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**SAFE BETS OR HOT HANDS? HOW STATUS AND CELEBRITY INFLUENCE
STRATEGIC ALLIANCE FORMATIONS BY NEWLY-PUBLIC FIRMS**

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ABSTRACT

Social approval assets are intangible assets that derive their value from favorable stakeholder perceptions. Past research has focused primarily on their role as signals that reduce stakeholders' perceived uncertainty about the firm. However, social approval assets can also serve as frames that influence how other information is interpreted. We theorize how the frames associated with two social approval assets—status and celebrity—influence the interpretation of equivocal information about newly public firms. Specifically, we examine how each frame influences the way underpricing is interpreted, and how these interpretations, as well as the joint effects of status and celebrity, influence newly public firms' strategic alliance formations. We explore these ideas in the ambiguity-ridden context of newly-public “Dot-Com” firms during the commercial dawn of the Internet. Our findings generally support our arguments, providing new theory and evidence about the framing effects of social approval assets with different socio-cognitive content and the dynamics of information and frame (in)congruence. Our findings also have implications for understanding the role of frames in shaping information interpretation in ambiguous situations.

The last fifteen years have seen an explosion of interest in social approval assets—intangible assets that derive their value from favorable stakeholder perceptions (Pfarrer, Pollock, & Rindova, 2010)—including status, reputation, legitimacy, and celebrity (e.g., Rindova, Pollock, & Hayward, 2006; for reviews see Barnett & Pollock, 2012; Deephouse & Suchman, 2008; Sauder, Lynn, & Podolny, 2012). Social approval assets influence how stakeholders engage with the firm (Rindova, Williamson, Petkova, & Sever, 2005), how they evaluate its actions and outcomes (Pfarrer et al., 2010), and whether they exchange resources with it (Pollock & Gulati, 2007; Rindova & Fombrun, 1999).

A sizable body of work has emphasized the role of social approval assets as signals that convey private information and reduce information asymmetries about the firm's otherwise unobservable quality, thereby reducing perceived uncertainty about the firm (Benjamin & Podolny, 1999; Connelly, Certo, Ireland, & Reutzel, 2011; Stern, Dukerich, & Zajac, 2014). More recently, scholars have begun considering the effects of social approval assets on stakeholders' perceptions that extend beyond reducing information asymmetries by arguing that social approval assets also serve as *frames* that affect how *other* information is interpreted (Fiss & Hirsch, 2005; Pfarrer et al., 2010; Smith, 2011).

Social approval assets can serve as interpretative frames because they are social constructions that arise from varying cognitive appraisals and affective responses to different organizational attributes and behaviors. For example, Pfarrer and colleagues (2010) argued that reputation reflects positive appraisals of a firm's ability to reliably deliver valued outcomes, whereas celebrity reflects positive appraisals of exciting, non-conforming behavior. These different cognitive appraisals and associated expectations constitute the social approval assets' *socio-cognitive content* and provide the basis for their different framing effects. However,

whether frames influence observers' interpretations depends on their perceived applicability (Eagly & Chaiken, 1993), raising questions about when different social approval asset frames are more applicable and therefore more influential, and how frame incongruence affects interpretations.

To address these questions, we consider how status and celebrity affect the interpretation of equivocal information, and whether their joint possession results in frame incongruence. We focus on status and celebrity because their different socio-cognitive content leads to different interpretative effects. We focus on equivocal information because its "multiplicity of meaning" (Daft & Macintosh, 1981: 211) promotes multiple interpretations (Rothman, Pratt, Rees, & Vogus, 2017), enabling us to explore how different frames influence the relationship between interpretation and action. We further focus on frame incongruity because conflicting frames create "interpretative uncertainty" (Weber & Mayer, 2014: 1477) that reduces the otherwise positive effects of each frame and increases the costs of market exchanges (Weber & Mayer, 2014). Studying the effects of two social approval assets that generate incongruent frames allows us to test this argument, and consider whether possessing multiple social approval assets could reduce the benefits of possessing one of them alone.

We explore these ideas in the ambiguity-ridden context of newly-public "Dot-Com" firms during the commercial dawn of the Internet. Specifically, we consider how newly public firms' status and celebrity influence the effects of the underpricing they experience during their initial public offerings (IPOs) on their subsequent ability to form strategic alliances. We focus on underpricing because it is a complex market outcome that combines uncertainty reduction and investor excitement. As such, it provides equivocal information that can be interpreted in different ways at different levels, depending on the frame applied. Specifically, underpricing

enables us to test our theoretical prediction that each frame will enhance those aspects of the equivocal information that are congruent with the frame's socio-cognitive content.

The commercial dawn of the Internet is a useful context because such ambiguous environments lack consensus regarding which information is important and how to interpret it (Santos & Eisenhardt, 2009; Rindova, Ferrier & Wiltbank, 2010).¹ As Kaplan (2008: 729) noted, “Where the basic meaning of the situation is up for grabs, information from the environment cannot be comprehended as a set of easily recognizable signals.” In ambiguous situations, *information interpretation* rather than information acquisition is the central process that enables evaluation and action (Rindova et al., 2010). The extreme ambiguity and “irrational exuberance” (Shiller, 2015) of the commercial Internet's early days also enabled us to examine equivocal information with both analytical and emotional components. This is important, as research in management and finance has acknowledged the effects of emotions on markets (e.g., Haack, Pfarrer & Scherer, 2014; Pfarrer et al., 2010; Seo, Goldfarb & Barrett, 2010); however, the specific factors affecting how they shape market outcomes remain poorly understood. Further, in this ambiguous context, high-status affiliations (Pollock, Chen, Jackson, & Hambrick, 2010) and the media coverage that created celebrities (Petkova, Rindova, & Gupta, 2013; Pollock & Rindova, 2003; Pollock, Rindova, & Maggitti, 2008) were critical to start-ups. Other social approval assets, such as reputation, were unavailable to start-ups that had yet to establish significant records of performance (Demers & Lewellen, 2003) and other firm characteristics were unreliable indicators of firms' prospects (Trueman, Wong, & Zhang, 2000).

Finally, we focus on strategic alliance formations because alliances provide important resources to newly-public firms and require substantive and relatively durable resource

¹ We use the term “ambiguity” to describe our research context because the range of relevant firm and industry characteristics necessary for success were unclear, and we use “uncertainty” to describe actors' concerns about unobservable quality that affects decisions whether to form strategic alliances.

commitments (Pollock & Gulati, 2007; Stern, et al., 2014). They thus enable us to examine the framing effects of social approval assets on decisions that involve more significant commitments and longer time horizons than those considered in prior research (e.g., Pfarrer et al., 2010).

We extend the nascent body of research on social approval assets as interpretive frames (i.e., Pfarrer et al., 2010; Plummer, Allison, & Connelly, 2016; Stern et al., 2014) by considering the effects of their congruence and incongruence, both relative to equivocal information cues and to each other. We also show that these interpretative interactions affect market exchanges with long-term consequences for newly public firms. Prior research either has not theorized framing effects at all (Plummer et al., 2016), or has focused on framing unequivocal information and short-term investor responses (Pfarrer et al., 2010). To the degree that it has explored incongruence, it has done so only for high and low values of the same type of social approval asset, and not between different social approval assets (Stern et al., 2014). Our theory about the differences in socio-cognitive content and congruence among social approval assets offers a broader framework for studying their framing effects.

THEORY AND HYPOTHESES

Status and Celebrity as Interpretive Frames

Interpretive frames are “principles of organizing and assigning meaning” that result from “social construction” and lead to a “common cognitive understanding” (Cornelissen & Werner, 2014: 197). They selectively increase the salience of certain aspects of perceived reality and promote particular patterns of interpretation (Cornelissen & Werner, 2014). Frames therefore do not reduce information asymmetries as signals do; rather, they provide interpretive lenses that influence how stakeholders attend to and use *other* information (Fiss & Hirsch, 2005; Pfarrer et al., 2010). Smith (2011: 62) offered a helpful analogy for understanding interpretative frames as

“lenses,” noting that “just as two lenses that vary in shape can receive identical beams of light and yet refract that light in markedly dissimilar ways, equivalent information may be differentially interpreted and reacted to” when viewed through different interpretive frames.

Viewing status and celebrity as interpretive frames enables us to account for how their different socio-cognitive content affects stakeholders’ interpretations of other information about a firm. It recognizes that the accumulated information associated with each asset is organized in collective schemas (Rindova & Fombrun, 1999) that filter information about the firm along particular dimensions. Further, these framing effects are heuristic, as they can be largely or wholly unconscious, and individuals may be unaware of, and even deny, that they are occurring (Kim & King, 2014). For example, Kim and King (2014) showed that major league baseball umpires tended to “expand” the strike zone for high-status pitchers—making them more likely to call pitches that were balls strikes, and less likely to call strikes balls—all while believing that they were showing the high-status pitchers no undue preference.

