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CORPORATE REPUTATION AND SUSTAINED SUPERIOR FINANCIAL PERFORMANCE

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Good corporate reputations are critical because of their potential for value creation, but also because their intangible character makes replication by competing firms considerably more difficult. Existing empirical research confirms that there is a positive relationship between reputation and financial performance. This paper complements these findings by showing that firms with relatively good reputations are better able to sustain superior profit outcomes over time. In particular, we undertake an analysis of the relationship between corporate reputation and the dynamics of financial performance using two complementary dynamic models. We also decompose overall reputation into a component that is predicted by previous financial performance, and that which is 'left over', and find that each (orthogonal) element supports the persistence of above-average profits over time. Copyright © 2002 John Wiley & Sons, Ltd.

A growing body of research argues that good corporate reputations have strategic value for the firms that possess them (Dierickx and Cool, 1989; Rumelt, 1987; Weigelt and Camerer, 1988). According to a resource-based view, firms with assets that are valuable and rare possess a competitive advantage and may expect to earn superior returns. Those whose assets are also difficult to imitate may achieve sustained superior financial performance (Barney, 1991; Grant, 1991). Within this line of reasoning, intangible assets—such as good reputations—are critical because of their potential for value creation, but also because their intangible character makes replication by competing firms considerably more difficult. Not surprisingly, several studies confirm the expected benefits associated with good reputations (Fombrun and Shanley, 1990; Herremans, Akathaporn, and McInnes, 1993; Landon and Smith, 1997; McGuire, Schneeweis, and Branch, 1990; Podolny, 1993). However, no research to date has looked at the extent to which a good reputation at a point in time allows superior financial performance to persist over time. In other words, they stop short of fully addressing 'how firms get to be good [and] *how they sometimes stay that way*' (Teece, Pisano, and Shuen, 1997: 530, emphasis added). Barney (2001: 51) agrees that this is an important oversight when noting that 'the conditions under which resources developed or acquired in one period have implications for the strategic advantages of firms in subsequent periods—is particularly important.' This paper fills this gap by examining the relationship between reputation and the persistence of superior profit outcomes over time.

The focus of this paper is on the impact of corporate reputation on the path of future financial performance. However, reputation research suggests that a reputation–performance effect may operate in both directions: a firm's financial performance affects its reputation and its reputation affects its performance (McGuire *et al.*, 1990). To accommodate this issue, our analysis accounts

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for the fact that a firm's financial performance history affects its current reputation. More specifically, we decompose each firm's overall reputation into a component that is predicted by its previous financial performance (financial reputation), and that which is 'left over' (residual reputation). We then consider the evidence for a residual reputation effect. Such an effect would indicate that reputation-building activities that have no positive impact on current financial performance (e.g., McDonalds' houses for sick children or Phillip Morris's anti-smoking campaigns) are still critical as they generate reputation assets that allow above-average profits to persist over time.

To forge a link between theorizing about reputation and the concern with sustained superior financial performance, we first summarize the strategic benefits of good reputations and establish that good reputations have properties that make them difficult to imitate (at least in the short term) by competing firms. This is followed by an empirical study based on 15 years (1984–98) of reputation data contained in *Fortune's Most Admired Corporations* data file. The paper concludes by summarizing our findings and proposing avenues for future research.

THE STRATEGIC VALUE OF A GOOD REPUTATION

The position taken in this paper is that a good reputation is a valuable asset that allows a firm to achieve persistent profitability, or sustained superior financial performance. With this in mind, we must be precise about how we define reputation, the factors that contribute to its development, and how it influences current and future financial performance. Following Fombrun (1996: 72), we define 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.'[1] As such, 'we view reputation as a global perception of the extent to which an organization is held in high esteem or regard' (Weiss, Anderson, and MacInnis, 1999: 75). This definition suggests that corporate reputation is a general organizational attribute that reflects the extent to which external stakeholders see the firm as 'good' and not 'bad.'

Where do good reputations come from? At a very general level, 'reputation is determined by the value (quality) of the actor's previous efforts' (Podolny and Phillips, 1996: 455). In many cases, the firm's external constituencies may identify these efforts. As such, managers engage in explicit reputation-building activities (e.g., advertising, sponsorships) in order to improve their firms' reputations (Fombrun, 1996). They also manage the set of associations that form with exchange partners to ensure that they benefit from the network transmission of organizational reputation or status (Podolny, 1994). However, external constituencies do not directly observe the full range of activities that lead them to form the

[1] There are other ways to think of a firm's reputation. Since Kreps and Wilson (1982), economists have examined the extent to which firm reputations have implications for equilibrium configurations of conduct and performance in markets characterized by uncertainty (Weigelt and Camerer, 1988). While some analyses focus on a firm's reputation for toughness or aggression (Milgrom and Roberts, 1982), others have developed models wherein firms may earn a financial return—or indeed a premium—on their reputations for quality when consumers value product or service quality, but can not make the appropriate observations in advance of purchase (Shapiro, 1983). Here, a reputation is valuable because it serves as a signal of underlying quality.

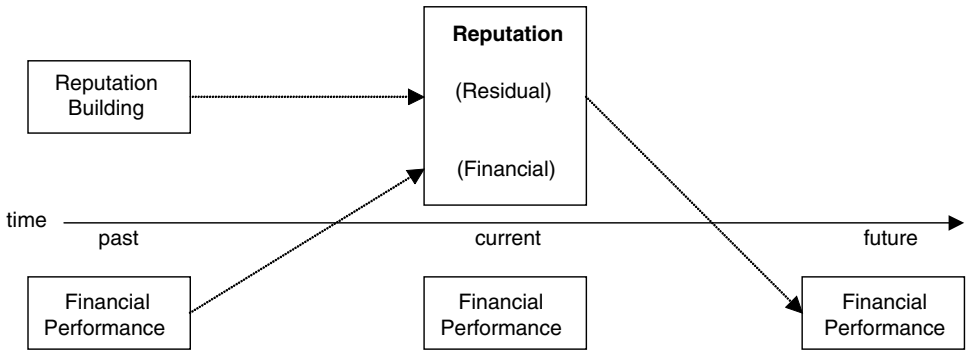

Figure 1. Model of reputation–financial performance dynamics

impressions that comprise an overall reputation. They may therefore rely on previous financial performance outcomes as signals of a firm's overall esteem (see Figure 1). This is the organizational variant of Shapiro's (1983) product-level analysis. Just as previous demonstrations of quality lead to a reputation for product quality, previous demonstrations of overall financial performance lead stakeholders to believe that a company is 'good.'

