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A TALE OF TWO ASSETS: THE EFFECTS OF FIRM REPUTATION AND CELEBRITY ON EARNINGS SURPRISES AND INVESTORS' REACTIONS

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The effects of intangible assets on organizational outcomes remain poorly understood. We compare the effects of two intangible assets—firm reputation and celebrity—on (1) the likelihood that a firm announces a positive or negative earnings surprise, and (2) investors' reactions to these surprises. We find that firms that have accumulated high levels of reputation ("high-reputation" firms) are less likely, and firms that have achieved celebrity (celebrity firms) more likely to announce positive surprises than firms without these assets. Both high-reputation and celebrity firms experience greater market rewards for positive surprises and smaller market penalties for negative surprises than other firms.

The intangible assets of firms have attracted considerable interest in organizational and strategy research (e.g., Barney, 1991; Deephouse, 2000; Dierickx & Cool, 1989; Fombrun, 1996; Greenwood, Li, Prakesh, & Deephouse, 2005; Itami & Roehl, 1987; Rindova, Pollock, & Hayward, 2006). In particular, scholars have focused a great deal of attention on a subclass of intangible assets that we call "social approval assets," because they derive their value from favorable collective perceptions. These assets are posited to provide firms with sustainable competitive advantages (Barney, 1991; Dierickx & Cool, 1989) and have been subject to a number of studies intended to assess their performance benefits (e.g., Barnett, Jermier, & Lafferty, 2006; Deephouse, 2000; Fombrun, 1996; Hall, 1992; Jensen & Roy, 2008; Podolny, 2005; Rao, 1994; Rindova, Williamson, Petkova, & Sever, 2005; Roberts & Dowling, 2002).

Much of this research, however, has focused on establishing the *general* effects of possessing social approval assets on firm performance and has given little consideration to whether the *specific* effects of different assets may vary. Further, this research has often given different labels to the same types of collective perceptions or has used the same observable proxies to operationalize conceptually distinct constructs (see Deephouse and Carter [2005], Deephouse and Suchman [2008], and Rindova et al. [2005] for recent critiques highlighting these issues). As a result, labels and definitions have proliferated, making it difficult to determine if different studies consider the same or different phenomena, leading to a fragmented body of work and limiting the development of theory that can explain and predict the effects of different intangible assets. Thus, despite the large number of studies examining the performance consequences of social approval assets, a coherent body of knowledge about the differences in these assets and their effects has not been developed.

In this study, we begin to address these questions by first theorizing about the effects of two types of social approval assets—*reputation* and *celebrity*—on firms' propensities to generate unexpected out-

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comes, and on stakeholders' responses to these outcomes. "High reputation" refers to the accumulation of high levels of public recognition of the quality of a firm's capabilities and outputs (King & Whetten, 2008; Rindova et al., 2005), whereas "celebrity" refers to "a high level of public attention" focused on a firm combined with "positive emotional responses from stakeholder audiences" (Rindova et al., 2006: 51). We focus on outcomes that deviate from prior expectations because they require stakeholder audiences to make sense of these deviations, drawing on the interpretative frames that social approval assets provide. Reputation and celebrity are "social facts" that constitute distinct interpretative frames that are likely to influence stakeholder behaviors in different ways (King & Whetten, 2008; Rindova & Fombrun, 1999). Further, we consider how their effects may vary under different conditions by considering both positive and negative deviations from expectations.

Two sets of theoretical arguments provide the foundation for our empirical investigation. First, we draw on strategy and organizational research on firm reputation and celebrity to articulate how the differences in the actions and behaviors involved in building these assets may affect a firm's propensity to generate unexpected outcomes. Second, we draw on research in psychology to theorize how these different actions and behaviors may generate different types of social approval having different effects under positive and negative conditions.

We empirically test the effects of possessing high levels of reputation and celebrity on firms' propensities to announce earnings surprises and on investors' reactions to these surprises. *Earnings surprises* occur when a firm's actual earnings deviate from market analysts' consensus estimates (Degeorge, Patel, & Zeckhauser, 1999). Earnings surprises are positive when the announced earnings exceed analysts' estimates and negative when the announced earnings fail to meet their estimates. Both types of surprises violate investors' expectations of predictable earnings and negatively affect the accuracy of financial evaluations (Degeorge et al., 1999; Kasznik & Lev, 1995; Tan, Libby, & Hunton, 2002; Williams, 1996). Further, negative surprises not only violate expectations of predictability, but also reflect disappointing firm performance and can elicit strong, negative responses from investors (Brown, 2001; Kasznik & Lev, 1995; Skinner, 1994; Skinner & Sloan, 2002). Positive surprises, on the other hand, are viewed more ambivalently. Although they affect the predictability of a firm's performance and hence the accuracy of market forecasts, they are, nevertheless, signals of good performance; as a result, they usually generate relatively smaller, but positive, responses from investors (Brown, 2001; Kasznik & Lev, 1995; Skinner & Sloan, 2002; Westphal & Clement, 2008). These variations in the effects of positive and negative surprises provided an opportunity to empirically examine the effects of different social approval assets under different circumstances.

In the following sections, we first discuss our research setting, focusing on earnings surprises as unexpected outcomes. Next, we develop the theoretical arguments that explain why and how the possession of reputation or celebrity is likely to be associated with different outcomes. We then develop and empirically test hypotheses about firms' propensities to surprise and investors' reactions to positive and negative surprises when they occur.

THEORY DEVELOPMENT

Research Setting: Material Earnings Surprises as Unexpected Outcomes

Scholars in accounting and finance have studied positive and negative earnings surprises because they are aberrations that interfere with the smooth and efficient functioning of markets (e.g., Tan et al., 2002). Analysts' forecasts are important for market efficiency because investors rely on these authoritative predictions of firm performance to properly value a firm's stock (Degeorge et al., 1999; Williams, 1996). Accordingly, managers strive to facilitate and improve their firms' valuations by avoiding earnings surprises and meeting analysts' consensus estimates (Degeorge et al., 1999). Thus, meeting analysts' earnings expectations either exactly or within a few cents is the norm.

Yet earnings surprises do happen. They occur for a variety of reasons related to both a firm's actions and events beyond its control. For example, recent negative surprises have been blamed on lower-than-expected sales (Gaffen, 2008) and economic downturns (CNN, 2008). The Canadian pharmaceutical firm Biovail even blamed missing its consensus earnings forecasts on a batch of antidepressants falling off a delivery truck (*Wall Street Journal,* 2008b). Similarly, positive surprises have been attributed to better-than-expected sales (Lohr, 1998), new project development (Shwiff, 2008), and improving business conditions overseas (*Wall Street Journal,* 2008a).

Earnings surprises also differ in the extent to which they deviate from consensus forecasts. Larger deviations—typically those representing more than a few cents or a significant percentage (Doyle, Lundholm, & Soliman, 2006; Jin, 2006; Kasznik & Lev, 1995; Kinney, Burgstahler, & Mar-

tin, 2002; Livnat & Mendenhall, 2006)—are considered "material" and are more consequential for both firms and investors (Barron, Byard, & Young, 2008; Brown, 2001; Jin, 2006; Mikhail, Walther, & Willis, 2004). Material earnings surprises, both positive and negative, can have adverse effects on how a firm is perceived (Ajinkya & Gift, 1984; Skinner, 1994). For example, material earnings surprises have been associated with reduced analyst coverage and stock ownership for a firm (Barron et al., 2008; Mikhail et al., 2004; Skinner, 1994; Williams, 1996), sharp increases in its cost of capital (Mikhail et al., 2004), and more vigorous trading in its stock, indicating that investors are reevaluating their perceptions of the firm (Jin, 2006; Mikhail et al., 2004). Material earnings surprises, given their rarer occurrence and greater salience, therefore have greater potential than smaller surprises to engage investors in active sensemaking and reevaluation of a firm (Barron et al., 2008; Jin, 2006; Williams, 1996).

In the next section we discuss how reputation and celebrity are gained in order to develop the theoretical foundation for our hypotheses predicting their effects on firms' propensities to announce surprises and on investors' reactions to these surprises.