Research on status and celebrity provides the bases for understanding the differences in their socio-cognitive content. Sauder and colleagues (2012: 268) stated that “Status, for organizations as well as individuals, is broadly understood as the position in a social hierarchy that results from accumulated acts of deference.” They further noted that “a central thesis of organizational research is that a firm’s status (and implicitly the deference to that firm) is influenced by the status of the entities with whom the firm affiliates.” Thus, the socio-cognitive content of status is grounded in observers’ perceptions that a firm is favored by other high-status actors based on its observable patterns of affiliation (Gould, 2002; Sauder et al., 2012). In analyzing patterns of affiliation, some scholars emphasize the importance of a firm’s network position as a status indicator (Lynn, Podolny, & Tao, 2009; Podolny, 1994), while others stress

the importance of high-profile relationships (Pollock et al., 2010; Stuart et al., 1999). For the newly public firms we study, affiliations with high-status venture capitalists and underwriters are critical for gaining status and engendering perceptions of quality, value, and ability (Higgins & Gulati, 2003; Pollock et al., 2010). For example, in our setting, 1-800-Flowers was funded by rising-star VC Benchmark Capital and taken public by underwriter Goldman Sachs; and Netscape Communications, the company whose IPO launched the Dot-Com Era, was funded by the powerhouse Silicon Valley VC firm Kleiner, Perkins, Caufield, and Beyers and taken public by underwriter Morgan Stanley.

The socio-cognitive content of status draws attention to relationships and relative social standing, emphasizing that high-status actors' merits have been vetted by others. Thus, it provides an analytical frame that increases the salience of the level, nature, and implications of the focal actor's affiliations (Azoulay, Stuart, & Wang, 2014). This frame shapes how other information is assessed by focusing attention on information about relationships and the access they can provide to valuable resources (Podolny, 2001).

Rindova and colleagues (2006) defined celebrity as commanding high levels of public attention and positive emotional responses from stakeholder audiences. It is generated by the media's dramatic representations of firms' strategies as unconventional and exciting to audiences, even if they do not fully understand what those things are or how they create value (Rindova et al., 2006). These dramatic representations make focal the attention the firm enjoys, and the perception that it is interesting and popular. Celebrity's socio-cognitive content is based on affect-laden representations of firms engaged in non-conforming actions, often linked to visionary leaders and quirky cultures, without necessarily identifying specific capabilities or accomplishments. For example, Rindova and colleagues (2006) recounted how Yahoo's quirky

office décor and culture—which included Nerf hoops, fake palm trees, and employees bringing their dogs to work—and practices such as paying employees to paint Yahoo’s logo on their cars (and one employee getting the logo tattooed on his derriere) were part of the media’s breathless accounts about the firm and its founders. Celebrity can play a particularly important role in ambiguous contexts where affect serves as “a necessary bridge across the unexpected and the unknown” (Finucane et al., 2003: 341).²

To summarize, status and celebrity provide interpretive frames with different socio-cognitive content that heuristically influence stakeholders’ interpretations of other information in different ways (Graffin, Bundy, Porac, Wade, & Quinn, 2013; Pfarrer et al., 2010; Zavyalova, Pfarrer, Reger, & Shapiro, 2012). Extending the lens analogy discussed earlier, bifocal glasses exist because near and distant stimuli are better seen through different lenses. Our interest is in understanding not only whether different lenses lead to different perceptions of the same stimuli, but also whether frame incongruence weakens the effects of both frames, which is akin to using both lens corrections simultaneously.

Research Context

The emergence of the Internet as a commercial space in the mid-1990s created both a highly ambiguous environment regarding what kinds of companies would ultimately be successful, and great deal of excitement about its disruptive potential (Hendershott, 2004; Pollock, Fund, & Baker, 2009; Rindova et al., 2010). Between 1995 and 2000 thousands of Internet start-ups raised billions of dollars to pursue opportunities in this sector (Hendershott, 2004). In contrast to prior eras, most of the companies that went public had limited revenues, significant losses, and untried business models (Trueman et al., 2000); however, they also had

² As Finucane and colleagues (2003: 343) explained, “Readily available affective impressions can be easier and more effective [to use] than weighing the pros and cons of various reasons...especially when the required judgment or decision is complex.”

promising markets and exciting new ways of reaching consumers (Rindova, Petkova, & Kotha, 2007). The extreme ambiguity, opportunity, and “irrational exuberance” (Shiller, 2015) of the era led to unprecedented numbers of initial public offerings (IPOs) with average first-day changes in stock price (i.e., underpricing) that were five times larger than in prior periods (Aggarwal, Krigman, & Womack, 2002; Pollock & Gulati, 2007).

Although IPOs brought legitimacy to Internet start-ups (Pollock & Rindova, 2003), substantial uncertainty remained about their future prospects (Pollock et al., 2009). Their short histories and poor conventional performance metrics prevented these new firms from developing strong reputations (Demers & Lewellen, 2003). High-status affiliations played a significant role in helping them garner resources (Gulati & Higgins, 2003; Pollock & Gulati, 2007); and the public’s fascination with the commercial promise of the Internet also provided significant levels of media attention (Hendershott, 2004), facilitating the creation of celebrity firms. Thus, this time period (known as the “Dot-Com Era”) offers a rare opportunity to isolate the effects of status and celebrity on newly public firms’ access to resources.

Strategic Alliances

A strategic alliance is “any voluntarily initiated cooperative agreement between firms that involves exchange, sharing or co-development, and can include contributions by partners of capital, technology, or firm-specific assets” (Pollock & Gulati, 2007: 341). Strategic alliances provide key resources that newly public firms need to continue growing (Lavie, 2007; Pollock & Gulati, 2007; Stern et al., 2014). Alliance partners, in turn, see new firms as a source of access to technologies and markets that can provide a degree of nimbleness and adaptability in fast-changing environments (Rindova, Martins, Yeow, & Faraj, 2012).

Obtaining the benefits of alliances, however, involves resolving a wide range of uncertainties about the partners' resources, capabilities, and collaborative processes (Lavie, 2007). For example, Pollock and Gulati (2007: 341) argued that a newly public firm's access to strategic alliances "is dependent in part on its visibility within the industry, the perception that it has something useful to offer partners, and the expectation that the firm will be able to deliver on its commitments in the future." Potential alliance partners resolve these uncertainties through prior experience, relationships with other firms that have formed alliances with the potential partner (Gulati & Gargiulo, 1999), and observed affiliations, especially with high-status others (Stern et al., 2014). While the signaling effects of social approval assets can play a key role in reducing potential alliance partners' perceived uncertainty (Pollock & Gulati, 2007; Stern et al., 2014), below we consider their effects as interpretive frames by examining how they influence their interpretation of underpricing.

Interpreting Equivocal Information through Congruent Frames

In the IPO context, the amount of underpricing that an IPO firm experiences represents important but equivocal information that significantly affects stakeholders' perceptions of the firm (Demers & Lewellen, 2003; Pollock & Gulati, 2007; Pollock et al., 2008). Equivocal information is defined by the multiplicity of interpretations that it prompts (Daft & MacIntosh, 1981). Daft and MacIntosh (1981) originally used the concept to describe various organizational tasks. Subsequent studies have noticed the lack of attention to equivocality (which focuses on interpretation), and the pervasive attention to uncertainty (which focuses on information availability) in a variety of contexts ranging from downsizing (Love & Kraatz, 2009), to

technology innovation (Erikson, Patel & Sjodin, 2016), management control systems (Saka, Barti & Cote, 2016) and online product reviews (Weathers, Swain & Grover, 2015).³

Underpricing is equivocal information because it can simultaneously reflect lower uncertainty about a new firm's market value, *and* investor excitement about its future potential. Underpricing refers to the percentage change in stock price on the first day a stock trades on a public exchange (Ibbotson & Ritter, 1995). The level of underpricing is considered important information about a newly public firm because it is the first opportunity for the market to “price” the firm, and it reflects the difference between where a highly informed agent—the underwriter—and the market set the price for the firm's stock. Based on assumptions of market efficiency, finance scholars have argued that the amount of underpricing a firm experiences indicates investors' assessments of and uncertainty about the firm (see Ibbotson & Ritter [1995] for a review); low levels of underpricing therefore indicate less investor uncertainty, as the initial price is expected to be close to the firm's “true” market value.