A variety of potential benefits of good reputations provide the rationale for a cross-sectional relationship between reputation and financial performance (Fombrun, 1996; Podolny, 1993). Because reputation is valued in its own right, customers value associations and transactions with high-reputation firms. Because reputation also serves as a signal of the underlying quality of a firm's products and services, consumers may pay a premium for the offerings of high-reputation firms, at least in markets characterized by high levels of uncertainty (Shapiro, 1983). A firm with a good reputation may also possess a cost advantage because, *ceteris paribus*, employees prefer to work for high-reputation firms, and should therefore work harder, or for lower remuneration. At the same time, because suppliers are less concerned about contractual hazards when transacting with high-reputation firms, good reputations should also lead to lower contracting and monitoring costs. These direct benefits are complemented by a number of ancillary benefits. Goldberg and Hartwick (1990) suggest that potential customers receive (especially extreme) advertising claims more favorably if the reputation of the firm making those claims is more positive. Along similar lines, the marketing literature suggests that a good reputation supports and enhances sales force effectiveness, new product introductions and recovery strategies in the event of crises (Dowling, 2001). Finally, Benjamin and Podolny (1999) demonstrate that investments in quality made by California wineries experienced a higher pay-off if the winery in question had a better reputation.

For a corresponding dynamic relationship between reputation and sustained superior financial performance, we must also argue that reputation differences across firms are relatively stable over time (Barney, 2001; Henderson and Cockburn, 1994). There is little doubt among strategy researchers that a good reputation is difficult, if not impossible to replicate in the short term (Dierickx and Cool, 1989; Rumelt, 1987). Because reputations are complex and the main drivers of reputation creation are embedded inside the firm (Dowling, 2001), they are likely to be associated with a high degree of causal ambiguity, which reduces the extent to which competitors may imitate them. This is consistent with economic and sociological analyses of reputation. Reputation assumes an important role when there is uncertainty about the underlying quality of a firm's offerings. This same uncertainty makes it difficult for competing firms to quickly make quality demonstrations that would offset the signaling benefits associated with a good reputation. Finally, Podolny (1993) suggests that the positive interactions between reputation and other salient firm features or actions (e.g., production costs, or investments in product quality and advertising) create a virtuous cycle, wherein firms with good reputations have a greater incentive to engage in actions that further enhance their reputations. These dynamic properties of firm reputation suggest that *reputation differences should demonstrate a relatively high degree of persistence over time*. This proposition—in conjunction with the purported benefits of a good reputation—supports the hypothesis that is tested in this paper; namely that *a good reputation will enhance a firm's ability to sustain superior financial performance over time.*

MODELING REPUTATION AND PERSISTENT PROFITABILITY

This research seeks to understand the factors that affect the dynamics of firm profitability. It is therefore necessary to move away from cross-sectional models and towards those that capture the intertemporal behavior of firm profitability. Such a movement has already occurred within the industrial organization economics literature, spurred by scholars interested in persistent profitability. Mueller (1986) was the first to suggest that the autoregressive properties of firm-level profit time series reflect whether, and how fast, abnormal profits converge upon normal long-run levels. The general approach is to estimate the following first-order autoregressive model:

$$\text{roa}_{it} = \alpha_0 + \beta_0 * \text{roa}_{it-1} + \varepsilon_{it} \qquad (1)$$

where roa_{it} is firm i's normalized profit rate at time t, 'normalized' being realized profitability

less an indicator of normal profits. As Geroski (1990) explains, this model is a reduced-form representation of a more complex dynamic model wherein high profits attract competition, which subsequently lowers profitability. The β_0 parameter—or the persistence parameter—indicates the rate at which abnormal profits converge upon long run levels. An estimate that is not significantly different from one indicates that abnormal profits persist indefinitely. More generally, the higher is β_0, the more persistent are abnormal profit outcomes. The α_0 parameter indicates the level upon which profits converge in the long run. An estimate that is significantly greater than zero indicates that firms earn relatively high long-run profits. Therefore, higher values of α_0 also indicate greater profit persistence.

Following Mueller (1986), other researchers turned their attention to the persistent profitability question (Cubbin and Geroski, 1987; Jacobson, 1988; McGahan and Porter, 1999; Roberts, 1999; Waring, 1996). There is now considerable evidence suggesting that abnormal profits erode over time. There is also evidence that some firms are shielded from the competitive pressures that otherwise erode favorable profit positions. In light of these results, it is interesting to determine which factors are responsible for the variance in profit persistence across firms. In the current context, we ask whether a firm's reputation exerts a significant influence on a firm's profit persistence. We therefore estimate the following variant of Equation 1:

$$\begin{aligned} \text{roa}_{it} = {} & \alpha_0 + \alpha_1 * \text{Reputation}_{it-1} + \alpha_2 * \text{MTB}_{it-1} \\ & + \alpha_3 * \text{Size}_{it-1} + \beta_0 * \text{roa}_{it-1} \\ & + \beta_1 * \text{Reputation}_{it-1} * \text{roa}_{it-1} \\ & + \beta_2 * \text{MTB}_{it-1} * \text{roa}_{it-1} \\ & + \beta_3 * \text{Size}_{it-1} * \text{roa}_{it-1} + \varepsilon_{it} \end{aligned} \tag{1a}$$

where Reputation_{it-1} is the one period lag of the reputation of firm i relative to its corresponding industry average. Our reputation hypothesis predicts positive estimates for α_1 and β_1. A positive β_1 indicates that the abnormal profits earned by firms with good reputations converge more slowly upon long run levels. A positive α_1 indicates that firms with relatively good reputations earn higher profits in the long run.

MTB_{it-1} and Size_{it-1} are similar (mean-adjusted) measures of relative market-to-book value (market value divided by total shareholder's equity) and firm size (total sales). Relative market-to-book value is an important control variable in this model for two reasons. First, just as good reputations help firms to sustain superior profitability, so too may their other intangible assets. Hall (1993: 609) suggests that one indicator of intangible assets is the ratio of the market value to the book value of the firm. The higher is this ratio, the greater is the proportion of a firm's asset base that is in intangible form. Second, the measure of reputation used in this study is based on the perceptions of senior company managers and directors, as well as associated industry analysts (see the following discussion of the data). While the use of a perceptual measure of reputation poses no problems *per se* (Benjamin and Podolny, 1999; Dowling, 2001), there may be concern about the financial orientation of these respondents. One might suspect that the reputation scores that are reported are confounded by the respondents' expectations of the firms' future financial performance. In other words, higher reputation scores may be given to firms that are expected to perform well in future years. Inclusion of the market-to-book value variable eases this concern because it captures the market's expectations of future economic returns (Mueller, 1990). The firm size variable is also included as size is thought to enhance a firm's ability to sustain a competitive advantage when economies of scale, economies of scope, or learning effects are present.