Gaining Reputation and Celebrity

Reputation and celebrity defined. Reputation research has been conducted from a variety of theoretical perspectives, which has led to different definitions of the construct based on different types of perceptions. In a recent review of reputation research, Rindova and colleagues (2005) concluded that scholars studying reputation from an economic perspective use the term to refer to perceptions about a particular attribute, such as the ability to deliver quality products. In contrast, scholars studying reputation from a sociological perspective use the term to refer to the general public knowledge about and recognition of a firm in relation to a variety of attributes and stakeholder audiences. Further, Rindova and colleagues (2005) found that perceived quality did not affect a firm's performance outcomes directly but was mediated by the firm's public recognition. This review suggested that a firm's reputation may be best understood as an intangible asset based on broad public recognition of the high quality of its capabilities and outputs (Deephouse, 2000; King & Whetten, 2008; Rindova et al., 2005). This is the definition we adopt in this study, as it also reflects most empirical management research, which has operationalized reputation using various rankings that capture the recognition that a set of firms have received in a given organizational field on a variety of attributes (e.g., Fombrun & Shanley, 1990; Fryxell & Wang, 1994; Love & Kraatz, 2009).

In contrast to firm reputation, the concept of firm celebrity has been developed recently to capture the "high level of public attention" combined with "positive emotional responses from stakeholder audiences" (Rindova et al., 2006: 51) that some firms generate. According to Rindova and colleagues (2006), the combination of visibility and emotional resonance gives celebrity its distinctive properties and effects.

Given these definitions, several clarifications about the distinctions between the two assets are important. First, whereas visibility is considered a component of a number of social approval assets (e.g., reputation [Fombrun, 1996], celebrity [Rindova et al., 2006], and legitimacy [Pollock & Rindova, 2003]), by itself it is not *sufficient* to define either reputation or celebrity. Second, although reputation may also evoke some positive stakeholder affect (Fombrun, 1996), the social approval associated with reputation is derived to a large extent from the collective recognition of a firm's *demonstrated ability* to create value (see Rindova et al. [2005] for a review). In contrast, the social approval associated with celebrity arises largely from *emotional resonance*—that is, the excitement and engagement that some firms evoke (Rindova et al., 2006). We discuss the theoretical importance of these distinctions next.

How reputation and celebrity are gained. A core argument we advance in this article is that the different types of social approval associated with a high level of reputation (high reputation) and celebrity reflect differences in the processes through which they are built. Prior research has suggested that firms develop high reputation by exhibiting consistent behaviors that result in outcomes recognized and valued by stakeholder audiences (Barnett et al., 2006; Fombrun, 1996; Gardberg & Fombrun, 2006). Examples of high-reputation firms in our sample include Berkshire Hathaway, Johnson & Johnson, and 3M—firms widely recognized for their consistency in delivering valued outcomes. The public knowledge and recognition of the ability to deliver value consistently can reduce uncertainty even for stakeholders who lack direct experience with a firm, thereby resulting in greater stakeholder willingness to exchange resources with high-reputation firms.

In contrast to reputation, firm celebrity is created when the media cast firms as protagonists in dramatic narratives that are developed to explain the causes of complex and uncertain outcomes and events (Rindova et al., 2006). Firms that take non-

conforming actions lying outside the range of behaviors typical in their industries are likely to be chosen as protagonists for these narratives. Further, the media combine descriptions of these actions with vivid information about these companies' cultures, identities, and leadership and endow them with a (generally) positive affective quality (Zajonc, 1980) that meets audiences' "need for gossip, fantasy, identification, status, affiliation, and attachment" (Rindova et al., 2006: 51). Examples of celebrity firms in our sample include Amazon.com, Oracle, and Charles Schwab. These companies' unconventional—and at times controversial—actions have attracted media attention touting their distinctive cultures, charismatic leaders, and singular identities.

Reputation, celebrity, and earnings surprises. Extending the preceding arguments about the differences in the behaviors and outcomes through which reputation and celebrity are gained leads us to expect possession of these assets to be associated with different propensities to surprise the market. Specifically, because reputations are built through consistent behaviors that produce valued outcomes, high-reputation firms are likely to possess underlying capabilities that generate consistent and predictable patterns of behavior and performance. They also have incentives to exert additional effort to maintain predictability and reliability, as these attributes are central to maintaining high levels of reputation (Fombrun, 1996).

For celebrity firms, we expect the opposite: They are more likely to announce material earnings surprises than noncelebrity firms because celebrity accrues from taking risky, nonconforming actions that result in harder-to-predict outcomes. Though such actions may enable celebrity firms to "strike it big" from time to time, they may also lead them to "strike out" more frequently (Sanders & Hambrick, 2007). Further, according to Rindova and colleagues (2006), celebrity firms experience pressure to maintain their celebrity and therefore have incentives to take more extreme nonconforming actions over time.

In sum, both the underlying capabilities and incentives of high-reputation firms are less likely to lead them to announce earnings surprises than firms that do not possess this asset; and both the actions and incentives of celebrity firms are more likely to lead them to announce earnings surprises, as they may experience larger and more unpredictable swings in performance. Stated more formally:

Hypothesis 1a. Firms with high reputation are less likely to generate positive material earnings surprises than firms that do not possess this asset.

Hypothesis 1b. Firms with high reputation are less likely to generate negative material earnings surprises than firms that do not possess this asset.

Hypothesis 2a. Firms with celebrity are more likely to generate positive material earnings surprises than firms that do not possess this asset.

Hypothesis 2b. Firms with celebrity are more likely to generate negative material earnings surprises than firms that do not possess this asset.

Reputation, Celebrity, and Investors' Reactions to Earnings Surprises

As a consequence of the different firm behaviors through which reputation and celebrity are gained, stakeholders are likely to expect different kinds of outcomes from firms possessing one asset or the other. First, whereas both assets are likely to be associated with positive expectations about future performance, these expectations are likely to exist for different reasons. In the case of high-reputation firms, expectations about future performance derive from their consistent track records of delivering quality and value. In the case of celebrity firms, expectations are likely to be based on their perceived potential to deliver high performance in the future, rather than on a history of actually doing so (Rindova et al., 2006).

Second, these assets are not only associated with different expectations about firm behavior and outcomes, but also differ in their sociocognitive bases. As discussed, reputation reflects collective recognition of a firm's demonstrated ability to deliver quality and value (Fombrun, 1996; Rindova & Fombrun, 1999). As such, it serves as a relatively rational, analytical interpretive frame through which stakeholders can assess the likelihood that the firm will continue to exhibit the valued attributes or behaviors in the future. In contrast, celebrity is based on a combination of collective salience and emotional resonance evoked by dramatic narratives about unconventional actions and attributes. As such, celebrity is derived from, and stimulates, more affective information processing (Slovic, Finucane, Peters, & MacGregor, 2004).[1]

[1] It is important to note that analytical and affective information processing are not mutually exclusive and can be employed at the same time, although, in a given set of circumstances, one mode tends to dominate (Slovic et al., 2004). Therefore, our arguments should be interpreted in terms of reputation and celebrity evoking a dominant information processing mode.

Research on information processing supports this distinction, as it demonstrates that people using analytical and affective modes of information processing rely on different information inputs, combine them in different ways, and ultimately arrive at different assessments and attitudes (Chaiken, Liberman, & Eagly, 1989; also see Slovic et al. [2004] for a review). For example, whereas analytical information processing is conscious, deliberate, and based on logic, evidence, and causal reasoning, affective information processing is rapid and holistic (Agarwal & Malhotra, 2005; Slovic et al., 2004). Whereas these different information processing modes have been theorized primarily at the individual level of analysis, we argue that they can be used to characterize stakeholder sensemaking using reputation and celebrity as two different types of interpretative frames. We discuss their effects next. Since it is well established that positive and negative information stimuli are processed differently (Fiske & Taylor, 1991; Willemsen & Keren, 2002), we discuss their effects on investors' reactions to positive and negative earnings surprises separately.

Investors' reactions to positive earnings surprises. Both reputation and celebrity provide interpretive frames associated with positive expectations about a firm's future performance (albeit for different reasons). Research on the psychology of expectancy violations tells us that a violation that *exceeds* prior expectations tends to result in greater satisfaction with the outcome (Brown, Venkatesh, Kuruzovich, & Massey, 2008; Burgoon & Hale, 1988; Wanous, Poland, Premack, & Davis, 1992) and that positive prior expectations heighten this effect (Burgoon & Lapoire, 1993). Building on these ideas, we argue that, as positive interpretative frames associated with positive expectations, both reputation and celebrity can enhance investors' reactions to the positive earnings surprises of firms that possess these assets.

