measured by total assets) is selected to be a part of the "matched sample."

[11] 2006: http://money.cnn.com/magazines/fortune/mostadmired/2006/full_list; 2007: http://money.cnn.com/magazines/fortune/mostadmired/2007/full_list; 2008: http://money.cnn.com/magazines/fortune/mostadmired/2008/full_list; Date of last access: October 14, 2009.

[12] A number of companies do not report Labor Costs (Compustat #42).

[13] Industry is measured by 2-digit SIC code.

[14] Note that because income is a joint measure of production from *total* company resources, it presents a common issue and challenge whenever it is used to measure the production of any isolated resource utilization metric: return on assets (ROA) (income/assets) or return on equity (ROE) (income/equity), for example.

[15] Compustat #42 is total labor costs and related expenses. It includes salaries, wages, incentive compensation, other benefit plans, payroll taxes, pension costs, and profit sharing.

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