To be more specific about the effects of reputation on the persistence of superior vs. below-average profits, we estimate two additional sets of models, first using observations for which roa_{it-1} is greater than zero (a superior performance sample) and then using observations for which roa_{it-1} is less than zero (a below-average performance sample) (Roberts, 1999).

Proportional hazards regression

There may be problems relying exclusively on an autoregressive approach to studying profit dynamics. First, it forces researchers to assume that there exists some long-run rate of return—a stance that some may find problematic. Researchers may be less interested in uncovering the long-run profit level and the eventual path leading to it, and more concerned with the length of time that firms spend earning returns above those earned by competing firms (Hunt and Morgan, 1995). Second, the

autoregressive profit models assume that period-to-period changes in firm profitability are gradual, or incremental. However, current theorizing also embraces the more dramatic types of change associated with Schumpeter's process of creative destruction (Amit and Schoemaker, 1993; Rumelt, 1984, 1987). This interest in more discontinuous profitability changes suggests that researchers use an approach that explicitly models the timing of discrete performance events. In light of these concerns, we also employ a complementary event history approach to modeling sustained superior performance.

The aim of event history analysis is to determine which factors influence the amount of time an organization expects to remain in any given state. More specifically, it relates the probability of an event occurring at a point in time to some set of hypothesized explanatory variables. We propose that movements between superior and below-average performance positions can be analyzed in such a fashion if one accepts that an event refers to the movement of a firm from one performance state to the other. In such analysis, the dependent variable—the hazard rate—expresses the probability of exiting a superior (or below-average) performance position at time t given that an exit has not occurred prior to that time (Hannan, 1989). A smaller hazard rate corresponds to greater performance sustainability, as it implies that a firm is expected to remain in its current profit position for a longer period of time. In proportional hazards regression, the covariates—which may vary over time—are assumed to have a log-linear relationship with the hazard rate. Covariates (in this case, the lagged values of relative reputation, market-to-book value, and firm size) that exert a negative influence on the hazard rate have a positive impact on the length of time spent in a superior performance position.[2]

As this suggests, event history analysis provides researchers with a complementary approach to modeling the persistence of superior profitability. This approach requires that financial performance be recast as a categorical (i.e., superior vs. below-average) variable. Moreover, it assumes that firms are concerned with increasing the length of time spent in superior performance positions.[3] One potential concern with the event history approach relates to the loss of information that comes from converting a continuous relative performance measure to a categorical one. However, the superior vs. below-average dichotomy is well established within the strategy field. Superior firm performance has traditionally been linked to the advantages possessed by a firm relative to its competitors (Porter, 1985). Current frameworks retain this basic orientation by hypothesizing a link between sustained superior financial performance and sustainable competitive advantages (Amit and Schoemaker, 1993; Peteraf, 1993). Because the independent construct—sustainable competitive advantage—is relative, the measure of firm financial performance should be relative as well.[4] With this in mind, this concern may also be addressed empirically—in the proportional hazards regression models that follow, we test whether the results are sensitive to the inclusion of a continuous relative performance variable.

REPUTATION AND FINANCIAL DATA

From 1984 to 1998, *Fortune* reported on *America's Most Admired Corporations*. This annual reputation survey covers *Fortune 1000* firms and is based on responses from company executives and directors, as well as from financial analysts (the Appendix provides a summary of the data collection procedure). The survey determines each firm's overall reputation score from ratings on eight scales which are relevant

[2] In this paper, proportional hazards regression is used to study movements between two performance states. In future research, other models may be employed, including exponential, Gompertz, and Weibull models (Hannan, 1989). These models differ in that each implies a different functional relationship between the hazard rate and the hypothesized covariates. At the same time, event history analysis allows researchers to model movements among multiple states, moving beyond the current dichotomous classification to consider multiple performance positions (e.g., superior, 'normal' and below average).

[3] Note that this event history approach corresponds with the original approach used by Mueller (1977) to test the persistent profitability hypothesis. Mueller (1977) first divided a sample of firms into categories depending on their initial observed profit rate. He then analyzed the probability that a firm in a given performance category would remain in that state each subsequent year. The event history approach retains this underlying concern with the probability of moving between different performance categories, but allows researchers to assess the effects of hypothesized covariates on these specific probabilities.

[4] Hunt and Morgan's (1995: 6) resource advantage theory of competition is based on the premise that a firm's objective is to achieve superior financial performance, and not that of profit maximization.

for these respondents: asset use, community and environmental friendliness, ability to develop and keep key people, financial soundness, degree of innovativeness, investment value, management quality, and product quality. Because these reputation data are matched with corresponding *Fortune 1000* data, we link each firm–year observation with data on firm profitability (after-tax return on total assets—ROA), market-to-book value (market value divided by total shareholder's equity) and firm size (total sales). The complete data file contains 4444 firm–year observations. However, the sample of firms changes from one year to the next and data are not available for all firms in all years. Given the requirements of this analysis, only those firms that report at least two consecutive years of data are included. This reduces the number of observations to 3141 (see Table 1).

Accounting measures of profitability (e.g., ROA) are absolute performance measures. However, Equations 1 and 1a assess the dynamic properties of a *normalized* profit time series, whereas the event history requires that we distinguish superior from below-average performance outcomes. In either case, empirical research into sustained superior profitability must recognize that a given return is considered superior only if it is normal to earn a lower return. Researchers operationalize normal returns using average (Mueller, 1977, 1986) or weighted average (Cubbin and Geroski, 1987) returns. This said, we must distinguish between economy-wide and industry average returns (Cubbin and Geroski, 1987; Mueller, 1986; Rumelt, 1991). In most persistent profitability studies, the indicators of normal returns are economy-wide measures. However, current strategy theory stresses that superior performance is derived from advantages possessed by a firm relative to its competitors. It is therefore desirable to equate normal returns with the average returns accruing to all firms within an industry, as this is more likely to capture the firm's relevant cadre of competitors. This analysis uses industry average ROA as its indicator of normal returns.

Table 1. Summary of two samples

	Overall sample	Reduced sample[a]
Observations	3,141	1,849
Firms	540	300
Observations per firm	5.82	6.45
Average ROA	4.73%	4.66%
Average reputation score	6.40	6.45
Average total sales	\$10.84 billion	\$14.02 billion

[a] The size of the reduced sample is lower due to the use of lagged observations to generate the financial and residual reputation variables.