However, because reputation and celebrity reflect different types of social approval derived from different perceptions and expectations, their effects on investors' reactions are likely to differ. Firms earn high reputations through consistency in delivering valued outcomes. As a result, investors are likely to expect not only positive, but also predictable, outcomes from high-reputation firms. A material positive earnings surprise generated by a high-reputation firm therefore conveys both positive and negative information—the firm has performed well, but it has also behaved inconsistently. In contrast, some degree of unpredictability is expected from celebrity firms (Rindova et al., 2006), from which investors may not only tolerate, but even anticipate, variable outcomes. Therefore, for celebrity firms a material positive earnings surprise is likely to be seen as strictly positive information. Further, a positive earnings surprise is an affectively positive stimulus whose effect is likely to be accentuated by the positive holistic affective frame associated with celebrity (Agarwal & Malhotra, 2005; Slovic et al., 2004). As a result, the positive earnings surprises of celebrity firms should elicit the strongest positive reactions from investors.

In sum, we propose that whereas both reputation and celebrity are likely to have a positive effect on investors' reactions to positive earnings surprises, the effect will be stronger for celebrity firms. This is because for celebrity firms some degree of expected unpredictability and a positive holistic affective frame converge to strengthen the positive surprise effect; in contrast, for high-reputation firms, unmet expectations of predictability are likely to weaken the effect. Taken together, the above arguments lead us to hypothesize that:

Hypothesis 3a. High-reputation firms experience more positive investor reactions to their material positive earnings surprises than firms that do not possess either high reputation or celebrity.

Hypothesis 3b. Celebrity firms experience more positive investor reactions to their material positive earnings surprises than firms that do not possess either celebrity or high reputation.

Hypothesis 3c. Celebrity firms experience more positive investor reactions to their material positive earnings surprises than high-reputation firms.

Investors' reactions to negative earnings surprises. It is hardly surprising to argue that investors react positively to positive surprises and negatively to negative surprises. What is surprising is the asymmetry in human responses to positive and negative events. Psychological research has amassed a vast body of evidence that individuals are subject to a pervasive "negativity bias," defined as the tendency to experience negative events as more salient and diagnostic than positive events, to give them more weight in judgments and assessments, and to respond to them more strongly (Hastie & Dawes, 2001; see Rozin and Royzman [2001] for a review). In keeping with this work, in our context investors' negative reactions to negative earnings surprises have been found to be more extreme than their positive reactions to positive earnings surprises of similar magnitude (e.g., Brown, 2001; Kasznik & Lev, 1995; Skinner & Sloan, 2002).

Whereas these general effects of positive and neg-

ative surprises are well understood, how they may be influenced by firm-specific interpretive frames such as reputation and celebrity has not been studied. In fact, plausible speculations can be advanced that high reputation and celebrity either exacerbate or attenuate investors' negative responses to negative surprises. We base our predictions on our core theoretical arguments that: (1) reputation and celebrity are interpretative frames associated with positive expectations and (2) these frames differ in the type of social approval and the related information processing modes they stimulate. We predict that high-reputation and celebrity firms will experience less negative responses to negative surprises than firms that do not possess these assets, and that high-reputation firms will experience less negative responses than celebrity firms.

Recall that reputation engenders positive expectations about performance because it reflects the collective recognition of a firm's ability to perform and create value. Taking their cues from Heider (1958) and Kelley (1973), psychologists have argued that beliefs about ability to perform are built by positive information (i.e., past successes) and that they are relatively resilient to negative information that contradicts them (i.e., a current "failure"). This is because failure can be attributed to many causes, but ability can be demonstrated only through successful performance (Skowronski & Carlston, 1987, 1989). As a result, negative information is less diagnostic for forming and changing impressions about ability. Furthermore, the more "proven" the perception of ability is in observers' minds (as may be the case for high-reputation firms), the less diagnostic negative information is likely to be. For example, in keeping with this argument, Heath and Tversky (1991) found that experts experienced less negative evaluations than novices for making the same mistakes in predicting outcomes. Extending these ideas to the organizational level, we propose that high reputations provide positive analytical frames about firms' demonstrated ability to deliver value. As such, they reduce the "diagnosticity" of negative earnings surprises, leading investors to give them lesser weight than they would absent the high-reputation frame about organizational ability.

In the case of celebrity, the picture is more ambiguous. On the one hand, an actor's celebrity is not associated with a record of demonstrated ability, but with the actor's perceived potential. As a result, negative information may not be discarded; in fact, it could be seen as a signal that the perceived potential may not be realized. On the other hand, the affective basis of celebrity may increase the likelihood that discrepant information is ignored (Ariely, 2008; Nisbett & Ross, 1980; Seo, Goldfarb, & Barrett, 2010) or evaluated differently (Slovic, MacGregor, Malmfors, & Purchase, 1997). For example, Slovic and colleagues (1997) found that affect mediated how toxicologists rated the risk associated with being exposed to small amounts of different chemicals. Although the risk in all instances was essentially the same, positive affect toward a chemical significantly reduced the toxicologists' ratings of the risks, and negative affect increased their ratings of the risk. In another intriguing study, Hsee and Kunreuther (2000) found that positive affect made individuals willing to pay twice as much to insure the shipment of a beloved, albeit nonfunctioning, antique clock as they would pay to ship a similar clock about which they were affectively neutral. Further, holding the amount of compensation fixed, individuals were willing to expend more effort to obtain compensation for damage to a positive affect–laden object. Finally, in the context of investing behavior, Seo and colleagues (2010) found that positive affect attenuated and, in some cases, even reversed the effects of prior gains and losses on subsequent risk taking by members of investing clubs. Taken together, these findings suggest positive affect is motivating in judgment and action and therefore lead us to expect that firms with celebrity will experience less negative consequences of their negative surprises than firms that do not possess this intangible asset.

With regard to the relative effects of reputation and celebrity on investors' responses to negative surprises, different expectations again appear plausible. First, to the degree that high-reputation firms are expected to behave consistently and celebrity firms are expected to be nonconformists, one could argue that investors will be affected by reputation and celebrity in the same way as predicted for positive surprises (i.e., they will react less negatively to surprises generated by celebrity firms than to those of high-reputation firms). However, as discussed earlier, negative information is more likely to be disregarded when a positive, ability-related frame exists (as in the case of high-reputation firms). Further, the holistic information processing stimulated by celebrity's affective frame may compete with the analytical information processing triggered by negative information (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). The competing information processing tendencies of the positive interpretative frame and the negative stimulus may weaken the overall effect of celebrity. Therefore, psychological research provides evidence to support the argument that high reputation is a stronger buffer in the case of negative events than celebrity is. We therefore hypothesize that:

Hypothesis 4a. High-reputation firms experience less negative investor reactions to their material negative earnings surprises than firms that do not possess either high reputation or celebrity.

Hypothesis 4b. Celebrity firms experience less negative investor reactions to their material negative earnings surprises than firms that do not possess either celebrity or high reputation.

Hypothesis 4c. High-reputation firms experience less negative investor reactions to their material negative earnings surprises than celebrity firms.

DATA AND METHODS

Sample

We tested our hypotheses using matched-sample data on 291 firms observed between 1991 and 2005. To construct the sample, we first identified 80 high-reputation firms that appeared in the top 25 of either the *Fortune* "Most Admired Companies" list or in the Wall Street Journal/Harris Interactive ranking during our period of study. We then matched each high-reputation firm with three firms from the same four-digit SIC code that were similar in assets, revenues, and return on assets (ROA) (Combs & Skill, 2003; Porac, Wade, & Pollock, 1999). Where appropriate matches were not found at the four-digit level, we looked at three-digit and two-digit SIC codes for similar firms (Combs & Skill, 2003). Through this process we identified 129 matching firms at the four-digit level, 32 at the three-digit level, and 50 at the two-digit level. For 29 firms we were able to identify only 2 firms each with the requisite matching attributes. A *t*-test comparing differences in firm size (total assets) revealed no significant differences between the 80 high-reputation and 211 matched companies ($t = -0.35$, n.s.); however, in keeping with the predictions of prior reputation research (Roberts & Dowling, 2002), there were significant differences in revenues and ROA ($35.1 vs. $16.8 billion, $p < .001$; and 8.97 percent vs. 4.28 percent, $p < .001$, respectively). Availability of analysts' estimates for each year from Thomson Financial's I/B/E/S database reduced the 4,365 firm-year full sample to 3,107 firm-year observations. *T*-tests comparing the full and reduced samples showed that the firms with earnings data available had significantly more total assets ($54.1 vs. $46.8 billion, $p < .05$), greater sales ($18.7 vs. $15.11 billion, $p < .0001$), and higher ROA (5.52 percent vs. 2.15 percent, $p < .001$) than firms with missing earnings data. These characteristics suggested our sample provided a conservative test of our hypotheses since they result in some restriction of range to primarily large and well-performing firms.