However, high levels of underpricing have been “validated in the minds of many observers as perhaps one of the most important indicators of an IPO's success” (Pollock & Gulati, 2007: 345). Research has demonstrated that high levels of underpricing indicate firms' future potential and improve their access to a variety of resources and opportunities (e.g., Aggarwal et al., 2002; Cliff & Denis, 2004; Demers & Lewellen, 2003; Pollock & Gulati, 2007; Pollock, Lee, Jin, & Lashley, 2015; Pollock et al., 2008; Tsang & Blevins, 2015). Thus, the level of underpricing an IPO firm experiences is equivocal information because low levels of underpricing reduce perceived uncertainty about the “true” value of a firm relative to its offering

³ The interpretation of equivocal information in markets has received surprisingly little attention given its common nature. For example, does a sharp increase in stock price mean that the stock is at the beginning of a significant run and investors should buy, or that the stock is overvalued and they should short the stock? When an employee discloses unfavorable information about an employer, does that mean that she is standing up for certain values and wants to see her organization do better, or does that put the reputation of the organization at risk?

price (Ibbotson & Ritter, 1995), while high levels of underpricing are associated with investors' excitement about the firm's future potential (Pollock & Gulati, 2007; Pollock et al., 2008).

A wide variety of theories have been advanced to explain underpricing (Ibbotson & Ritter, 1995; Tsang & Blevins, 2015). Of relevance here, prior research has found a direct, positive relationship between underpricing and strategic alliance formations (Pollock & Gulati, 2007). Our arguments about the differences between status and celebrity as interpretive frames lead us to revisit this finding. We expect that status and celebrity will be more influential at different levels of underpricing, drawing attention to and magnifying the information content that is consistent with the frame's socio-cognitive content.

Prior research (Ibbotson & Ritter, 1995; Tsang & Blevins, 2015) has suggested that low levels of underpricing indicate low levels of uncertainty about the firm's value following more accurate analytical assessments by investors. Since status reflects cognitive appraisals that an IPO firm has been vetted by high-status others (Carter et al., 1998; Pollock et al., 2010), it is congruent with the interpretation of low levels of underpricing as an indicator of low levels of uncertainty about the IPO firm's value, enhancing perceptions that it is an appropriate, predictable, and potentially more valuable alliance partner.

Conversely, celebrity is more congruent with the excitement and potential conveyed by high levels of underpricing (Pollock & Gulati, 2007). Celebrity reflects cognitive appraisals that the IPO firm is doing unconventional things that excite audiences about its future potential. The positive affect and high expectations validate the positive emotions reflected in high levels of underpricing, increasing the firm's desirability as an alliance partner.

Overall, we thus expect that status will enhance the relationship between underpricing and alliance formations more when a firm experiences low levels of underpricing, and we expect

that celebrity will enhance the relationship between underpricing and alliance formations more when a firm experiences high levels of underpricing. We therefore hypothesize:

Hypothesis 1: Status will have a stronger positive effect on the relationship between underpricing and alliance formations by newly-public firms when underpricing is low than when underpricing is high.

Hypothesis 2: Celebrity will have a stronger positive effect on the relationship between underpricing and alliance formations by newly-public firms when underpricing is high than when underpricing is low.

The Joint Effects of Incongruent Frames

As interpretative frames, status and celebrity affect not only how other information is perceived and used, but also how possession of one asset affects the interpretation of the other. Prior research suggests that both status and celebrity directly increase stakeholders' willingness to exchange resources with a firm (Rindova et al., 2006; Sauder et al., 2012). Taking a framing perspective, however, suggests a more nuanced picture. Using the lens analogy discussed earlier, different kinds of lenses can provide "positive corrections," for example, by correcting nearsightedness or farsightedness. However, the effectiveness of one lens may be diminished if viewed through a lens with a different type of correction; that is, if the lenses are incongruent in the type of corrections they provide, their combined corrective effects would be negative.

Weber and Mayer (2014) developed the concept of interpretative uncertainty specifically to highlight the effects of frame misalignment on complex, uncertain transactions. While they emphasized misalignment of the contracting parties' frames, their argument that frame misalignment creates a distinct type of uncertainty that has independent effects on exchanges is relevant to understanding the effects of frame incongruence more generally. The authors explain, "...Like informational uncertainty, interpretive uncertainty impacts complex, interdependent transactions (e.g., co-creation of a new technology) more than simple purchases (e.g., a

university department buying paper clips) since the conflicting frames enhance preexisting ambiguity in these more complicated exchanges” (Weber & Mayer, 2014: 346). When a firm possesses both high status and celebrity, observers are presented with incongruent frames that create interpretative uncertainty about the assumptions and expectations that apply to the firm. As result, they may discount or discard information that is consistent with one frame but not the other. Political science research corroborates this idea with evidence that when individuals are exposed to “competing” (i.e., incongruent) frames, the influence of both frames on decision making is diminished (Chong & Druckman, 2007; Druckman, 2004).

Like lenses with different kinds of positive corrections, status and celebrity reflect positive audience evaluations that rest on different socio-cognitive content associated with different behaviors. Firms that become celebrities are more likely to engage in non-conforming actions with unpredictable outcomes (Pfarrer et al., 2010; Rindova et al., 2006) that may make them attractive protagonists for the media and audiences to follow, even if their performance lacks consistency and predictability (Pfarrer et al., 2010). High-status actors carefully guard their status positions by engaging in accepted behaviors consistent with their status position (Podolny, 1994). High-status affiliations therefore reflect a firm’s ability to form relationships with prominent and central actors, whose willingness to form these affiliations is presumed to reflect the quality and stability of the focal actor’s behaviors (Podolny, 1994). Thus, while we expect both status and celebrity will have positive direct signaling effects on alliance formations, we also expect that their joint possession will generate interpretative uncertainty because of the frames’ incongruence and diminish the positive influence of each, (Chong & Druckman, 2007; Druckman, 2004). We therefore hypothesize:

Hypothesis 3: Newly-public firms will form fewer strategic alliances when they possess both celebrity and high-status affiliations than when they possess one or the other.

METHODS

Sample

Our initial sample consisted of 359 U.S.-based Internet start-up firms that conducted their IPOs between 1995 and 2000. We gathered data from *Compustat*, firm proxy statements, the *Compact Disclosure SEC* database, *Securities Data Corporation Joint Ventures* database, and *LexisNexis*. Portions of this data have also been used in prior studies (Pollock, et al., 2009; Pollock & Gulati, 2007). Consistent with prior research, we defined an Internet firm as a company founded with the intention of using the Internet as the core of its business and its primary basis for generating revenues (Pollock & Gulati, 2007). Older firms that were not founded with the intention of doing business on the Internet, but later moved to the Internet, were not included. The 1995 to 2000 time period encompassed the emergence of the Internet as a commercial space, and the building and bursting of the dot-com bubble. After accounting for missing data, the final sample included 347 firms. T-tests confirmed that there were no differences in our initial and final sample across salient dimensions such as celebrity, status, underpricing, and the number of strategic alliances formed.

Dependent Variable

Post-IPO strategic alliances. We measured post-IPO alliances as the number of alliances a firm entered into during the first year after its IPO (Pollock & Gulati, 2007). We obtained these counts from the *Securities Data Corporation Joint Ventures* database. They include all forms of strategic alliances included in the database (e.g., marketing agreements, R&D alliances, product licensing agreements, and equity joint ventures).

Independent Variables

Status. We used two different relationships that are important for assessing newly public firms' status: venture capitalist status and underwriter status (Carter et al., 1998; Pollock et al., 2015). We identified whether the lead VC (that is, the VC who had the largest percentage equity stake in the company) had high status and whether a prestigious underwriter led the IPO.

We operationalized venture capitalist status based on the VC's centrality in syndication networks (Guler, 2007; Hallen, 2008; Podolny, 2001; Pollock et al., 2015). We used the VC status data employed by Pollock and colleagues (2015) to create our measure. Using all available data in the *Thomson Banker One Private Equity* database, Pollock and colleagues constructed one-year adjacency matrices for each VC firm. Each annual matrix included co-investment networks based on five-year moving periods starting in 1990 or the VC's founding year, if founded later than 1990. They used all available data when the firm was fewer than five years old. They measured centrality using Bonacich (1987) beta centrality—a measure that accounts for the centrality of the VC firm being assessed, as well as the centrality of the actors they are connected to. The beta value for this centrality measure sets how much of the network is accounted for when calculating centrality at each point; if the beta is set to zero, only the local network is considered. Larger betas reflect more of a network's global structure. Consistent with prior research, they set beta to 75 percent of the reciprocal of the largest eigenvalue (Bonachich, 1987) and used UCINET version 6.399 to calculate VC status.

Because our interest is in the presence or absence of specific categorical affiliations with high-status actors (Deephouse & Suchman, 2008; Pfarrer et al., 2010), we used this measure to identify the lead VC's status, and coded it 1 if the VC was in the top quartile of the VC status index the year the firm went public and 0 otherwise (Lee & Wahal, 2004).