In previous analyses of the *Fortune* reputation data, researchers found the eight reputation scales to be highly correlated (Brown and Perry, 1994; Fombrun and Shanley, 1990). In the complete data file, the lowest pair-wise correlation among the eight scales is between the degree of innovativeness and community and environmental friendliness ($\rho = 0.66$), while the highest are between management quality and both investment value and management quality ($\rho = 0.95$). When factor analyzed, they produce a single dominant factor showing high loadings on all scales. There is also a high degree of agreement between respondents who were company executives, and those who were financial analysts ($\rho = 0.82$). This suggests that *Fortune's* reputation measure is a global firm attribute that allows stakeholders to fill in the blanks when full information about firm particulars is not readily available. Each overall reputation score from the *Fortune* survey is compared with the corresponding industry average to generate a relative reputation variable. Table 2 indicates that these scores range from -3.55 to 2.80.

If a firm's reputation is derived in part from its previous financial performance, there may be different interpretations of a positive relationship between reputation and persistent profitability. One was raised above: under conditions of uncertainty, good financial performance contributes to a good reputation, which in turn allows above-average profitability to persist over time. Alternatively, it could be a manifestation of a measurement bias (Brown and Perry, 1994; Capraro and Srivastava, 1997). Under this latter interpretation, respondents in reputation surveys are simply tracking previous financial performance and are therefore not reporting 'true' reputation scores. To distinguish the two possible reputation effects, we decompose each reputation score into that which is predicted by previous profitability, and that which is independent of the firm's history of financial

Table 2. Firms with best and worse reputations relative to corresponding industry average

Overall rank	Company	Year	Industry	Relative reputation
1	Fortune Brands	1997	Tobacco	2.80
2	Coca-Cola	1996	Beverages	2.78
3	Wal-Mart Stores	1991	Retail	2.62
4	Wal-Mart Stores	1992	Retail	2.42
5	Wal-Mart Stores	1990	Retail	2.34
6	Coca-Cola	1995	Beverages	2.33
7	Coca-Cola	1997	Beverages	2.30
8	McDonald's	1996	Food Services	2.24
9	Liz Claiborne	1991	Apparel	2.22
10	Intel	1997	Electronics	2.18
11	Procter & Gamble	1990	Soap/Cosmetics	2.16
12	Rubbermaid	1996	Rubber/Plastic	2.16
13	Coca-Cola	1994	Beverages	2.15
14	Home Depot	1994	Specialist Retail	2.15
15	Liz Claiborne	1987	Apparel	2.11
3127	Continental Air	1989	Transport	−2.29
3128	Kmart	1994	General Merchandise	−2.32
3129	Crystal Brands	1992	Apparel	−2.32
3130	Kmart	1996	General Merchandise	−2.37
3131	Wang Labs	1990	Computer/Office Equipment	−2.52
3132	Unisys	1991	Computer/Office Equipment	−2.53
3133	Continental Air	1990	Transport	−2.53
3134	Wang Labs	1989	Computer/Office Equipment	−2.55
3135	Wang Labs	1991	Computer/Office Equipment	−2.68
3136	Apple Computer	1997	Computer/Office Equipment	−2.71
3137	Continental Air	1992	Transport	−2.74
3138	Morrison Knudsen	1995	Engineering/Construction	−2.86
3139	Kmart	1995	General Merchandise	−2.87
3140	Continental Air	1991	Transport	−3.08
3141	Wang Labs	1992	Computer/Office Equipment	−3.55

performance (see Figure 1). Relative reputation is regressed on increasingly higher-order lags of relative ROA until no further significant improvement in the regression R^2 is observed. Table 3 shows that a firm's relative reputation is positively influenced by its relative ROA in each of the 4 preceding years, and that roughly 15 percent of the variance in relative reputation is explained by prior financial performance. The models that decompose the overall reputation effect use two variables generated from the regression in Table 3: the financial reputation variable takes the predicted values from that regression, while residual reputation is comprised of its residuals. Note that use of the additional lagged values of ROA to create the financial and residual reputation variables reduces the sample size to 1849 observations. Table 1 compares the overall and reduced samples.

Table 4 reports descriptive statistics for the variables used in this study (for the complete and the reduced samples), as well as the correlations among them. Of particular interest are the contemporaneous correlations between relative ROA and relative reputation, which attest to the cross-sectional relationship between reputation and profitability. Finally, the correlations between the relative reputation and market-to-book value variables are quite low. Although market-to-book value may capture certain elements of a firm's intangible asset

Table 3. Reputation and previous ROA (standard errors in parentheses)

	Coefficient
Constant	0.06**
	(0.02)
roa_{t-1}	0.02**
	(0.00)
roa_{t-2}	0.02**
	(0.00)
roa_{t-3}	0.01**
	(0.00)
roa_{t-4}	0.02**
	(0.00)
N	2360
Adjusted R^2	0.15

(Variables normalized to industry average)
** $p < 0.01$

base (Hall, 1993), it does not seem to capture its reputation as measured in this study.[5] These low correlations also mitigate against concerns that the reputation variable is arbitrarily picking up the financial market's expectations about future economic performance.

RESULTS

A key proposition in this analysis is that reputation differences are fairly stable over time. The multiple entries in Table 2 by the same firms in both the top 15 (e.g., Coca-Cola from 1994 to 1997; Wal-Mart from 1990 to 1992) and bottom 15 (e.g., Wang Labs and Continental Air from 1989 to 1999) of the distribution attest to the stability inherent in the relative reputation scores over time. This point is further evidenced in Table 5, which estimates a baseline autoregressive model using the relative reputation data. In the overall sample, the persistence parameter is 0.89. Because an estimate of one indicates that relatively high

[5] According to Hall (1993), a firm's full stock of intangibles includes its intellectual property, trade secrets, contracts and licenses, databases, information in the public domain, networks and know-how, as well as its corporate culture and product and corporate reputations. The fact that the relative MTB variable is uncorrelated with the relative reputation score suggests that the stock market's assessment of a firm's intangible resources may overlook its reputation in favor of the other eight elements. The low correlation might also reflect the fact that our variables are measured relative to the corresponding industry averages, whereas Hall's (1993) demonstration presents only the raw figures.