Dependent Variables

Material earnings surprises. To capture material earnings surprises, we created a year-end consensus estimate based on the mean of analysts' *last* forecasts of firms' annual earnings (cf. Doyle et al., 2006; Livnat & Mendenhall, 2006) and calculated the percentage difference between this mean estimate and firms' reported earnings (Kinney et al., 2002; Matsunaga & Park, 2001). For example, if a firm reported actual earnings of $1.10, and the analysts' final consensus estimate was $1.00, then the firm would have generated a positive surprise of 10 percent. Conversely, if the firm had reported $1.00 against an estimate of $1.10, it would have generated a negative surprise of 9 percent.

There is no one standard method for operationalizing material earnings surprises. Finance and accounting scholars who study surprises have routinely used different dollar amounts, percentages, and percentile cutoffs to delineate them (e.g., Barber & Griffin, 1994; Barron et al., 2008; Doyle et al., 2006; Jin, 2006; Kinney et al., 2002; Livnat & Mendenhall, 2006; Skinner, 1994; Skinner & Sloan, 2002). To avoid scaling by price alone (Easton, 2004) or employing arbitrary cutoff values having different meanings in different years and different industry segments (Skinner & Sloan, 2002), we followed past research identifying material earnings surprises on the basis of percentiles (e.g., Barber & Griffin, 1994; Doyle et al., 2006; Jin, 2006, Kinney et al., 2002; Livnat & Mendenhall, 2006) and defined material earnings surprises as the top and bottom quartiles of positive and negative surprises *in a given industry in a given year*. This approach controlled for differences in volatility and performance expectations among the industries in our sample over the 15-year period. We identified top- and bottom-quartile surprises in each of the 30 industry groups represented in our final sample defined using two-digit SIC codes. To calculate the top and bottom quartiles, we used the initial universe of 2,417 firms in Compustat that were in these industry segments and for which earnings estimates were available (generating 20,357 firm-year observations), and not simply the 291 firms in the matched sample. The median number of analysts covering firms in the full sample used to identify material surprises was 5. In our final sample of 3,107 observations, the number of analysts covering firms ranged from 1 to 47, with a median of 15.

The final sample included 770 material positive surprises, 754 material negative surprises, 323 observations in which firms met earnings exactly, and 1,260 observations in which firms missed earnings by less than a material amount.[2] To ensure that our definition of material surprises did not drive results, in analyses not reported here we also tested definitions based on top and bottom percentile cutoffs of 20, 30, and 40 percent (cf. Barber & Griffin, 1994; Livnat & Mendenhall, 2006), as well as all surprises that were greater than 1 percent of expected earnings (cf. Kasznik & Lev, 1995; Mikhail et al., 2004). The results were substantively the same as those reported here.

In the tests of Hypotheses 1 and 2, the dependent variable *positive surprise* was a dummy coded 1 if a firm experienced a positive material earnings surprise, and the dependent variable *negative surprise* was a dummy coded 1 if a firm experienced a material negative earnings surprise. Given the longitudinal, repeated-measures design of the study, firms could (1) surprise more than once and (2) generate either positive or negative surprises, or both types.

Cumulative abnormal adjusted return. To test Hypotheses 3a–3c and 4a–4c, our dependent variable was a firm's *cumulative abnormal adjusted return* (CAR) over the three-day (−1, +1) window surrounding the earnings surprise announcement. Previous organizational research has shown that a three-day window is appropriate for measuring unexpected events such as earnings surprises as it allows capture of information leakage prior to the event and slow responses on the day after the event (Arthur, 2003; Benbunan-Fich & Fich, 2004; McWilliams & Siegel, 1997; Zhang & Wiersema, 2009).

CARs were the sum of abnormal adjusted returns (ARs) generated using the following regression equation (Combs & Skill, 2003):

$$R_{it} = \alpha_j + \beta_i R_{mt} + \varepsilon_{it},$$

where R_{it} is the return for security j on day t, R_{mt} is the market return for the designated market (in our case, the CRSP value-weighted index),[3] β is the beta of stock j, α is the intercept, and ε is the error term over estimation period t. Subsequently, a firm's daily abnormal adjusted return is calculated as:

$$AR_{it} = R_{it} - (a_i + b_i R_{mt}),$$

where a and b are ordinary least squares (OLS) parameter estimates generated from the regression. Thus, CARs are cumulative daily ARs over a selected window.

The CARs were calculated using EVENTUS, a program provided by Wharton Research Data Services (WRDS). The regression equation described above was estimated over a period between 255 and 46 trading days prior to the earnings announcement date (Wade, Porac, Pollock, & Graffin, 2006). In addition, we utilized the "autodate-yes" command in WRDS: If a given date occurred on a nontrading day (e.g., Saturday, Sunday, or holiday), the first subsequent business day was utilized.

Independent Variables

Because one of the goals of our study was to compare the effects of reputation and celebrity under different conditions, we followed prior research suggesting that the construction of "ideal types" based on actors' possessing the highest levels of relevant characteristics was both theoretically and empirically useful for representing the distinctiveness of individual constructs (Rao, Davis, & Greve, 2001; Svensson, 2009; Thornton & Ocasio, 1999; Weber, 1922/1978). We thus identified high-reputation and celebrity firms as those that possessed the highest levels of these assets. This approach is also consistent with reputation and celebrity theory, in that the value of these assets is related to their level of accumulation (Dierickx & Cool, 1989; Rao, 1994; Rindova et al., 2006). Finally, social psychology research suggests that discrimination is meaningful at the tops and bottoms of rankings, but not in the middle ranges (Burson & Larrick, 2009; Janicik & Larrick, 2005). This research provides evidence that continuous

[2] Seventy-five percent of firms were covered by at least 8 analysts, and 90 percent by at least 3. Using the average of multiple analysts' estimates limit the biases associated with any one analyst's forecast (Clarke, Khorana, Patel, & Rau, 2007; Hirsch & Pozner, 2005; Stickel, 1992). The median positive surprise when a firm missed earnings estimates by any amount was 2.2 percent; for material positive surprises, the median was 7.2 percent. For negative surprises, the median value when earnings were missed by any amount was –3.2 percent; for material negative surprises, the median was –5.4 percent.

[3] Following robustness checks employed in similar event studies (cf. Arthur, 2003; Combs & Skill, 2003; Wade et al., 2006), we also measured the CARs against two other market proxies—the CRSP equal-weighted index and the S&P 500—as well as excess returns. The results remained the same in all cases. In addition, we also calculated CARs in the days immediately preceding (–1, 0) and following (0, +1) the earnings announcement, as well as over 7-day (–3 to +3) and 11-day (–5 to +5) windows. The substantive results did not change.

rankings may tend to create artificial differences where no differences actually exist (Rao, 1994), thereby introducing additional error into a measure. These considerations suggest that operationalizing high levels of reputation and celebrity with dichotomous variables enabled us to clearly distinguish firms possessing each type of asset.

High reputation. Following past research, we obtained data on a firm's reputation using the rankings in *Fortune*'s "Most Admired Companies" (e.g., Basdeo, Smith, Grimm, Rindova & Derfus, 2006; Fombrun & Shanley, 1990; Love & Kraatz, 2009; Roberts & Dowling, 2002), as well as the Wall Street Journal/Harris Interactive "Corporate Reputation" list (Gardberg & Fombrun, 2002), and coded a firm as having a high reputation if it appeared among the top 25 firms on either list in a given year (1, "high reputation," 0 otherwise). We combined information from the two lists because *Fortune* only listed the top 10 firms in an industry between 1997 and 1998, and only the top 20 firms between 1999 and 2005. Of the 25 different firms listed in *Fortune*'s top 10/top 20 list between 1999 and 2005, 22 were also named in the Wall Street Journal (WSJ)/Harris top 25, showing strong overlap between the two lists and validating our choice to combine the information from them.[4] Our final sample included 357 high-reputation firm-year observations.