Underwriter status was operationalized using a measure developed by Jay Ritter, which is a modified version of the measure first developed by Carter and colleagues⁴ (cf. Carter & Manaster, 1990; Carter et al., 1998) that has been used in recent research (Acharya & Pollock, 2013; Lee et al., 2011; Pollock & Gulati, 2007). The index ranges from 0 (low status) to 9 (high status). Again, because we are only interested in categorical high-status affiliations, consistent with prior research we coded high underwriter status as a 1 when the measure's value was greater than 8.75 and 0 otherwise (Pollock et al., 2010). We identified underwriters for the firms in our sample using the *SDC New Issues* database. Our overall measure of status equaled the sum of the two high-status affiliation indicators, creating a measure that ranged from zero (no high-status affiliations) to two (affiliations with both a high-status underwriter and a high-status VC).⁵ Based on this measure, 129 IPO firms (36%) had a status score of zero, 139 firms (39%) had a status score of one (46 had high VC status only, and 93 had high underwriter status only), and 91 firms (25%) had a status score of two.

Celebrity. Prior empirical research on firm celebrity has operationalized the construct as a combination of high levels of public attention and positive emotional responses from stakeholders (Pfarrer et al., 2010). Rindova and colleagues (2006), however, emphasized that celebrities are also more likely to be portrayed in the media as taking non-conforming actions. Therefore, in order to take this aspect of celebrity into account, we adapted the measure developed by Pfarrer and colleagues (2010) and operationalized celebrity as a binary indicator coded 1 if firms possessed all three of the following characteristics: 1) high public attention,

⁴ Carter and Manaster (1990) originally referred to this measure as underwriter "reputation." However, as others have noted (e.g., Acharya & Pollock, 2013; Podolny, 1994; Pollock et al., 2010) an investment bank's position in a tombstone announcement reflects its relative standing in a social hierarchy. Thus, measures based on tombstones are more accurately characterized as status measures, not reputation measures.

⁵ Our results are substantively the same if we dichotomize this measure, coding a firm as high status if it is affiliated with both high-status venture capitalists and underwriters and low status otherwise (i.e., if it is affiliated with one or the other, or neither).

operationalized as the count of media articles about a firm in a given year, 2) high levels of positive emotional resonance based on a content analysis of the articles, and 3) the use of non-conforming language by the media, assessed through a separate dictionary we developed.

We measured celebrity using articles published between 1995 and 2000 in a specialized media outlet—*Red Herring*—which had over 350,000 subscribers during our study period and was “the magazine considered a must-read among the technology elite” (Carr & Ives, 2002: C6). We chose this source based on research that found specialized industry media are more influential than the general media in influencing the perceptions of expert stakeholders (Adner & Kapoor, 2010; Petkova et al., 2013). For example, Petkova and colleagues (2013) argued and found that industry-specific media are more influential than the general media with expert audiences because they are better informed about young technology firms and emerging technological ecosystems. Adner and Kapoor (2010) made similar arguments regarding the development of new technologies.

Our LexisNexis search generated 6,006 articles published in *Red Herring* that we used for our analysis. We used this text corpus to assess each of our three criteria for celebrity. First, we assessed the volume of media coverage based on the total coverage of all the firms in our sample operating during a given year, and created a dummy variable called *high media coverage* that was coded 1 if a firm was in the top quartile of the number of articles about the firm in each year and 0 otherwise (Pfarrer et al., 2010).

Second, we measured the affective component of celebrity using the Linguistic Inquiry and Word Count (LIWC) 2007 software program, which counts and categorizes the number of words an article contains using over 80 pre-validated content categories (Pennebaker et al.,

2007). We used the positive and negative emotions categories from the LIWC dictionary⁶ and calculated the positive emotional content of each article as the ratio of positive affective words to total affective words (i.e., the sum of all positive and negative affective words from the LIWC dictionary). We used this ratio because articles may have high levels of both positive and negative words, and negative words can attenuate the influence of positive words (Pfarrer et al., 2010; Pollock & Rindova, 2003; Zavyalova et al., 2012). We then calculated the mean emotional positivity of all articles about a firm in a given year. The mean positivity represents the tenor of the firm's coverage in each year. Using these values, we created a dummy variable called *high positive affect* that was coded 1 if the mean positivity of a firm's coverage was greater than 75% in a given year and 0 otherwise. We employed a fixed cut-off because other approaches resulted in restricted lists of celebrities that lacked face validity. The 75% cut-off was also consistent with prior studies of positive media tenor in nascent Internet markets with similar time frames (Rindova et al., 2007). We explore alternative cut-offs in supplemental analyses below.

Third, we measured the non-conforming language employed in the media coverage by content analyzing the text corpus using a custom dictionary of non-conforming words that we created following the process described by Short and colleagues (Short, Broberg, Coglisier & Brigham, 2010). We defined non-conforming as: "to act against or in contradiction to the prevailing standards, attitudes, practices, etc., of society or a group" (The American Heritage Dictionary of the English Language, 2011). We identified key words based on this definition and used Rodale's (1978) *The Synonym Finder* to identify synonyms. We then employed a snowball approach whereby we found all the synonyms of each subsequent synonym until they clearly fell outside the definition of non-conforming. This process resulted in 94 candidate words for our dictionary. Five expert raters then assessed each word's match with the working definition of

⁶ Please refer to <http://www.liwc.net> for additional information on the validity of the LIWC dictionaries.

non-conforming using a five-point scale. There was strong agreement between the raters (ICC = 0.86). In the end, 29 words were retained. These words are provided in Appendix B.

We then calculated the percentage of non-conforming words in each firm's media coverage and created a dummy variable coded 1 if a firm's media coverage included a significant amount of non-conforming language. Word classes can vary in their degree of influence relative to their frequency of use. For example, negative words tend to be more influential than positive words; thus, a few negative words can overwhelm the influence of a greater number of positive words (Haack et al., 2014; Zavyalova et al., 2012). Following this logic, we expected non-conforming words to have a similar influence. Thus, firms only need to have a baseline level of non-conforming words to be considered non-conforming. We created a dummy variable, *non-conforming language*, that had a value of 1 if the firm's non-conforming language exceeded the 25th percentile of the sample, and zero otherwise.⁷

Finally, we created the dummy variable *celebrity*, coded 1 if a firm's high media coverage, high positive affect, and non-conforming language scores were all 1, and 0 otherwise. We coded firms as celebrities if they met these criteria in either the year of their IPO or the year prior to their IPO.⁸ This resulted in 72 celebrity firms, representing 20% of our sample. These celebrity firms were distributed relatively equally across each level of status. Nineteen celebrities were in the low-status category (e.g., Mapquest.com, Peapod, Salon, and Verticalnet), 27 were in the moderate-status category (e.g., Amazon, GeoCities, Priceline.com, and Yahoo!), and 26

⁷ Consistent results were found using a more restrictive cutoff of the 50th percentile of non-conforming words, but the number of firms identified as celebrities decreased by about a third. We also found consistent results if we use a less restrictive cutoff of the mere presence of non-conforming words.

⁸ We use both the year prior and the year of the IPO for two reasons. First, consistent with past theory and empirical findings (Pfarrer et al., 2010; Rindova et al., 2006), using only one or the other severely limited the variance in this measure, making statistical inferences difficult as firms were rarely coded as celebrities two years in a row. Second, alliance negotiations may have started in the year prior to the IPO year and culminated after the firm went public, or started and been culminated in the year a firm went public. We consider the implications of this decision in the Discussion.

celebrities were in the high-status category (e.g., Pets.com, E-loan, Healthon, and Infoseek). Further, 65 newly-public firms had high status, but were not celebrities (e.g., 1-800-Flowers, Ask Jeeves, CareerBuilder, and Netscape). This distribution and the low correlation between status and celebrity ($r = 0.13$) provide evidence of our measures' discriminant validity.

Underpricing. Underpricing was measured as the percentage change in stock price on the first day the stock was traded on a national exchange multiplied by 100 (Pollock & Rindova, 2003). We used the natural log of this measure to normalize the distribution. Because underpricing can take on negative values, we added .01 to the positive counterpart of the lowest underpricing value observed before transforming the measure (Pollock & Gulati, 2007). We mean-centered underpricing to reduce nonessential multicollinearity (Edwards, 2009).

Control Variables

Founder-CEO. Prior research has shown founder-CEOs significantly influence post-IPO outcomes (e.g., Certo, Daily, & Dalton, 2001; Fischer & Pollock, 2004; Nelson, 2003). We coded this variable 1 if the CEO was also the founder of the firm during the IPO and 0 otherwise.

Firm age. We controlled for the age of the firm, in years, to account for the potential linkages, resources, and legitimacy that might have arisen over time (Pollock & Gulati, 2007).

Board size. The more board members a firm has, the more connections the firm may have to potential audiences (Pfeffer & Salancik, 1978), including alliance partners. We measured board size as the number of board members identified in a company's prospectus.

Business type. Following prior research on Internet start-ups (Pollock et al., 2009), we controlled for three industry sub-segments in our sample: business-to-business (B2B), business-to-consumer (B2C), and infrastructure companies, using infrastructure as the omitted category.

IPO year. To control for the differences in period effects between the emergence of the Internet (1995–1998), the peak of the Dot-com Bubble (1999), and the bubble’s bursting (2000), we included dummy variables for 1999 and 2000. IPOs before 1999 were the omitted group.