Table 4. Descriptive statistics
Complete (N = 3,141)

	Mean	Std. Dev.	(1)	(2)	(3)	(4)
(1) roa	0.32	6.90				
(2) roa_{t-1}	0.52	6.67	0.45			
(3) $Reputation_{t-1}$	0.09	0.80	0.29	0.37		
(4) MTB_{t-1}	0.25	102.39	0.02	0.01	0.00	
(5) $Sales_{t-1}$	0.62	12.76	−0.01	−0.02	0.20	0.00

(Variables normalized to industry average)

Reduced[a] (N = 1,849)

	Mean	Std. Dev.	(1)	(2)	(3)	(4)	(5)	(6)
(1) roa	0.35	6.71						
(2) roa_{t-1}	0.50	6.87	0.45					
(3) $Reputation_{t-1}$	0.12	0.82	0.24	0.31				
(4) Financial $reputation_{t-1}$	0.11	0.33	0.43	0.48	0.38			
(5) Residual $reputation_{t-1}$	0.01	0.76	0.08	0.13	0.92	−0.02		
(6) MTB_{t-1}	−0.52	7.04	0.13	0.13	0.12	0.14	0.08	
(7) $Sales_{t-1}$	2.16	15.33	−0.01	−0.02	0.21	−0.03	0.23	0.02

(Variables normalized to industry average)

[a] The size of the reduced sample is lower due to the use of lagged observations to generate the financial and residual reputation variables.

Table 5. Persistence of reputation (standard errors in parentheses)

	Reputation	Financial reputation	Residual reputation
Constant	−0.01	0.00	−0.01
	(0.01)	(0.00)	(0.01)
Reputation_{t-1}	0.89**	0.92**	0.86**
	(0.01)	(0.01)	(0.01)
N	3,141	1,849	1,849
Adjusted R^2	0.78	0.78	0.73

(Variables normalized to industry average)
** $p < 0.01$.

and low reputation scores persist indefinitely, this estimate indicates a very high degree of reputation persistence over time. Similar parameter estimates are obtained from the reduced sample using the financial reputation scores (0.92), and the residual reputation scores (0.86).

Results from autoregressive profit models

Models were estimated using four different samples: the overall sample (Models 1 and 2), the reduced sample (Models 1a, 2a, and 3), a sample comprised of observations in the reduced sample for which roa_{it-1} is greater than zero (Model 4), and another using those observations in the reduced sample for which roa_{it-1} is less than, or equal to zero (Model 5).[6] The results are found in Table 6. Model 1 estimates Equation 1 using the overall sample. Here, the constant term (α_0) is not significantly different from zero, while β_0 (the persistence parameter) is significantly less than one. These results are consistent with the findings of previous persistent profitability research, and suggest that abnormal profits do eventually converge upon more normal long-run levels. Model 2 estimates Equation 1a by incorporating the explanatory variables and their respective interactions with the roa_{it-1} variable. The significant coefficients on the two reputation variables suggest that a good reputation is associated with a greater persistence parameter ($\beta_1 > 0$) and a larger intercept term ($\alpha_1 > 0$). These findings support our reputation hypothesis: firms with better reputations demonstrate greater profit persistence. The rate at which their abnormal returns converge on long run levels is slower, and that long-run rate of return is itself larger. With respect to the controls, relative market-to-book value has a positive and significant impact on the intercept term. This suggests that a firm's remaining stock of intangible assets is also associated with the persistence of abnormal profit outcomes. Contrary to expectations, relative size has no significant effect on the intercept term, and a negative impact on the persistence parameter. To determine whether these results are sensitive to the exclusion of the lagged observations in the reduced sample, we reran Models 1 and 2 using the reduced sample (see Models 1a and 2a). The sign and significance of the α_1 and β_1 parameter estimates are unchanged.

Model 3 replaces the reputation variable with its two (orthogonal) components: financial and residual reputation. An F-test suggests that the explanatory power of the model is improved when the reputation variable is decomposed ($F = 12.92$; $p = 0.00$). The specific coefficients suggest that each component of reputation has a positive and significant effect on both the persistence parameter (β_{1a} and $\beta_{1b} > 0$) and the intercept term (α_{1a} and $\alpha_{1b} > 0$). Although the impact of financial reputation is found to be more pronounced, the nonfinancial component of reputation also significantly improves profit persistence.

Model 4 shows how the results change when we focus on the persistence of superior profits. Once again, an F-test rejects the hypothesis of identical coefficients across the financial and residual reputation effects ($F = 4.72$; $p = 0.01$). The results suggest that firms with better reputations (both financial and residual) have greater persistence parameters (β_{1a} and $\beta_{1b} > 0$). This again supports the reputation hypothesis. However, financial reputation has an insignificant impact on the model's intercept term, while the residual reputation variable has a negative impact ($\alpha_{1b} < 0$). This suggests that the effect of a good reputation is found in the slower convergence of transitory superior profit outcomes, and not in higher long-run profit levels. Figure 2 makes this point by comparing the paths of profit convergence across three (hypothetical) superior-performing firms, one with average residual and financial reputations, the second with an above average residual reputation, and the third with above average residual and financial

[6] In each of the following autoregressive profits models, tests for the presence of first-order autocorrelation using Durbin's M test (Kmenta, 1986: 333) indicated no such problem.

Table 6. Autoregressive profit models results (standard errors in parentheses)

	Model 1 (Overall)	Model 2 (Overall)	Model 1a (Reduced)	Model 2a (Reduced)	Model 3 (Reduced)	Model 4 (Superior)	Model 5 (Below Average)
Constant (α_0)	0.08	−0.36**	0.14	−0.28*	−0.42**	0.36	−1.22**
	(0.11)	(0.11)	(0.14)	(0.14)	(0.14)	(0.24)	(0.27)
Reputation$_{t-1}$ (α_1)		1.27**		0.86**			
		(0.15)		(0.17)			
Financial reputation$_{t-1}$ (Financial$_{t-1}$) (α_{1a})					2.82**	−0.44	2.76**
					(0.51)	(0.78)	(0.96)
Residual reputation$_{t-1}$(Residual$_{t-1}$) (α_{1b})					0.71**	−0.72**	0.97**
					(0.19)	(0.31)	(0.34)
MTB$_{t-1}$ (α_2)		0.01*		0.11**	0.09**	0.08*	0.07
		(0.00)		(0.02)	(0.02)	(0.04)	(0.04)
Sales$_{t-1}$ (α_3)		−0.01		−0.00	−0.00	0.01	−0.00
		(0.01)		(0.01)	(0.01)	(0.02)	(0.02)
roa$_{t-1}$ (β_0)	0.47**	0.43**	0.44**	0.39**	0.33**	0.38**	0.10
	(0.02)	(0.02)	(0.02)	(0.023)	(0.03)	(0.04)	(0.06)
roa$_{t-1}$ * Reputation$_{t-1}$ (β_1)		0.16**		0.13**			
		(0.02)		(0.02)			
roa$_{t-1}$ * Financial$_{t-1}$ (β_{1a})					0.15**	0.33**	−0.08
					(0.03)	(0.05)	(0.10)
roa$_{t-1}$ * Residual$_{t-1}$ (β_{1b})					0.09**	0.24**	0.03
					(0.02)	(0.04)	(0.06)
roa$_{t-1}$ * MTB$_{t-1}$ (β_2)		0.00		0.03**	0.02**	0.01**	0.01
		(0.00)		(0.00)	(0.00)	(0.01)	(0.01)
roa$_{t-1}$ * Sales$_{t-1}$ (β_3)		−0.02**		−0.01**	−0.01**	−0.01	−0.01*
		(0.00)		(0.00)	(0.00)	(0.01)	(0.01)
N	3,141	3,141	1,849	1,849	1,849	941	908
Adjusted R^2	0.20	0.26	0.20	0.31	0.31	0.44	0.06

(Variables normalized to industry average)
** $p < 0.01$; * $p < 0.05$.