Celebrity. Since firm celebrity is defined as a combination of high levels of public attention and positive emotional responses from stakeholders, we used both components in creating our celebrity measure. We used a firm's media visibility, operationalized as the total number of articles published about the firm each year in *BusinessWeek*, to capture the public attention component of celebrity. These articles were obtained from Lexis-Nexis. We used *BusinessWeek* as the media source because it is a general business publication that tends to publish feature articles, which are likely to contain the type of dramatic narratives associated with the construction of celebrity (Madrick, 2001; Rindova et al., 2006). To ensure our measure captured relevant media coverage, we generated a search algorithm within Lexis-Nexis that avoided potential "false positives," as well as tables of contents, firm listings, and stock reports. This process generated a database of 42,657 articles. Firms in the top quartile of media visibility in a given year were coded 1 for media visibility (0 otherwise). Top-quartile firms were mentioned, on average, at least eight times per year, whereas the median firm was mentioned only two times, and the bottom third of the sample received no coverage.

We analyzed the the degree of positive and negative affective language used in each article to capture the affective component of celebrity. We employed the Linguistic Inquiry Word Count (LIWC) program and its dictionary of more than 900 affective words with positive and negative valence to code the texts (Pennebaker, Booth, & Francis, (2007) (see http://www.liwc.net for additional information on the internal and external validity of LIWC's dictionaries). We then created a ratio of each article's positive affective content to its total affective content, because using only the raw positive affect score could be misleading—an article may have both high positive and high negative emotional content, thus creating a more balanced affective perspective overall (Pollock & Rindova, 2003; Rindova, Petkova, & Kotha, 2007; Tetlock, Saar-Tsechansky, & Macskassy, 2008). Following recent research (Pew Research Center, 2008; Tetlock et al., 2008), we coded an article as "positive" if the positive affective content was at least 60 percent of the total affective content, and as negative if 60 percent or more of the total affective content was negative. Articles with ratios falling between these two breakpoints were coded "neutral."[5]

To capture overall affective resonance, we used the Janis-Fadner (JF) coefficient of imbalance, which has been used in past research to assess the evaluative tenor of media coverage (Deephouse, 2000; Janis & Fadner, 1965; Pollock & Rindova, 2003). In this study we applied the JF coefficient to operationalize the overall affectivity of media coverage. The JF coefficient equals:

$$(P^2 - PN)/V^2 \text{ if } P > N;\ 0 \text{ if } P = N;\ \text{and } (PN - N^2)/V^2 \text{ if } N > P,$$

where P is the number of positive articles written about a firm in a given year, N is the number of negative articles, and V is the total annual article count. The JF coefficient ranges from −1 to 1, with −1 equal to all negative coverage and 1 equal to all positive coverage. We converted the JF coefficient to values ranging from −100 to 100, with 0 desig-

[4] In analyses not reported here, we reran our models excluding the years 1997 and 1998 as well as the companies from the WSJ/Harris list. Although sample size and thus variance were reduced, especially in the latter case, the results were substantively the same as reported here.

[5] We also tested ratios of 55 percent/45 percent and 75 percent/25 percent. The results of our analyses remained unchanged.

nating neutral coverage. As with the public attention measure, we then created a dummy variable that coded firms with JF scores in the top quartile of positive affective content 1 and others 0. Like public attention, positive affective content was skewed. Top-quartile firms, on average, had JF coefficients of 70 or better, whereas the JF coefficient for the median firm was 37.5, and the bottom quartile had neutral (0) to negative (−100) JF coefficients. If a firm was in the top quartiles for *both* media visibility and positive affect in a given year, it was coded as a celebrity (1; 0). This approach generated 145 celebrity firm-year observations over the 15-year period. The high-reputation and celebrity variables appeared to have good discriminant validity, as the correlation between these two measures was low ($r = 0.09$, $p < .05$).

Control Variables

Firm stock. We used the log-transformed values of the number of *shares outstanding* and the *average trading volume* of a stock (based on Compustat data) to capture differences between value and growth stocks, which finance researchers have found are treated differently by investors when the firms issuing the stocks report earnings surprises (Brown, 2001; Skinner & Sloan, 2002).

Number of analysts. The *number of analysts* covering a firm's stock has also been linked by finance researchers to the likelihood of the firm's announcing earnings surprises (Brennan & Hughes, 1991; Chen & Steiner, 2000; MacKinlay, 1997). We controlled for this effect using the natural log of the number of analysts covering a firm at the end of each year (from I/B/E/S data).

Firm history. We used several variables to control for multiple aspects of a firm's history that could affect our relationships of interest: *prior ROA*, *prior positive surprises*, *prior negative surprises*, *prior meeting estimates*, *prior high reputation*, and *prior celebrity*. Drawing from organizational research on learning and contagion (Argote, Beckman, & Epple, 1990; Darr, Argote, & Epple, 1995; Greve, 2003), we generated a weighted sum that assigned a weight of $1/n$ for each year prior to a focal year for past return on assets[6] (to control for a performance halo effect), prior positive and negative earnings surprises (to control for "habitual surprisers"), prior instances of meeting earnings estimates exactly (to control for earnings guidance), and prior high reputation or celebrity (to control for the historical levels of these assets), with n designating the number of years prior to the focal year. We constructed 15-, 10-, 5-, and 3-year summed variables, utilizing the $1/n$ "decay" rates for each of the variables, and obtained the same results for each alternative. The results reported here reflect 15-year weights.

Firm, year, and industry. Finally, we controlled for firm size (the natural logs of annual *sales* and *total assets*) and included *year* and two-digit SIC *industry dummies* to control for variance across economic cycles and industries. We lagged each control variable to help rule out reverse causality (Kenny, 1979).

Estimation Procedures

The sample consisted of pooled time series data with repeated measures, as each firm had up to 15 years of data and could surprise multiple times. Given that we were primarily concerned with interfirm differences and certain predictor variables were mostly time-invariant, we obtained, report, and interpret results using random-effects logistic regression analysis for the tests of Hypotheses 1a, 1b, 2a, and 2b (Rao, Davis, & Ward, 2000). Random-effects models control for within-firm variance, allowing for between-firm comparisons (Petersen, 1993) and limiting large losses of observations that can lead to model convergence problems (Rao et al., 2000). As a robustness check, however, we also utilized a generalized estimating equations (GEE) regression model, a method found suitable for panel data because it measures both within- and between-firm variance and generates robust estimates of standard errors (Ballinger, 2004; Wade et al., 2006). Our results were the same. In testing Hypotheses 3a–3c and 4a–4c, we used the event study methodology (MacKinlay, 1997; McWilliams & Siegel, 1997) provided by the EVENTUS software package to generate the CARs and compared the mean CARs for each category of firms using *t*-tests.

RESULTS

Table 1 presents descriptive statistics and a correlation matrix for the variables used in testing our hypotheses. The means and standard deviations reflect values for raw rather than transformed measures. All variance inflation factors were below five, with an average of 2.4. Thus, multicollinearity is not a concern (Chatterjee & Price, 1991; Pedhazur, 1997). Tables 2 and 3 present the results of random-effects logistic regressions predicting the likelihood of posi-

[6] Following prior research (Brown & Perry, 1994; Roberts & Dowling, 2002), we regressed ROA on high reputation and used the residual from this regression in our models.