California-based. Geographic distance has been shown to affect the likelihood of alliance formations (Reuer & Lahiri, 2014). Given the concentration of dot-com firms and high-status VCs in California, firms headquartered there might have had better access to potential strategic alliance partners. We therefore included a dummy variable coded 1 if the IPO firm was headquartered in California and zero otherwise.

Cash before IPO. We controlled for the level of cash that each firm had in the year prior to the IPO to account for the need to form alliances based on resource needs before the IPO.

IPO free cash flow. Few dot-com start-ups were profitable at the time of their IPOs, and many generated little or no revenue. Thus, conventional financial performance metrics such as sales and net income are uninformative in this context (Trueman et al., 2000). To assess firms’ financial conditions, we calculated their free cash flow, or the amount of cash generated from operations. We calculated free cash flow as the net change in cash from the year prior to the IPO to the year of the IPO. We collected the data for the year of the IPO from *Compustat* and the year prior to IPO from the IPO prospectuses. This value was winsorized at the one percent level to control for the effects of outliers. We show results based on a standardized “z-score” transformation of this control variable to ease interpretation.

Number of VC firms. Venture capital firms provide a young firm with access to resources (Hallen, 2008; Pollock & Gulati, 2007), including connections to potential alliances partners. We therefore controlled for the number of VC firms that backed each firm.

Pre-IPO alliances. Prior research suggests that firms with more pre-IPO alliances are more inclined to, and are more capable of, forming alliances post-IPO (Pollock & Gulati, 2007). We calculated this measure using the same data sources used to calculate post-IPO alliances.

Method of Analysis

Our dependent variable, post-IPO alliances, is a count variable. We therefore used negative binomial regression with robust standard errors for the initial stage of our analysis (Long, 1997). Since all our hypotheses focus on the predictors' relative effect sizes, these regression results alone were insufficient for testing our hypotheses because simple comparisons of coefficients based on our non-linear analysis would be misleading (Long, 1997). Since negative binomial regression lines are nonlinear, the confidence interval for identifying significance varies along the length of the curve. Thus, to test our hypotheses we used comparisons of predicted marginal estimates employing the *margins* command in the *spost13* package of Stata 14 (Long & Freese, 2014). This analysis compares the corresponding discrete change of the estimated effect size for different levels of predictors (Lee & Antonakis, 2014).

RESULTS

Table 1 presents the means, standard deviations, and correlations for our variables. The means and standard deviations were calculated using untransformed measures for ease of interpretation. While the correlations in our data are reasonably low, we tested for multicollinearity in our regressions using Variance Inflation Factors (VIF) and the condition number. We used linear regressions to calculate the VIF for each model; the results show a mean VIF of 1.39 and that no individual VIF was greater than 3.0, well below the recommended threshold of 10 (Cohen, Cohen, West, & Aiken, 2003). The condition numbers were less than 9,

well below the recommended threshold of 30 (Cohen et al., 2003). Thus, multicollinearity is unlikely to be an issue in our analyses.

Insert Tables 1 and 2 about here

As noted earlier, because our hypotheses focus on the relative effects of status and celebrity, they cannot be tested by simply examining the significance of the regression coefficients. However, regression models were a required first step for our analyses. Table 2 presents the results of our negative binomial regressions predicting post-IPO alliance formations. Model 1 includes the control variables, Model 2 adds the main effects of our independent variables, Models 3–5 test each interaction separately, and Model 6 presents the fully specified model. Table 2 provides the inputs for the analyses and hypothesis testing that we present in Tables 3 and 4. In each table, we computed the effect sizes for each level of status and celebrity based on the results in Model 6 of Table 2. We calculated the predicted effect size for each condition using the *margins* command in Stata 14 with all other variables held at their mean (for continuous measures) or mode (for discrete measures). Thus, the analyses testing Hypotheses 1 and 2 assumed that firms did not possess both high status and celebrity simultaneously.

Insert Table 3 about here

Hypotheses 1 and 2 predicted that status and celebrity would affect the positive relationship between underpricing and alliance formations in different ways at different levels of underpricing. Hypothesis 1 predicted that status enhances the positive relationship between underpricing and alliance formations more when underpricing is low than when it is high, and

Hypothesis 2 predicted that celebrity enhances the positive relationship between underpricing and alliance formations more when underpricing is high than when it is low.

We tested Hypothesis 1 by comparing the framing effect of low and high status at low levels (-1 SD) and high ($+1$ SD) levels of underpricing. Table 3 presents the results of our tests. The baseline effect of underpricing when status and celebrity are low (status = 0 and celebrity = 0) is 1.52 alliances at low levels of underpricing and 1.75 alliances at high levels of underpricing. It is interesting to note that the difference between these two values is not significant, suggesting that the relationship between underpricing and alliance formations alone is significant and constant across low and high levels of underpricing.

The middle column in each side of Table 3 shows the predicted number of alliances when status is high (status = 2). When underpricing is low and status is high, the predicted number of alliance formations increases by 1.58 alliances, from 1.52 alliances to 3.10 alliances, a marginally significant change ($p < 0.10$). When underpricing is high and status is high, the number of alliance formations increases by 3.14 alliances, from 1.75 alliances to 4.89 alliances, which is a statistically significant change ($p < 0.01$). These two values represent the combined direct effect of status and the moderating effect of status on how underpricing is interpreted (the main effect of underpricing is constant and therefore drops out when the difference is taken). The difference between the two change values ($3.14 - 1.58$) removes the direct effect of status on alliance formations and captures the difference in the effect of status on the relationship between underpricing and alliance formations at high and low levels of underpricing. This is the value that tests Hypothesis 1. This difference (shown in the last column of Table 3) is 1.56 alliances, which is not statistically significant. These results suggest that status has a significant main effect

on alliance formations, but does not have a significant moderating effect on the relationship between underpricing and alliance formations. Hypothesis 1 therefore is not supported.

We used the same approach to test Hypothesis 2. Table 3 shows that the combined main effect of celebrity and its effect on the relationship between underpricing and alliance formations was not statistically significant at low levels of underpricing—there is a non-significant decrease of 0.07 alliances (1.45 – 1.52 alliances). However, at high levels of underpricing their combined effects resulted in 2.25 more alliances (4.00 – 1.75 alliances), which is a significant effect ($p < 0.05$). The difference between these effects, which removes the direct effect of celebrity and tests how celebrity influences the way underpricing is interpreted, is 2.32 alliances (2.25 – (-0.07) alliances), which is statistically significant ($p < 0.05$). Thus, Hypothesis 2 is supported.

Insert Table 4 about here

Hypothesis 3 predicted that firms form more strategic alliances when they possess either status or celebrity than when they possess both. Although the coefficient for the interaction of status and celebrity is statistically significant in Model 6 of Table 2, we needed to assess whether the relative change in the joint effect of being both high status and a celebrity was significantly greater than possessing just one social approval asset or the other. We calculated the predicted effect size for each condition with all other variables held at their mean or mode. The analysis of these relative effects is shown in Table 4. Specifically, we calculated effect sizes for high status (status = 2) and low status (status = 0) with and without celebrity, and for no celebrity and celebrity with and without high status. The *Row Difference* column presents the differences for high- and low-status firms when they do not have and when they have celebrity. When a firm has low status, being a celebrity does not have a significant effect, as the difference between the No

Celebrity and Celebrity columns (0.81) is not significant. When a firm is high status, however, also being a celebrity results in 1.65 (2.26 – 3.91) fewer alliances, which is a statistically significant difference ($p < 0.05$) supporting Hypothesis 3. The *Column Difference* row explores the effect of status on celebrity. As this row shows, the difference between low and high status levels when a firm is not a celebrity is 2.28 alliances ($p < 0.01$), confirming the main effect of status. However, when a firm is a celebrity, the possession of high status is not associated with a significant difference in the effect of celebrity on alliance formations. Thus, Hypothesis 3 is supported for the effect of celebrity on status, but not for the effect of status on celebrity.⁹

Robustness Tests

We conducted several additional analyses to further explore our theory and results and to rule out alternative explanations of our findings.

Alternative stakeholder audience. To assess the generalizability of our findings, we repeated our analyses using analyst coverage as the dependent variable. Analysts evaluate public firms and provide both summary judgments and regular estimates of earnings expectations to their clients, who use this information to make investment decisions (Rao, Greve, & Davis, 2001). Given their time and resource constraints, as well as their preference to issue positive ratings, analysts are selective about the firms they follow (Rao et al., 2001).