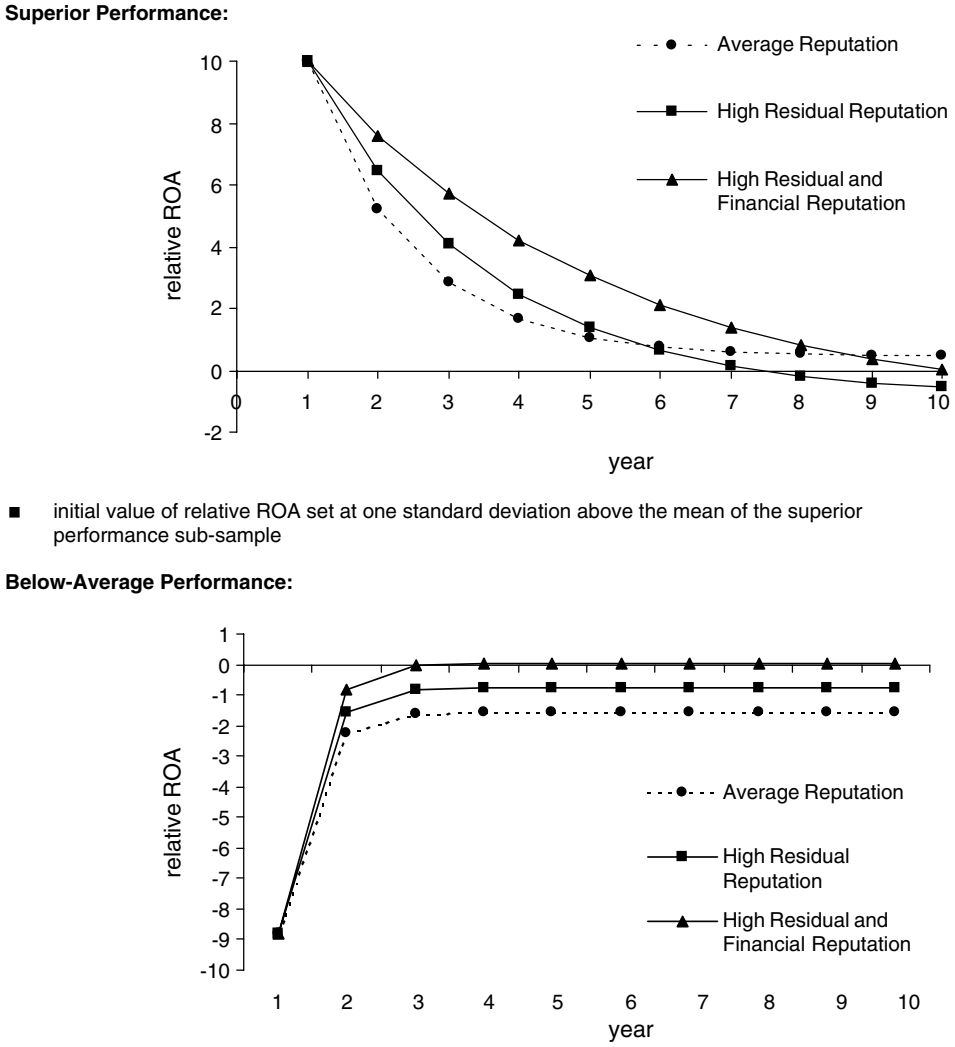

Figure 2. Relative ROA series for average and high residual reputation firms. All parameter values are based on the significant coefficients from Models 4 and 5 and are calculated at the mean value of the MTB variable (High = one standard deviation above the average)

reputations. Using the significant parameter estimates from Model 4, we see that a relative ROA of 10.0 in year one (which is one standard deviation above the mean in the superior performance sample) erodes more slowly if the firm in question has the better residual reputation. That firm demonstrates greater profit persistence for the first 6 years. If the firm also has an above average financial reputation, its superior profit outcomes demonstrate a much slower rate of convergence. It is still outperforming the average reputation firm in year eight.

The final column of Table 6 shows the corresponding results for those observations for which roa_{it-1} is less than zero, and provides information about the persistence of below-average returns. In Model 5, the intercept term is significantly less than zero, while the baseline persistence parameter is considerably lower than in the superior profits model.[7] These results suggest that below-normal returns converge quickly toward a negative long run level. After confirming that financial

[7] This latter result is consistent with McGahan and Porter (1999).

and residual reputations do exert different effects on profit persistence ($F = 3.91$; $p = 0.02$), the model shows that a good reputation increases the model's intercept term (α_{1a} and $\alpha_{1b} > 0$), but has no significant impact on the persistence parameter (note that in the case of below-average performance, a smaller persistence parameter would be preferred). The lower panel of Figure 2 shows the time path differences across the three (hypothetical) below-average performing firms. Here, an initial relative ROA of −8.81 (one standard deviation below the mean in the below average sample) erodes quickly to roughly −1.5 for the average reputation firm. This long run level is higher (roughly −0.74) for the firm with a better residual reputation, and higher still (roughly 0.05) for the firm that also has a better financial reputation.

Results from proportional hazards regression models

We now use proportional hazards regression to estimate the effects of relative reputation on the probability of exiting either a superior, or a below-average performance position. Models 6 and 7 focus on superior performance sustainability. In the first column of Table 7, the coefficient on reputation is negative and significant, suggesting that firms with better reputations are less likely to exit a superior performance position at any point in time. This again supports the reputation hypotheses. Model 7 shows that the reputation findings hold irrespective of whether one looks at financial or residual reputation. As noted, one concern about using event history analysis is that the probability of exiting a superior performance position should be inversely related to the absolute size of the deviation from normal. Consistent with this belief, the estimated coefficients on roa_{it-1} are negative and significant. However, independent of the size of the deviation from average, superior performance positions are still protected in a dynamic sense by relatively good reputations. The coefficients on the relative market-to-book value variable suggest that a firm's remaining stock of intangible assets is not related to its ability to sustain superior profit outcomes over time. Similarly, the coefficients on relative size in both models are insignificant.