TABLE 1
Descriptive Statistics and Correlations[a]

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Positive surprise	0.25	0.43														
2. Negative surprise	0.24	0.43	−.32*													
3. Average trading volume[b]	968.61	2,628.49	−.03	−.16*												
4. Shares outstanding[b]	851.00	1,326.66	−.01	−.01	.57*											
5. Sales[b]	17,178.96	25,268.01	−.03	.03	.20*	.48*										
6. Assets[b]	48,577.50	123,823.70	.00	.04*	.18*	.40*	.85*									
7. Number of analysts	15.94	9.77	−.13*	−.17*	.70*	.32*	.11*	.06*								
8. Prior ROA	11.91	13.53	−.14*	−.09*	.19*	.18*	−.05*	−.18*	.17*							
9. Prior positive surprises	0.42	0.59	.20*	.01	.19*	.15*	.06*	.07*	−.12*	.03						
10. Prior negative surprises	0.41	0.56	.08*	.16*	.00	.13*	.13*	.12*	−.28*	−.02	.10*					
11. Prior meeting estimates	0.16	0.37	−.13*	−.07*	.21*	.14*	.05*	.01	.18*	.27*	−.09*	−.04*				
12. Prior high reputation	0.20	0.55	−.05*	−.05*	.25*	.24*	.24*	.17*	.22*	.13*	.04*	.01	.17*			
13. Prior celebrity	0.09	0.27	.04	−.03	.22*	.24*	.18*	.20*	.15*	−.02	.16*	.05*	.02	.23*		
14. High reputation	0.08	0.27	−.07*	−.05*	.20*	.20*	.19*	.13*	.19*	.00	.03*	−.02	.12*	.72*	.25*	
15. Celebrity	0.03	0.18	.05*	−.03	.13*	.12*	.06*	.07*	.09*	−.02	.07*	.02	−.01	.07*	.24*	.09*

[a] n = 3,107.
[b] In millions of dollars.
* $p < .05$

tive and negative surprises, respectively. Column 1 presents the effects of the control variables, and column 2 presents the full model including our high-reputation and celebrity measures. We report odds ratios to allow easier interpretation of the magnitude of effects. An odds ratio greater than one indicates the likelihood that an event will occur increases with a one-unit increase in the independent variable. An odds ratio less than one indicates the likelihood that an event will occur decreases with a one-unit increase in the independent variable.

Hypotheses 1a and 1b predict, respectively, that high-reputation firms will experience fewer positive and negative surprises than other firms. For positive surprises, Table 2 shows that high-reputation firms had an odds ratio of 0.48 ($p < .01$), which means they were less likely to generate a positive earnings surprise than firms that did not possess high reputation. However, Table 3 shows high reputation did not have a significant effect on the likelihood of negative surprises. Thus, Hypothesis 1a was supported, and Hypothesis 1b was not.

Hypotheses 2a and 2b predict, respectively, that celebrity firms will be more likely to experience positive and negative surprises than firms that do not possess celebrity. For positive surprises, Table 2 shows that celebrity firms had an odds ratio of 1.60 ($p < .05$), providing support for Hypothesis 2a. However, Table 3 shows celebrity did not have a significant effect on the likelihood of negative surprises. Hypothesis 2b, therefore, was not supported.

Effects of Reputation and Celebrity on Investors' Reactions to Surprises

Hypotheses 3a–3c and 4a–4c predict the effects of firm reputation and celebrity on investors' reactions to earnings surprises. Initial nonparametric tests (Patell Z and generalized sign) indicated that the market viewed positive earnings surprises favorably ($p < .05$) and perceived negative earnings surprises as "bad news" ($p < .05$). This pattern is consistent with previous studies on investors' reactions to earnings surprises (e.g., Kasznik & Lev, 1995; Skinner, 1994; Skinner & Sloan, 2002).

Tables 4 and 5 present the size of each subsample category ("high reputation," "celebrity," and "none"), the mean three-day (−1, +1) CARs associated with positive and negative surprises for the categories being compared, the pairwise differences between the mean CARs observed for each category, and the significance of these differences based on paired t-tests of unequal variances.

Hypotheses 3a and 3b predict, respectively, that high-reputation and celebrity firms will enjoy more positive investor reactions to their positive surprises than firms in the "none" category, and Hypothesis 3c predicts that celebrity firms will garner more positive responses than high-reputation firms. The results in Table 4 support all three hypotheses. The CARs for the high-reputation (2.30 percent) and celebrity categories (3.32 percent) were significantly larger than the CAR for the "none" category (1.74 percent), and the CAR for celebrity was significantly larger than the CAR for high reputation ($p < .05$).

Table 5 presents the tests of Hypotheses 4a–4b, which predict, respectively, that high-reputation and celebrity firms will experience less negative reactions to their negative surprises than firms possessing neither high reputation nor celebrity, and Hypothesis 4c, which predicts that high-reputation firms will experience less negative responses than celebrity firms. Both high-reputation and celebrity firms had slightly positive average CARs (0.42 percent and 0.36 percent, respectively), whereas firms in the "none" category had a significant, negative mean CAR (−0.59 percent). The nonparametric tests indicated that the CARs for reputation and celebrity were not significantly different from their predicted values, but the CARs for firms in the "none" category were significantly different. The t-tests showed that the mean CARs for high reputation and celebrity were significantly different from the "none" category's mean CAR and that the CARs for high-reputation and celebrity firms were not significantly different from one another. Thus, Hypotheses 4a and 4b were supported, and Hypothesis 4c was not.

Robustness Checks

Because our tests did not allow us to control for other factors that can affect the size of a CAR, we ran GEE regressions that predicted the magnitude of the three-day CARs while controlling for a variety of other factors (Wade et al., 2006). The Appendix provides the detailed results. It is important to note that these regressions do not directly test Hypotheses 3a–3c and 4a–4c, which address the performance of firms with high reputation and those with celebrity *relative* to each other and relative to firms that do not possess these assets. Instead, the regressions examined if high reputation and celebrity had direct relationships with the magnitude of a firm's CAR when it experienced positive and negative earnings surprises. We found that both high reputation ($b = 2.74$, $p < .05$) and celebrity ($b = 2.44$, $p < .05$) had positive, significant relationships with abnormal returns following a positive earnings surprise, and their inclu-

TABLE 2
Results of Random-Effects Logistic Regression Analysis Predicting Positive Earnings Surprises[a]

	Model 1		Model 2	
Variables	**Odds Ratio**	**s.e.**	**Odds Ratio**	**s.e.**
Average trading volume[b]	1.05	(0.06)	1.04	(0.06)
Shares outstanding[b]	1.12	(0.08)	1.13	(0.08)†
Sales[b]	0.91	(0.10)	0.93	(0.10)
Assets[b]	1.00	(0.11)	0.98	(0.11)
Number of analysts[b]	0.72	(0.07)***	0.73	(0.07)***
Prior ROA	0.99	(0.04)**	0.99	(0.04)**
Prior positive surprises	1.87	(0.16)***	1.87	(0.16)***
Prior negative surprises	1.48	(0.13)***	1.45	(0.13)***
Prior meeting estimates	0.80	(0.13)	0.80	(0.13)
Prior high reputation	0.97	(0.09)	1.23	(0.15)†
Prior celebrity	1.03	(0.18)	1.05	(0.18)
High reputation			0.48	(0.29)**
Celebrity			1.60	(0.24)*
Log-likelihood	−1,396.22		−1,389.89	
Wald chi-square	252.76***		261.67***	

[a] n = 2,800. Industry and year dummies were included in analyses but are omitted from the table. Control variables are lagged ($t - 1$).
[b] Logged.
† $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

TABLE 3
Results of Random-Effects Logistic Regression Predicting Negative Earnings Surprises[a]

	Model 1		Model 2	
Variables	**Odds Ratio**	**s.e.**	**Odds Ratio**	**s.e.**
Average trading volume[b]	0.92	(0.05)	0.92	(0.05)†
Shares outstanding[b]	1.16	(0.09)*	1.17	(0.09)*
Sales[b]	0.74	(0.09)**	0.74	(0.09)**
Assets[b]	1.39	(0.16)**	1.38	(0.16)**
Number of analysts[b]	0.74	(0.07)**	0.74	(0.07)**
Prior ROA	0.99	(0.00)**	0.99	(0.00)
Prior positive surprises	1.17	(0.10)†	1.17	(0.10)†
Prior negative surprises	1.56	(0.14)***	1.55	(0.14)***
Prior meeting estimates	0.97	(0.13)	0.97	(0.13)
Prior high reputation	0.98	(0.08)	1.04	(0.12)
Prior celebrity	0.85	(0.16)	0.89	(0.17)
High reputation			0.83	(0.19)
Celebrity			0.77	(0.20)
Log-likelihood	−1,435.11		−1,434.24	
Wald chi-square	179.48***		180.79***	

[a] n = 2,800. Industry and year dummies were included in analyses but are omitted from the table. Control variables are lagged ($t - 1$).
[b] Logged.
† $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

sion significantly improved the fit of the model. For negative surprises, high reputation had a marginally significant positive relationship with abnormal returns ($b = 1.79$, $p < .10$), celebrity had no significant relationship, and the inclusion of these variables did not significantly improve the model's fit.