We measured analyst coverage as the number of analysts following a firm 12 months after its IPO (Pollock & Gulati, 2007). We collected this data from the *Compact Disclosure SEC* database. The results of our analyses are included in Appendix A, and show the same pattern of support for our hypotheses as alliance formations. Hypothesis 1 was not supported—the

⁹ We also considered that firms with high status and celebrity might have sufficient resources and, thus, would seek fewer strategic alliances than other firms in our sample. We conducted t-tests comparing the level of resources of these 26 firms compared to the rest of the sample. There were no statistical differences between the two groups' levels of cash in the year before the IPO ($p = 0.53$) or sales in the year before the IPO ($p = 0.62$). Given the comparable resource bases, we expect similar resource-seeking behaviors between the two groups.

moderating effect of status at low and high levels of underpricing was not significantly different for firms with high-status affiliations. Hypothesis 2 was supported—celebrity did not have a statistically significant moderating effect at low levels of underpricing, but it did have a statistically significant effect at high levels of underpricing, and the difference between these effects was significant. Hypothesis 3 was also supported for the effect of celebrity on status, but there was no significant effect of status on celebrity. This suggests that our findings generalize to audiences beyond alliance partners.

Alternative media sources. While industry-specific media provide a more relevant indicator of celebrity for our stakeholder audience and in our context than the general media do (Petkova et al., 2013), we explored the effects of the general media by analyzing two other sources of media coverage. First, we collected articles from *Fortune* magazine, a general business media outlet with wide readership that publishes more “feature” or profile-style articles (Pfarrer et al., 2010: 1139), using the same process we described above for *Red Herring*. Our search resulted in 4,131 articles—31 percent fewer articles than published in *Red Herring*. In addition, 110 firms, or 30.6 percent of our sample, received no coverage in *Fortune*; only four percent of firms in our sample received no coverage from *Red Herring*. The average tenor of the *Fortune* articles (mean positivity of 71%) was similar to the tenor of the *Red Herring* articles (mean positivity = 73%).¹⁰ Using *Fortune* as the primary media source reduced the number of celebrity firms from 72 to 50. Using the *Fortune*-based celebrity measure in the analyses described above, we retained support for Hypothesis 3 but lost support for Hypothesis 2, likely due to range restriction in the celebrity variable.

¹⁰ Business media coverage is generally positive (Pollock & Rindova, 2003; Zavyalova et al., 2012). The mean tenor of all media coverage from 1985 to 2010—based on our analysis of 257,741 articles from Factiva’s Major News and Business Sources—was 60%. Thus, while the tenor of media coverage in *Red Herring* and *Fortune* during our sample period was higher than the mass media generally, it is not qualitatively different enough to suggest that the sample period is driving results.

Second, we assessed how incorporating the general mass media outside of the industry and business press might influence our hypothesized relationships. We conducted an additional search of LexisNexis for articles in the top-50 Major U.S. Newspapers. There were 1,269 feature articles about our sample firms in the mass media during our sample period—approximately one fifth the number of articles published in *Red Herring*. There were 145 firms (43%) that did not receive any coverage in the general media sample. Using the same methods to calculate celebrity as before, we identified 93 celebrities based on this text corpus. This higher number of celebrities, despite the limited amount of coverage, was driven by the highly positive average tenor in the mass media (83% in our sample of LexisNexis articles) relative to the *Red Herring* and *Fortune* text corpuses, and the smaller number of articles required to be high in attention.

We re-ran our analyses and, unsurprisingly, did not find support for any of our hypotheses with this set of celebrities. We then restricted our celebrity set to those firms that were celebrities in both the industry (based on *Red Herring*) and mass media corpora. This reduced our list to 26 celebrities. Despite this loss of power, the results of this supplemental analysis showed support for Hypothesis 3 and no support for Hypothesis 2 (While the results are in a consistent direction, the statistical significance drops to $p = 0.13$). Collectively, these results suggest that different media outlets vary in how they cover new high-tech firms in an emerging sector, and that celebrity measures should be constructed by assessing the fit between the media and the target audience under investigation (cf. Petkova et al., 2013).

Different operationalizations of media tenor. In addition to the cut-off we used to measure the positive affective component of celebrity (mean positivity of media coverage > 75%), we conducted additional analyses that incorporated more permissive as well as more stringent cut-offs: greater than 70% mean positivity, greater than 80% positivity, and the top

quartile of positivity in a given year. When we reduced the cut-off to 70% (that is, we allowed firms that had mean affective content of 70% to be candidates for celebrity), we saw substantively similar results. Using the top quartile of media tenor in a given year resulted in thirty-eight celebrity firms (53% of the celebrity firms identified originally) being dropped from the analyses. This affected our support for Hypothesis 3. When we increased the cut-off to 80%, the variance in the number of celebrities was also greatly reduced and removed support for all hypotheses. These results suggest the utility of using a conservative, yet face-valid cut-off (cf. Pfarrer et al., 2010), as more stringent cut-offs unduly limit the variance in a celebrity measure.

Endogeneity of underpricing, status, and celebrity. Although status, celebrity, and underpricing were only modestly correlated with each other, we also considered two potential sources of endogeneity: 1) that “better” firms were more likely to be high status and celebrities, and also to form more strategic alliances; and 2) that firms with higher underpricing may also be more likely to have high status and/or celebrity. To assess these concerns, we created residualized versions of our three independent variables by first predicting their value using OLS regression. We chose to use cash in the year prior to the IPO, number of alliances before the IPO, number of venture capitalists invested, sales in the year prior to the IPO, and the year of the IPO as predictors of status and celebrity. All of the variables except sales significantly predicted status, and only the number of pre-existing alliances significantly predicted celebrity, suggesting the two constructs are not driven by similar factors. We used celebrity, status, and cash in the year prior to the IPO as predictors of underpricing. Status ($p < .01$) and celebrity ($p < .10$) were both significantly related to underpricing. Cash did not have a significant relationship. We took the difference between the predicted value and the actual value of each measure to create the

residualized variables, and used the residualized variables to test our hypotheses. The results were consistent with those reported above.

DISCUSSION

In this study we extend the current understanding of how social approval assets influence market exchanges by focusing on how status and celebrity—two social approval assets with different socio-cognitive content—serve as different frames that influence how stakeholders interpret other information. Empirically, we examined how status and celebrity interact with the level of underpricing at the time of a firm’s IPO, as well as with each other, to influence the firm’s strategic alliance formations.

We found that status had a direct positive relationship with alliance formations, but contrary to our predictions, it did not enhance alliance formations at low levels of underpricing. However, consistent with our expectations, celebrity enhanced the positive relationship between high levels of underpricing and alliance formations, and it diminished the positive relationship between high status and alliance formations. Collectively, these results provide support for our core arguments, while suggesting opportunities for future research on the role of social approval assets in markets.

Implications for Research on Social Approval Assets

Social approval assets as frames. Our results are consistent with prior work in finding that celebrity serves as an interpretive frame that affects how other information is perceived (Pfarrer et al., 2010). We found that while celebrity did not have a significant influence at low levels of underpricing, it enhanced the effect of high levels of underpricing, providing a congruent positive frame for the affective information that high underpricing conveys. These results support Pfarrer and colleagues’ (2010) claim that celebrity creates value by enhancing the

positive affective elements of other information, and extend their research by demonstrating that when the information cue is equivocal, affective frames reinforce the components of the cue that are congruent with the frame. Thus, our findings advance research on the framing effects of social approval assets by elaborating the effects of different frames on different types of information.

In addition, when considered alongside the findings of Plummer and colleagues (2016) and Stern and colleagues (2014), our results contribute to our understanding of the joint effects of multiple social approval assets. In studying how nascent firms obtain outside funding, Plummer and colleagues (2016) found that affiliating with a venture development organization clarified the otherwise uncertain signaling value of other nascent firm characteristics and increased their effects on the likelihood that a nascent firm received outside funding. Stern and colleagues (2014) found that when an IPO firm's status and reputation were congruent their effect on alliance formations was greater, although the congruence effects were greater when status and reputation were both low than when they were both high. In both cases the combined variables provided interpretive lenses with the same type of correction—enhancing their individual effects by reducing the uncertainty associated with each. In contrast, our findings show that when the interpretive frames are incongruent, as with celebrity and status, the incongruity may generate interpretive uncertainty and diminish the uncertainty reducing value of the signal. These findings suggest that to understand how social approval assets create value we need to account for their socio-cognitive content and how they interact. Future research should continue to explore how differences in social approval assets' socio-cognitive content influence their individual and combined effects.

In contrast to our results for firm celebrity, we did not find support for our argument that a status frame enhances the effects of the analytically relevant aspects of equivocal information. We believe the primary reason for this non-finding is the important ways in which the Dot-Com Era distorted market dynamics. First, the pervasive ambiguity about technologies, business models, and market demand associated with the era (Hendershott, 2004; Rindova & Kotha, 2001) led to firms going public and achieving record-high valuations that would never have been considered ready for an IPO previously (Trueman et al., 2000).¹¹ Thus, it's plausible that in our context even the "true value" of the IPO firm reflected in low levels of underpricing was equivocal, thereby limiting the applicability of status as an uncertainty reducing frame.