Deeper analysis of the relative reputation coefficients in Model 7 indicates the practical significance of the results. Within the superior performance subsample, a movement in the financial reputation score from one standard deviation below the mean to one standard deviation above corresponds to an increase from −0.14 to 0.56. Following Morita, Lee, and Mowday (1993), we compute the relative likelihood of exiting a superior performance position across these two values of the financial reputation distribution. Holding the values of the remaining variables constant, the estimated likelihood of the higher

Table 7. Proportional hazards regression model results (standard errors in parentheses)

	Model 6 (Superior)	Model 7 (Superior)	Model 8 (Below Average)	Model 9 (Below Average)
Reputation_{t-1}	−0.42**		0.40**	
	(0.07)		(0.07)	
$\text{Financial reputation}_{t-1}$		−0.98**		0.81**
		(0.21)		(0.25)
$\text{Residual reputation}_{t-1}$		−0.25**		0.31**
		(0.09)		(0.09)
MTB_{t-1}	−0.00	−0.02	0.00	0.03
	(0.00)	(0.01)	(0.00)	(0.02)
Sales_{t-1}	0.01	0.00	−0.01	−0.01
	(0.00)	(0.00)	(0.00)	(0.00)
roa_{t-1}	−0.08**	−0.05**	0.00	−0.02
	(0.02)	(0.02)	(0.01)	(0.01)
N	1630	941	1511	908
Events	457	286	428	268
Log likelihood	−3340.68	−1933.19	−3113.83	−1813.04

(Variables normalized to industry average)
** $p < 0.01$; * $p < 0.05$

reputation firm exiting a superior performance position is exp[(−0.98) * (0.56 + 0.14)], or 0.51 times that for the lower reputation firm. The same calculation for the residual reputation variable shows that the likelihood of the higher reputation firm exiting a superior performance position is 0.70 times that for the lower reputation firm.

An additional insight provided by the event history approach derives from its ability to analyze the factors affecting the establishment of superior profit positions. Models 8 and 9 demonstrate that firms with relatively good reputations are significantly more likely to exit a below-average performance position at any point in time. This suggests that they tend to spend less time earning relatively low returns. Once again, this result holds for both the financial and residual components of reputation. Repeating the above demonstration, we see that (again holding the values of the other variables constant), the estimated likelihood of the higher financial reputation firm exiting a below-average performance position is 1.52 times that for the lower reputation firm. The same calculation for the residual reputation variable shows that the likelihood of the higher reputation firm exiting is 1.59 times that for the lower reputation firm.

The results from Tables 6 and 7 consistently support our reputation hypothesis. Firms with better corporate reputations are better able to sustain superior financial performance outcomes over time. Moreover, good reputations also help poor performing firms in their efforts to return to profitability. We close this section with a brief discussion of several analyses employed to determine whether the observed findings generalize across different industry contexts. In some industries, the average reputation level is higher than in others. For example, firms in the advertising/marketing industry and pharmaceuticals industry typically receive much higher reputation ratings than do firms in the savings bank and toys/sporting goods industry. At the same time, the intraindustry variance in reputation scores also varies across industries. To ascertain whether these industry characteristics have a systematic impact on the results reported, we reestimated Models 6 and 7 splitting the overall sample first at the median of the average industry reputation distribution, and then at the median of the industry standard deviation of reputation distribution. For all four subsamples, the coefficients on overall reputation fell within the −0.31 to −0.42 range and were highly significant. The parameter estimates for the financial reputation component fell consistently within the −0.87 to −1.06 range and were also highly significant across the board. Finally, the coefficients on the residual reputation component were consistently negative (all in the −0.13 to −0.37 range), although not significant at conventional levels in the low average-reputation and high reputation-dispersion subsamples.

Finally, our decision to use the *Fortune* reputation data raises a potential issue relating to the level at which reputation is measured. The reputation data provided by *Fortune* are taken at the corporate level of analysis, and many of the firm's surveyed compete across a number of different product or service markets. Moreover, a number of them actively promote a range of specific market-level reputations—or brands. For example, between 1990 and 1998, Philip Morris had 13 brands among *Advertising Age*'s annual surveys of the Top 200 Brands, while General Motors was associated with nine brands.[8] These examples raise two issues. First, firms may invest in multiple brands to suit different product or service markets. Second, firms may (as in the case of Philip Morris) choose not to promote their corporate identities. In either case, one could query the specific mechanism by which firms derive benefits from their reputations. The response to the first issue is quite straightforward. When firms develop market-specific brands, they derive a direct benefit when those brands are associated with a positive overall reputation. In respect of the second issue (where consumers may not know the identity of the corporate parent), the effects of reputation are subtler. It would be difficult to argue that a reputation can have an impact on the economic activity of the parties with which it transacts if those parties are not aware of the identity of the firm possessing that reputation.

With this in mind, note that some of the hypothesized benefits of a good reputation are found on the cost side, and may therefore exist independent of the diverse identities established within specific product markets. In this respect, Philip Morris may feel the effects of its reputation even

[8] The *Top 200 Brands* surveys published by *Advertising Age* are based on total measured advertising spending on specific product brands.

though individuals do not associate it with its specific offerings—all that is required is an awareness of Philip Morris in labor markets, distribution channels (e.g., retail chains), or the various input markets in which it participates. At the same time, recent research on organizational status suggests that there may be selection forces at work that ensure that while firms do promote multiple brand identities, the quality signals that flow from each are mutually reinforcing—firms may have a strong incentive to deal only with similarly reputed product brands (Podolny and Phillips, 1996). In this respect, the multiple brand identities would be expected to exude similar quality signals.

Given potential concerns, we conducted follow-on analyses to test whether the hypothesized relationship between reputation and sustained superior financial performance holds for those firms with brand identities that do not correspond to the identity of the corporate parent. Using annual surveys from *Advertising Age* (1990–98), we identified the firms in the sample that also had brands listed in the *Top 200 Brands* surveys. These firms account for 699 of the observations in the reduced data file. The average normalized reputation score for firms that are also very active advertisers (0.29) is greater than that for firms not in the *Top 200 Brands* surveys (−0.02). This observation is consistent with those made above regarding the self-reinforcing effect of a good reputation—firms with good reputations have a greater incentive to engage in activities (e.g., brand advertising) that further reinforces their positive reputations. Moreover, the vast majority of this mean difference is found in the residual reputation differences (0.29, as compared to −0.01), and not the financial reputation differences (0.12, vs. 0.11). This supports our assumption that the residual reputations are driven by factors (e.g., brand advertising) that may be orthogonal to short-term profitability. Finally, we isolated those firms that actively promote brands whose identity does not correspond to that of the corporate parent. This yields an even smaller sample of 351 firm–year observations in the reduced data file.