We also investigated whether endogeneity due to unobserved variables might have influenced our results. Using Bascle's (2008) criteria to select the appropriate estimation approach, we employed a Heckman correction model (Hamilton & Nickerson, 2003; Heckman, 1979). We included predictor variables in the first-stage models that were significantly associated with the likelihood of positive and negative surprises, but not with the CARs. The first-stage models were highly significant in predicting the likelihood of positive and negative surprises, but the selection correction instrument was not significant when entered into the second-stage models. Thus, endogeneity did not appear to be a significant problem in our study (Bascle, 2008; Mesquita & Brush, 2008; Tong, Reuer, & Peng, 2008).

DISCUSSION

The goal of this study was to contribute to the large body of organizational and strategy research on intangible assets by specifying how two distinct types of social approval assets—reputation and celebrity—affect firms' propensities to surprise investors and investors' reactions to these surprises. We developed novel theoretical arguments about the mechanisms through which the possession of these assets may affect firm outcomes and investors' responses and tested the predicted empirical relationships that we based on these theoretical arguments.

TABLE 4
Differences between CARs by Category for Material Positive Surprises[a]

Category Comparison	*n*	Mean CAR	Difference[b]
High reputation	54	2.30%	0.56%*
None	638	1.74%	
Celebrity	42	3.32%	1.58%***
None	638	1.74%	
High reputation	54	2.30%	−1.02%*
Celebrity	42	3.32%	

[a] We used the market-adjusted returns model and the CRSP value-weighted index. CARs are for a three-day window (−1, +1). The "none" category contains firms labeled 0 on reputation and celebrity.

[b] The difference between the mean CAR in each category is shown (e.g., 2.30% − 1.74% = 0.56%). Significance was determined by a *t*-test of unequal variances.

* $p < .05$
*** $p < .001$

Specifically, we examined how the possession of high levels of reputation and celebrity influenced the likelihood that firms announced positive and negative material earnings surprises. We then compared the reactions of investors to these different types of surprises when they were generated by firms that had either high reputation or celebrity. Our findings are consistent with our theoretical arguments predicting that high-reputation firms are less likely and celebrity firms are more likely to announce positive material earnings surprises than are other firms; however, the possession of these assets did not affect the propensity for announcing negative surprises. Second, firms possessing either high reputation or celebrity experience greater rewards for positive surprises and smaller penalties for negative surprises than firms that do not possess these assets. Third, the positive returns to celebrity firms are greater than the positive returns to high-reputation firms for positive surprises, but there is no difference in their effects on investor responses to negative surprises. Taken together, these theoretical ideas and empirical results advance research on the effects of social approval intangible assets in several important directions.

TABLE 5
Differences between CARs by Category for Material Negative Surprises[a]

Category Comparison	*n*	Mean CAR	Difference[b]
High reputation	63	0.42%	1.01%*
None	648	−0.59%	
Celebrity	23	0.36%	0.95%***
None	648	−0.59%	
High reputation	63	0.42%	0.06%
Celebrity	23	0.36%	

[a] We used the market-adjusted returns model and the CRSP value-weighted index. CARs are for a three-day window (−1, +1). The "none" category contains firms labeled 0 on reputation and celebrity.

[b] The difference between the mean CAR in each category is shown (e.g., 0.42% − [−0.59%] = 1.01%). Significance was determined by a *t*-test of unequal variances.

* $p < .05$
*** $p < .001$

Contributions to Research on Intangible Assets

A central contribution of our study is that it is the first that we are aware of to empirically examine the differences between firm reputation and celebrity and to operationalize celebrity as defined by Rindova et al. (2006). Although prior research has often treated firm celebrity as synonymous with firm visibility (e.g., Ashforth & Gibbs, 1990; Brooks, Highhouse, Russell, & Moore, 2003; Sutton & Galunic, 1996), the theory of firm celebrity advanced by Rindova and her colleagues suggests that celebrity is a distinct intangible asset based on a combination of high levels of public attention *and* positive affect. Our results support these arguments and show that the combination of these components yields a distinct and valuable intangible asset. Further, by developing an empirical measure that captures both components of celebrity, our study provides a finer-grained analysis of the distinctive mechanisms through which different social approval assets affect firm outcomes.

Given the differences we theorized in the nature of the social approval generated by reputation and celebrity, as well as the different pattern of effects observed for each asset in our empirical results, our study suggests that equating either asset with simple visibility is problematic. Because visibility has been identified as a component of both high reputation and celebrity (Fombrun & Shanley, 1990; Rindova et al., 2006), we explored whether visibility alone could account for the effects of reputation and celebrity we report. In analyses not reported here, we followed the previously described procedures used to construct our celebrity measure and created a new category for firms that scored in the top quartile for visibility *only* each year and compared the mean CARs for firms in this category with the mean CARs for firms in the high-reputation and celebrity categories. The mean CAR for high visibility was significantly lower than the CAR for celebrity for both positive (1.38 percent vs. 3.32 per-

cent) and negative (−1.27 vs. 0.36 percent) surprises. The same pattern was observed for the difference in CARs between high-visibility and high-reputation firms: The mean CARs for high-reputation firms were significantly higher for both positive (1.38 percent vs. 2.30 percent) and negative (−1.27 percent vs. 0.42 percent) surprises. These results support our contention that the effects of reputation and celebrity are distinct from those of high visibility.

Also, because this is the first empirical operationalization of Rindova and colleagues' (2006) definition of celebrity, we checked whether the other component of celebrity—positive affect—could alone account for the effects of celebrity. In analyses not reported here, we compared the mean CAR for high-positive-affect only firms with the mean CAR for celebrity firms. The mean CAR for high positive affect was significantly lower than the mean CAR for celebrity (2.09 percent vs. 3.32 percent) for positive surprises, but it was not significantly different for negative surprises (0.09 percent vs. 0.36 percent). These results provide additional support for the argument that the value of celebrity is greater than the value of either of its constituent components and suggest the importance of future research investigating the specific perceptual components of intangible assets.

A second important contribution of our study lies in providing further evidence for the need to recognize and understand the role of affect in markets (e.g., Tetlock et al., 2008; Westphal & Clement, 2008). A particularly intriguing aspect of our findings is that investors react more positively to positive surprises by celebrity firms than to positive surprises by high-reputation firms; yet this relationship is not observed for negative surprises. These results suggest there are specific conditions under which affect-based social approval provides greater benefits and highlight the importance of future research continuing to explore the affective processes involved in firm evaluations and systematically assessing the strategic benefits and costs of affect-based evaluations in markets.

A third contribution of our study is that it provides empirical evidence that different intangible assets have different effects on firm outcomes in different contexts and that these effects are consistent with the theoretical arguments explaining how these assets are developed and how they influence stakeholder sensemaking about firms. These findings have two important implications for the large body of management research focused on understanding the performance effects of intangible assets. First, they open up an important direction for future research by articulating how the differences in the behaviors though which these assets are gained may subsequently affect firm outcomes by making certain types of behaviors more or less likely. Whereas most research on the performance effects of intangible assets has focused on how they affect the behaviors of other market actors, our study suggests that future research needs to address how intangible assets may influence firm outcomes by affecting the behaviors of the firms possessing the assets. Second, our study refines prior research on the effects of intangible assets on the behavior of other market actors by examining how these assets influence behaviors for both positive and negative instances of the same type of outcome. Specifically, our findings suggest that celebrity appears to enhance the benefits of good news more than reputation does, but reputation may provide a marginally significant buffering effect in the case of negative surprises. Although our results do not provide clear statistical support for all of our theoretical arguments—especially those predicting outcomes related to negative surprises—they point to the importance of future research continuing to refine understanding of how different intangible assets affect market actors' reactions to important firm outcomes under different conditions.