Second, it was also the case that underwriters engaged in a number of activities during this time that increased underpricing and the volatility of IPO firms' stock prices; practices that were at best ethically questionable, and oftentimes illegal (Papaioannou & Karagozoglu, 2017).¹² Indeed, prior research has found that the Dot-Com Era was the only time period where underwriter status had a positive (Aggarwal et al., 2002), rather than a negative (Ibbotson & Ritter, 1995) relationship with underpricing. Collectively, these dynamics may have created some "lens distortion" regarding what having a high-status underwriter meant, limiting the framing effects of status in this context. Future research in other contexts should continue to explore whether the framing effects of status enhance or reduce analytical evaluations.

Finally, these contextual features also raise questions about how status functions in ambiguous contexts. If the pervasive ambiguity of the context means there is little or no "private" information to be had, high-status actors' decisions to affiliate with a firm cannot

¹¹ Trueman and colleagues offered a telling example of the uncertainty about what these firms were worth: "At a time when the stock was trading at \$130 a share, the analyst issued a buy recommendation, even though his official predictions led him to a valuation of only \$30." He admitted that "he could justify any valuation between \$1 and \$200 by varying his assumptions" (Trueman et al., 2000: 138).

¹² We thank an anonymous reviewer for highlighting this aspect of our context.

signal quality based on private information, as prior research in management and finance suggest (e.g., Connelly et al., 2011; Ibbotson & Ritter, 1995). A possible alternative explanation lies in sociological conceptions of status as resulting from patterns of deference (Sauder et al., 2012). Rather than making analytical assessments of patterns of relations, others may defer to the judgements of those perceived as high status. Indeed, sociologists have also argued that, even though status is not a particularly good indicator of quality, it is nonetheless treated as such in highly uncertain contexts (Lynn et al., 2009). Thus, high-status affiliations may create an increased sense of certainty in stakeholders' assessments based on their deference to the high-status VCs and underwriters—even if these actors do not really “know” more than anyone else. Future research should continue to explore the mechanisms underlying the effects of high status affiliations in different market contexts.

Empirical contributions. Our study also makes several empirical contributions. First, we consider stakeholders other than investors (e.g., alliance partners), and consider longer periods of time than the short-term stock market response windows (one- to three-day movements in stock price) typically employed in prior studies. Alliance partners have different interests than investors, and ultimately make larger and more consequential decisions for their own competitiveness than investors, who can quickly buy and sell stocks. They are also critical resource providers for new firms' growth (Lavie, 2007; Rindova et al., 2012).

Second, our findings highlight the importance of considering the firm celebrity's audiences, and selecting media sources that effectively represent these audiences' perspectives (Pfarrer et al., 2010; Pollock et al., 2016; Zavyalova, Pfarrer, & Reger, 2017). Prior research has found that industry-specific media sources are more influential in technology industries (Adner & Kapoor, 2010; Petkova et al., 2013) and with expert audiences (Petkova et al., 2013).

Although industry-specific media sources have less overall visibility than general media outlets do, they often provide a greater breadth and depth of coverage that better fit the expert audiences' needs. Our supplemental analyses that considered both a different expert audience—analysts—and different media sources support these arguments, and suggest that when assessing celebrity and other social approval assets, audience characteristics need to be considered when choosing media sources. When a general audience's reactions are being assessed, media sources targeted at these audiences may be more appropriate, but when the reactions of experts or specialists are considered, media sources targeted at these audiences are preferred (cf. Pollock et al., 2016; Zavyalova et al., 2017).

Finally, we contribute to the empirical measurement of celebrity by incorporating non-conforming actions into the measurement of the construct and by developing and validating a dictionary of non-conforming actions. We note, however, that adding non-conforming language to the measure did not change our results, suggesting that the more parsimonious measure developed by Pfarrer and colleagues (2010) is still useful.

Implications for Research on Underpricing

Our findings also have interesting implications for research on underpricing by showing that the analytical component of underpricing is relatively constant across levels of underpricing, while high levels of underpricing may be largely driven by emotion and excitement. Thus, high levels of underpricing may reflect more emotion than uncertainty, and the influence of investors' emotions on other stakeholders can be reinforced by affect-laden frames, such as celebrity.

Future research should continue to explore how the information derived from different levels of underpricing may be reinforced by the interpretative frames available for assessing it.

Implications for Practice

Our results also have implications for managers. They suggest that developing relationships with high-status actors is a more productive use of a newly public firm's limited time and resources than pursuing celebrity in the media. Further, if a new firm possesses high-status affiliations, it may need to be cautious about courting celebrity, as possessing celebrity can create interpretative uncertainty that degrades the value of these affiliations. However, if there is substantial positive emotion about the firm in the market, celebrity can be helpful in leveraging the positive emotional tide to garner more resources and opportunities.

Limitations and Future Research Directions

Like all research, our study has limitations. Although our sample offers a number of benefits for studying the effects of status and celebrity, it consists of only high-tech firms in an ambiguity-ridden context—the Dot-Com Era. Several other studies have used a similar sample and time frame to explore theoretical issues that are more difficult to study in other contexts (e.g., Aggarwal et al., 2002; Demers & Lewellen, 2003; Krigman et al., 2001; Pollock et al., 2009; Pollock & Gulati, 2007; Reuer, Tong, & Wu, 2012; Rindova et al., 2010). The importance of information interpretation in this context enabled us to focus on social approval assets as interpretative frames, rather than just as signals. Although we are unable to assess whether our findings generalize to other time periods, we did show that the processes we theorized about generalized to another expert stakeholder group with somewhat different interests and concerns—financial analysts. Nonetheless, additional systematic investigation of interpretive frames in other time periods and contexts is needed.

A second limitation of our study is that while we considered two social approval assets—status and celebrity—there are other social approval assets that could also serve as interpretive frames (Pfarrer et al., 2010). We chose status and celebrity because their differing socio-

cognitive content was useful for studying the effects of frame congruence and incongruence, and our findings support our general theoretical argument, which can be applied to studying other social approval assets. Cataloguing the potential framing effects of multiple social approval assets is beyond the scope of our study, but it could be a valuable endeavor for future research.

Another limitation of our study is that our data are cross-sectional—we could not look at changes in firm status and celebrity or their effects on alliance formations over time. Our data are also archival. Thus, we could only measure these processes indirectly, and could not directly assess how a firm's status and celebrity affected individual perceptions, or the socio-cognitive processes we theorized were at work. However, like Pfarrer and colleagues (2010), our content analysis of thousands of articles helps address the internal validity issues of large-sample archival research by analyzing and coding the perceptions of market participants. Nonetheless, future research using other methods, such as lab studies or policy capturing, that more directly test stakeholders' psychological reactions to specific interpretive frames amidst high uncertainty (Gerloff, Muir, & Bodensteiner, 1991) can corroborate and extend our findings.

Conclusion

Social approval assets such as status and celebrity play important roles in how information in markets is interpreted and assessed. This study expands our understanding of the complexities of this process by demonstrating that different social approval assets create value by influencing stakeholder interpretations in different ways. Future research should continue to explore the extent to which social approval assets create value as signals or interpretive frames, and how they highlight and reinforce the analytical and affective aspects of the information available in uncertain and ambiguous environments.

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TABLE 1
Summary Statistics and Correlations

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Post-IPO Alliances	2.40	4.48															
2. Status	0.90	0.78	0.25														
3. Celebrity	0.20	0.40	0.16	0.13													
4. Underpricing	0.78	0.96	0.20	0.25	0.12												
5. Founder-CEO	0.52	0.50	-0.07	-0.07	-0.19	-0.04											
6. Firm Age	4.75	3.67	-0.11	-0.13	-0.14	-0.08	-0.07										
7. Board Size	6.24	2.07	-0.02	0.01	0.03	0.04	-0.12	-0.02									
8. Business-to-Business	0.53	0.50	0.07	0.05	0.05	0.01	0.04	0.15	-0.10								
9. Business-to-Consumer	0.29	0.46	-0.03	-0.05	0.04	-0.05	-0.01	-0.09	0.14	-0.69							
10. IPO 1999	0.57	0.50	0.14	-0.05	0.06	0.11	-0.01	-0.10	0.00	-0.07	0.08						
11. IPO 2000	0.22	0.41	-0.19	0.10	-0.18	0.00	0.04	0.08	0.20	0.13	-0.14	-0.61					
12. California-based	0.44	0.50	0.13	0.31	0.11	0.11	-0.14	-0.08	0.08	0.06	-0.06	-0.02	0.01				
13. Prior Cash	9.24	16.19	0.03	0.25	-0.02	0.06	-0.07	-0.09	0.15	-0.05	0.00	-0.16	0.29	0.15			
14. IPO Free Cash Flow	47.12	90.27	0.15	0.21	0.09	0.19	-0.03	-0.03	0.09	-0.01	-0.05	0.13	-0.06	0.00	0.08		
15. Number of VC firms	2.05	1.67	0.09	0.23	0.06	0.18	0.02	-0.08	0.13	0.04	-0.05	0.13	0.06	0.15	0.11	0.03	
16. Pre-IPO Alliances	5.41	7.18	0.22	0.24	0.09	0.07	0.04	-0.03	0.19	0.01	0.00	-0.03	0.16	0.20	0.10	0.03	0.11

n = 359; correlation coefficients greater than 0.11 are significant at the 5% level and those greater than 0.14 are significant at the 1% level.