We use these smaller samples to reestimate the superior performance proportional hazards regression models (Models 6 and 7). Based on the sample of all superior performance firms with branded products ($N = 351$), the effect of reputation on the superior performance hazard rate is negative and significant (−0.34). In the potentially problematic case, wherein superior-performing firms promote brands whose identity does not correspond to the corporate reputation ($N = 179$), the effect of reputation is again negative (−0.38) and, despite the small sample, significant at the 0.10 level. These findings suggest that the effects of reputation are not erased when all external stakeholders cannot easily access information about reputation quality.

DISCUSSION AND CONCLUSIONS

Results from both autoregressive profit models and proportional hazards regression models consistently suggest that superior-performing firms have a greater chance of sustaining superior performance over time if they also possess relatively good reputations. These findings complement existing studies of the relationship between reputation and financial performance by explicitly articulating the dynamic implications of good reputations. At the same time, they are consistent with the growing body of strategy research that links high-quality intangible assets with sustained superior performance.

Confidence in these results is heightened by the fact that they hold for two orthogonal components of reputation. A firm's financial reputation has a consistently strong impact on profit persistence. This suggests an important self-reinforcing dynamic. Some of the things that firms do to improve profitability also enhance their reputations. This reputation enhancement, in turn, makes it easier for firms to sustain superior performance outcomes over time. Having said this, roughly 85 percent of the variance in the relative reputation measure is not accounted for by prior profit results. And this residual reputation is also linked to profit persistence. Instead of working through financial performance demonstrations and the signals that they generate, some firm actions have direct effects on reputation with flow-through effects on profit persistence.

Another interesting insight emerges from a comparison of the superior and below-average models in Table 6. It seems that the dynamic impact of relative reputation is different across these two subsamples (see Figure 2). For superior performance outcomes, the reputation variable exerts its positive effect on the persistence parameter, but not the intercept term. This suggests that good reputations lead to increased temporal stability in the short

term, but may induce some rigidity that harms superior-performing firms in the longer term. This is similar to the effect uncovered by Sorensen (2002) in his analysis of the relationship between strong corporate cultures and performance stability. He demonstrates that strong cultures may facilitate adaptation when the amount of environmental volatility is modest, but may constrain firms when the need for major adaptations is greater. In our context, superior-performing firms with good reputations find themselves with an advantage that is durable in the short run, when those reputations are maximally relevant. However, those same reputations may become less relevant over time, and may even hurt superior-performing firms in the long run. Note also how this interpretation is not inconsistent with the results from the proportional hazard regression models. Model 7 shows that the year-to-year stability of superior firm performance is affected in the predicted direction by both financial and residual reputation. However, the model is not able to address the longer-term effects that were uncovered in the autoregressive models. For below-average performance outcomes, the reputation effect is most dramatic *vis-à-vis* the model's intercept term. Taken together, these observations suggest that reputation works in different ways, depending on the initial performance position of the firm. This difference in the specific manifestations of firm reputation across the two performance samples is certainly worthy of further exploration.

The inclusion of the relative size variable was intended to control for unobserved size-related effects on profit persistence. However, we are surprised by the results that were obtained. While the predominant belief with respect to sustainability is that (if anything) bigger is better, this supposition is not confirmed by this research. Taken together, the size and reputation findings are consistent with arguments put forth by Dierickx and Cool (1989). Reputation is cited as an example of a strategic asset precisely because the development of a good reputation takes considerable time, and depends on a firm making stable and consistent investments over time. On the other hand, it is easy to see how larger size may be achieved virtually instantaneously. In this respect, firm size is not subject to time compression diseconomies. This difference between the two variables may explain why good reputation enhances the sustainability of a superior performance outcome, while size does not (Bharadwaj, Varadarajan, and Fahy, 1993).

We have demonstrated empirically that a corporate reputation is an important strategic asset that contributes to firm-level persistent profitability. However, there is still much to be done. In respect of reputation, this research has raised a number of important follow-on questions, such as the need to understand and explain the asymmetric time paths of high- and low-reputation firms. Our final recommendation relates to the overall orientation of the individuals providing the evaluations in the *Fortune* reputation surveys. The reputation data come from firm managers and directors, as well as from market analysts. These are important stakeholder groups, whose assessments are important in an analysis that focuses on the financial performance of firms within competitive markets (Zuckerman, 1999). However, there are other groups of stakeholders (e.g., customers, employees, and suppliers) whose evaluations of the firm are also likely to have implications for financial performance dynamics. As such, future iterations of this research should examine the relationship between the reputations of these other stakeholder groups and the firm's financial performance dynamics.

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APPENDIX: METHODOLOGY EMPLOYED FOR COLLECTING REPUTATION DATA

The companies in the *America's Most Admired Corporations* survey consist of the four to eleven largest companies in each of the industries from the *Fortune* 1000 lists for the year prior to the year of the reputation survey. The companies so surveyed, in turn, were based on the financial data rankings published in the previous year's *Fortune* 500 magazine issue (which actually covers 1000 companies as service companies are also included). *Fortune* 1000 companies are assigned to an industry based upon the activity that contributed most to their revenues.

The respondent sample consists of senior executives and outside directors of *Fortune* 1000 companies and financial analysts who cover those companies. In particular, the following process was used:

(1) For each of the top 10 companies in each industry, 10 top executives, beginning with the Chairman and CEO, were sent questionnaires. Also, questionnaires were sent to as many as seven outside directors in each of these top 10 companies.
(2) Among companies that ranked 11 through 25 in their industry on the *Fortune* 500 lists, questionnaires were sent to the top five executives beginning with the Chairman and CEO.
(3) Financial analysts, both buy-side and sell-side, who covered each of the industries were sent questionnaires. The definition of 'coverage' was determined according to whether the analysts covered either this 'industry' or this grouping of companies.

Approximately 12,000 senior executives, directors, and financial analysts were surveyed in 1998. Throughout its history, this survey has experienced a response rate approaching 50 percent. For each year, questionnaires were mailed early in the fall. This initial mailing was followed up by two subsequent mailings as well as phone calls and faxes to many of the respondents. The survey was organized so that each respondent received a questionnaire with the same structure; however, the actual companies that were asked about were tailored to that respondent's own industry.