Indeed, our results suggest that making clear distinctions in terms of the intangible assets studied may be critical for reconciling contradictory findings about their effects. For example, whereas some researchers have found generally positive buffering effects that reduce the consequences of a negative event (e.g., Godfrey, Merrill, & Hansen, 2009; Jones, Jones, & Little, 2000; Schnietz & Epstein, 2005), others have shown that intangible assets can be a "double-edged sword" exacerbating the consequences of the negative event (Brooks et al., 2003; Rhee & Haunschild, 2006; Sutton & Galunic, 1996; Wade et al., 2006). Comparing our results with those of Rhee and Haunschild's (2006) intriguing study on the liability of a good reputation in the context of product recalls is instructive in this regard. Whereas their study focused on the effects of *product reputation,* ours focuses on *firm reputation*. As Hall (1992) showed, managers view product and firm reputation as two distinct intangible assets; and as Rindova and her colleagues (2005) showed, a firm's reputation for quality and its general prominence have distinct effects on performance outcomes. Therefore, we believe that to gain greater insights into the mechanisms through which intangible assets provide competitive advantages, it is important for scholars to develop theory and research designs that precisely specify and capture the type of intangible asset studied and the context within which its effects are investigated.

In support of our last point, we would like to note

that our empirical approach to capturing the affective aspect of media coverage in more than 42,000 articles makes a contribution to researchers seeking to study specific cognitive and emotional aspects of collective perceptions. Advanced content analysis techniques like those presented in this article can help bridge the gap between large-sample archival research, which may suffer from internal validity issues, and small-sample research, which allows for the collection of primary data and in-depth analyses but may suffer from external validity problems (Duriau, Reger, & Pfarrer, 2007). Analyzing the emotional content of a firm's press releases, media coverage, or stakeholder blogs can enhance archival research (which has been criticized for failure to provide insight into cognitive processes), while maintaining the advantages of using large samples.

Some of the limitations of our study also provide opportunities for future research. In this study, we explored the effects of intangible assets on one specific unexpected type of event—a material earnings surprise. Although having the advantage of enabling us to examine the effects of both positive and negative outcomes of the same type of event, focusing on a single event type has the disadvantage that surprises can result from internal causes as well as from external causes beyond a firm's control. Perceived firm control, however, may affect how stakeholders make sense of an event because of the different attributions they may make. Therefore, future research that compares the effects of reputation and celebrity on responses to events that vary in the extent to which they are under the firm's control will be important. For example, events that result from more clearly identifiable internal causes, such as earnings restatements resulting from material accounting errors, product recalls, and environmental compliance failures, or illegal actions on the part of management (Mishina, Block, Dykes, & Pollock, 2010; Pfarrer, Smith, Bartol, Khanin, & Zhang, 2008) are all excellent contexts for advancing research in the area further.

We also did not investigate the content of impression management accounts provided to explain or justify earnings surprises by either firms or the media. Such accounts can influence investor sensemaking (Elsbach, 2003), and researchers should seek to understand their effects in future work. Given that firms and the media are likely to have different "source credibility" in providing these accounts and that reputation and celebrity may interact with source credibility, future research might compare the effects of firm- and media-generated impression management accounts for firms that possess these assets to varying degrees. Such research could advance understanding of the role of these intangible assets in the dynamics of market-level communications.

Further, future studies that focus directly on the processes that we theorized but were unable to test directly could advance understanding of the mechanisms through which these intangible assets affect the outcomes we studied. Although our results are consistent with our theory-based predictions, our data did not allow us to directly assess the extent to which reputation and celebrity provide investors with the type of collective interpretive frames that our theory suggests. Although we recognize that this "black-box" approach is relatively common in research using archival data, we encourage researchers to also employ experimental or observational methods to develop a greater understanding of the use of reputation and celebrity as different interpretative frames.

Finally, our study focused on a specific stakeholder audience—investors. Doing so allowed us to control for a variety of factors and was consistent with our focus on a particular event that would matter to these stakeholders, but future research should investigate the relationships we consider as they relate to other stakeholder groups, such as government actors, regulators, nongovernmental organizations, employees, and a firm's customers. Different stakeholder groups may react differently to different types of events (Pfarrer, DeCelles, Smith, & Taylor, 2008), and their interpretations may be affected differently by firm reputation and celebrity. Researchers could use other measures of stakeholder reactions to firms' legal and illegal outcomes, such as regulatory sanctions, boycotts, turnover, and lawsuits, to establish the effects of social approval assets with different stakeholder groups and to contribute to the development of a more generalizable theory of intangible assets based on social approval.

Contributions to Practice

Our study also has implications for managers. Whereas much of the research on intangible assets has focused on assets that firms "own," we draw attention to social approval assets, which managers may overlook because they are not associated with clearly established property rights. Yet, as we argued, these assets reflect different patterns of firm behavior, and as a result provide stakeholders with different types of interpretative frames. One implication of our argument is that when managers engage in a particular style of strategic action—bold versus steady, for example—they are not only pursuing a specific course of action, but are also generating perceptions that stabilize in different collective interpretative frames and tend to have more lasting consequences than managers may envision. Although these ideas

may appear abstract when discussed theoretically, we provide empirical evidence that the two types of social approval assets we examined, high reputation and celebrity, have demonstrably distinct effects on both firm outcomes and investors' reactions. This is an important result from the perspective of managers, because perceptions are often discounted as either epiphenomenal or too idiosyncratic to be managed in market contexts. Our study emphasizes and demonstrates not only that perceptions do matter, but also that different types of perceptions have different effects and that these effects can be predicted theoretically.

Our findings are particularly noteworthy in their implications for understanding the value of the various phenomena often grouped together as "stakeholder perceptions." For example, our analyses provide clear evidence that all social approval is not equal and that different types of social approval may be more or less valuable in "good times" and in "bad times." In addition, in examining visibility (not specifically the focus of our study), we found that visibility alone may not be a good thing. In contrast to the old dictum that "there is no such thing as bad publicity," the results of our study are more consistent with the view that, absent wide recognition for a firm's ability to create value or positive emotional resonance, visibility may not be beneficial. The important managerial implication of this distinction is that if a firm pursues media visibility, it should have a clear understanding of whether, and how, this visibility will generate either positive emotional resonance or broad recognition of its ability to create value. The latter point is important in the light of the observation that very few firms in our sample enjoyed high reputation and celebrity simultaneously. Coupled with our results, this observation points to the importance both of managers understanding the type of social approval they seek to gain for their firms and of researchers specifying which intangible asset they are investigating.

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APPENDIX
Robustness Check

TABLE A1
Results of GEE Regression Analysis Predicting Three-Day CARs for Earnings Surprises[a]

	Positive Surprises		Negative Surprises	
Variables	**Model 1**	**Model 2**	**Model 1**	**Model 2**
Average trading volume[b]	0.15 (0.30)	0.15 (0.30)	−0.14 (0.21)	−0.12 (0.21)
Shares outstanding[b]	0.15 (0.41)	0.09 (0.41)	−0.18 (0.29)	−0.26 (0.30)
Sales[b]	1.49 (0.68)*	1.47 (0.68)*	1.13 (0.52)*	1.10 (0.52)*
Assets[b]	−1.87 (0.67)**	−1.83 (0.67)**	−0.64 (0.50)	−0.56 (0.51)
Number of analysts[b]	−0.05 (0.54)	−0.02 (0.54)	−0.10 (0.40)	−0.11 (0.40)
Prior ROA	0.03 (0.02)	0.04 (0.02)	0.02 (0.02)	0.21 (0.02)
Prior positive surprises	0.05 (0.50)	0.08 (0.50)	0.36 (0.41)	0.34 (0.42)
Prior negative surprises	0.26 (0.55)	0.37 (0.55)	1.09 (0.37)**	1.10 (0.37)**
Prior meeting estimates	0.16 (0.98)	0.23 (0.97)	−0.16 (0.65)	−0.17 (0.65)
Prior high reputation	−0.18 (0.53)	−1.04 (0.72)	0.72 (0.39)†	0.16 (0.52)
Prior celebrity	−0.21 (0.94)	−0.70 (0.95)	0.14 (0.81)	−0.27 (0.84)
High reputation		2.74 (1.40)*		1.79 (1.10)†
Celebrity		2.44 (1.24)*		1.60 (1.28)
Wald χ^2	67.25†	76.04*	121.83***	124.92***

[a] Standard errors are in parentheses. $n = 651$ for positive surprises; $n = 646$ for negative surprises. Industry and year dummies were included in analyses but are omitted from tables. Control variables were lagged ($t - 1$).

[b] Logged.

† $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$

Two-tailed tests.

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