TABLE 2
Negative Binomial Regression Predicting Post-IPO Alliances

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Founder-CEO	-0.14 (0.15)	-0.08 (0.15)	-0.07 (0.15)	-0.10 (0.15)	-0.05 (0.15)	-0.05 (0.15)
Firm Age	-0.05* (0.02)	-0.04 [†] (0.02)				
Board Size	-0.01 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)
Business-to-Business	0.46* (0.23)	0.39 [†] (0.22)	0.40 [†] (0.22)	0.39 [†] (0.22)	0.41 [†] (0.22)	0.41 [†] (0.22)
Business-to-Consumer	0.18 (0.24)	0.16 (0.23)	0.18 (0.23)	0.16 (0.23)	0.17 (0.23)	0.17 (0.23)
IPO 1999	-0.08 (0.19)	-0.15 (0.19)	-0.15 (0.19)	-0.20 (0.19)	-0.14 (0.19)	-0.14 (0.19)
IPO 2000	-1.47** (0.27)	-1.53** (0.26)	-1.54** (0.26)	-1.56** (0.25)	-1.53** (0.27)	-1.53** (0.27)
California-based	0.22 (0.15)	0.05 (0.14)	0.04 (0.14)	0.04 (0.14)	0.07 (0.14)	0.07 (0.14)
Prior Cash	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
IPO Free Cash Flow	0.16 [†] (0.10)	0.05 (0.04)	0.05 (0.04)	0.05 (0.04)	0.06 (0.04)	0.06 (0.04)
Number of VC Firms	0.05 (0.04)	0.01 (0.04)	0.01 (0.05)	0.02 (0.05)	0.01 (0.05)	0.01 (0.05)
Pre-IPO Alliances	0.04** (0.01)	0.03** (0.01)	0.03** (0.01)	0.03** (0.01)	0.03** (0.01)	0.03** (0.01)
Celebrity		0.04 (0.17)	0.03 (0.17)	-0.07 (0.18)	0.31 (0.26)	0.31 (0.26)
Status		0.35** (0.10)	0.34** (0.11)	0.34** (0.10)	0.40** (0.11)	0.43** (0.11)
Underpricing		0.31** (0.10)	0.21 (0.14)	0.23* (0.11)	0.31** (0.10)	0.31** (0.10)
Underpricing x Status			0.09 (0.12)			0.11 (0.12)
Underpricing x Celebrity				0.39 [†] (0.23)		0.53** (0.23)
Celebrity x Status					-0.25 (0.21)	-0.43** (0.21)
Constant	0.57 (0.41)	0.22 (0.40)	0.20 (0.40)	0.28 (0.39)	0.11 (0.39)	0.11 (0.39)
Pseudo Log-likelihood	-658.5	-646.5	-646.3	-645.3	-645.8	-645.8

n= 347; robust standard errors in parentheses.

[†] $p < .10$

* $p < .05$

** $p < .01$; two-tailed tests

TABLE 3
Comparison of Effects of Underpricing on Post-IPO Alliance Formations
Conditioned on Status and Celebrity

	Low Underpricing (-1 s.d.)			High Underpricing (+1 s.d.)			Difference in Changes
	Low	High	Change	Low	High	Change	
Status (H1)	1.52	3.10	1.58 [†]	1.75	4.89	3.14**	1.56
Celebrity (H2)	1.52	1.45	-0.07	1.75	4.00	2.25*	2.32*

Differences based on all other variables held at either their means or their modes (for non-continuous measures).

[†] $p < .10$, * $p < .05$, ** $p < .01$

TABLE 4
Comparison of Effect Sizes for the Joint Effects of Status and Celebrity

Variable	No Celebrity	Celebrity	Row Difference
Low Status	1.63	2.44	0.81
High Status	3.91	2.26	-1.65*
Column Difference	2.28**	-0.18	

Differences based on all other variables held at either their means or their modes (for non-continuous measures).

[†] $p < .10$, * $p < .05$, ** $p < .01$

APPENDIX A
Assessing Analyst Coverage

In this appendix, we provide the tables and figures for analyst coverage. After accounting for missing data, the final sample included 328 firms with no differences in our initial and final sample across salient dimensions such as celebrity and status.

TABLE A1
Negative Binomial Regression Predicting Analyst Coverage

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Founder-CEO	-0.07 (0.09)	0.04 (0.08)	0.04 (0.08)	0.04 (0.08)	0.06 (0.08)	0.04 (0.08)
Firm Age	-0.02 [†] (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)
Board Size	-0.02 (0.02)	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)
Business-to-Business	0.27* (0.12)	0.15 (0.11)	0.14 (0.11)	0.15 (0.11)	0.14 (0.11)	0.14 (0.11)
Business-to-Consumer	-0.05 (0.13)	-0.10 (0.12)	-0.10 (0.12)	-0.10 (0.12)	-0.10 (0.12)	-0.10 (0.11)
IPO 1999	0.12 (0.11)	0.07 (0.11)	0.08 (0.11)	0.06 (0.11)	0.10 (0.10)	0.07 (0.11)
IPO 2000	-0.37** (0.13)	-0.41** (0.13)	-0.41** (0.13)	-0.42** (0.13)	-0.39** (0.13)	-0.41** (0.13)
California-based	0.03 (0.09)	-0.12 (0.08)	-0.12 (0.08)	-0.12 (0.08)	-0.11 (0.08)	-0.10 (0.08)
Prior Cash	0.01 [†] (0.01)	0.01 (0.00)	0.01 (0.00)	0.01 (0.00)	0.01 (0.00)	0.00 (0.00)
IPO Free Cash Flow	0.21 (0.15)	0.05 (0.12)	0.05 (0.12)	0.04 (0.12)	0.05 (0.12)	0.05 (0.11)
Number of VC Firms	0.01 (0.03)	-0.02 (0.03)	-0.02 (0.03)	-0.02 (0.03)	-0.03 (0.03)	-0.02 (0.03)
Pre-IPO Alliances	0.01* (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Celebrity		0.06 (0.10)	0.06 (0.10)	0.03 (0.10)	0.34* (0.15)	0.33* (0.15)
Status		0.33** (0.06)	0.34** (0.06)	0.33** (0.06)	0.39** (0.06)	0.40** (0.06)
Underpricing		0.32** (0.06)	0.35** (0.10)	0.30** (0.07)	0.33** (0.06)	0.30** (0.09)
Underpricing x Status			-0.03 (0.07)			-0.02 (0.07)
Underpricing x Celebrity				0.11 (0.15)		0.21 (0.14)
Celebrity x Status					-0.25* (0.11)	-0.30** (0.11)
Constant	1.46** (0.20)	1.12** (0.20)	1.12** (0.20)	1.13** (0.20)	1.05** (0.20)	1.06** (0.20)
Pseudo Log-likelihood	-839.5	-809	-809	-808.8	-807.1	-806.1

n= 328; robust standard errors in parentheses. [†] $p < .10$, * $p < .05$, ** $p < .01$; two-tailed tests

TABLE A2
Comparison Effects of Underpricing on Analyst Coverage
Conditioned on Status and Celebrity

	Low Underpricing (-1 s.d.)			High Underpricing (+1 s.d.)			Difference in Effects
	Low	High	Change	Low	High	Change	
Status (H1)	3.12	7.20	4.08**	4.91	10.70	5.79**	1.71
Celebrity (H2)	3.12	3.73	0.61	4.91	8.03	3.12*	2.51 [†]

Differences based on all other variables held at either their means or their modes (for non-continuous measures).

[†] $p < .10$, * $p < .05$, ** $p < .01$

TABLE A3
Comparison of Effect Sizes for Joint Effects of Status and Celebrity

Variable	No Celebrity	Celebrity	Row Difference
Low Status	3.97	5.59	1.62*
High Status	8.87	6.88	-1.99 [†]
Column Difference	4.90**	1.29	

Differences based on all other variables held at either their means or their modes (for non-continuous measures).

[†] $p < .10$, * $p < .05$, ** $p < .01$

APPENDIX B
Non-Conforming Dictionary Terms

Non-Conforming Words (29 words)	
contrast*	nonconform*
deviate*	opposition
deviator	original
differ	pathfinder
difference	pioneer*
different	radical
disagree*	rare
dissimilar	rebel*
distinct	renegade*
diverge*	revolution*
diversif*	trailblazer*
maverick	unlike
misfit	varied
mismatch*	vary
mix it up	

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