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Socio-Cognitive Drivers of Strategic Decision Making in New Ventures and Privately Held Enterprises

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Dissertation Introduction

This dissertation consists of a collection of three essays that examine how socio-cognitive constructs such as celebrity, emotional attachment, reputation, and status influence strategic decision making in small and privately held enterprises such as startups, project-based teams, and family businesses. These non-pecuniary factors not only impact the owners of these firms, but also influence the members of the founding team and the external evaluators such as investors when determining how they want to interact with the focal firm. A simple concept such as a firm or founding team's reputation will influence the opportunities it has for receiving outside investment, the firm's ability to retain members of the founding team, and the aggressiveness by which the firm defends its intellectual property. Furthermore, because start-ups and family-owned firms have greater overlap between managers and firm ownership, the managers of the firm therefore are more likely to make strategic decisions based off of their own socioemotional influences. This means that these non-pecuniary influences subsequently impact a firm's financial performance. For example, Chapter 1 of this dissertation finds that investors overinvest in celebrity-backed firms despite the fact that celebrity-backed firms experience no longer-term performance benefit – leading to an inefficient allocation of capital for the investors, while Chapter 2 shows that the type of external recognition a team receives can lead to disassembly, despite the overwhelming evidence that repeat collaboration leads to higher performance. Ultimately, the findings of these studies highlight the importance of integrating socio-cognitive dimensions into strategic management theories to better predict and interpret behavior in small and privately held organizations.

Chapter 1, "Starstruck! The Role of Celebrity Investors in Start-Up Fundraising," investigates the impact of celebrity investment endorsements on entrepreneurial financing. This paper was co-

authored with Yangyang Cheng and Mario Daniele Amore. My contributions in this paper include the conceptualization of core theoretical framing, formal analysis of data through the use of OLS regressions and all writing in this particular draft, in addition to approximately half of the data collection and curation. Grounded in signaling theory, this essay posits that signals emitted by celebrity investors convey heightened visibility and emotional resonance, significantly influencing external investors' perceptions of quality in the start-up. The effectiveness of this signal resides in the celebrities' general likability and fame strongly impact investor behavior despite their lack of industry-specific expertise. Analyzing a large dataset from PitchBook combined with celebrity popularity metrics (Q-Ratings), the findings demonstrate that start-ups backed by celebrity investors attract significantly larger investment sums and close financing rounds more swiftly than their counterparts without celebrity involvement. Notably, the celebrity's general visibility and emotional resonance, rather than their professional relevance, drive these beneficial fundraising effects, challenging traditional signaling theory's emphasis on expertise and demonstrating the potent role of general fame and likability in shaping investor decisions.

Chapter 2, a solo-authored paper titled "Casting the Sequel: How Awards-Based Recognition Influences Repeat Collaboration Efforts in the Independent Film Industry," studies how external awards given by prominent third parties affect the likelihood of repeat-collaborations within project-based teams, such as academic research teams, film projects, successive entrepreneurial teams, and venture capital syndicates. This chapter draws extensively on theories of causal ambiguity and status dynamics to explain how external recognition affects team cohesion and individual status hierarchies. It argues that awards function as powerful signals, clarifying ambiguous assessments of collaborative success and influencing internal team dynamics and

future collaborative choices. Using data from the Sundance Film Festival, this study highlights the distinct consequences of team-based versus individual-based recognition. Team-based awards, such as Sundance's Grand Jury Prize, enhance internal team cohesion and increase the likelihood of re-collaboration, signaling to team members the importance of their collective, tacit capabilities. Conversely, individual-based awards shift attention and status disproportionately towards specific team members, encouraging recipients to seek new, higher-status partnerships while not significantly reducing collaboration among the remaining team members. These insights underline how external recognition and the resulting shifts in status hierarchies powerfully shape collaborative behaviors and strategic decisions in temporary organizational settings.

Chapter 3, a solo-authored paper explores the influence of socioemotional wealth on family business dynamics and governance decisions. Emotions and socioemotional factors such as family identity and the preservation of family control significantly shape managerial decisions, particularly regarding patent infringement disputes. Drawing on socioemotional wealth literature, this study posits that affective traits related to family control and identity influence how family firms perceive, react to, and resolve disputes over competing technologies. Using the context of European patent oppositions, the research investigates how socioemotional factors may lead family firms to engage in riskier and seemingly irrational patent litigation rather than settle disputes. Preliminary findings indicate that family firms, especially those with fewer family members on the board, are more likely to litigate their patents to trial compared to non-family firms, underscoring the critical role emotions play in strategic decisions around intellectual property management.

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Starstruck! The Role of Celebrity Investors in Start-Up Fundraising

Abstract

Over the past ten years, the venture capital industry has seen a significant rise in celebrity investors, with the number of celebrity-backed investments increasing from 34 deals in 2014 to 387 deals in 2021. Contrary to investment signals sent by traditional high-status investors such as venture capital firms and established corporations which are high in both prominence and proven quality, signals sent by celebrity investors are extremely high in prominence but exceptionally low in relevant or proven quality. This research investigates how external audiences interpret and respond to celebrity investor signals, and the impact that has on start-up financing. Leveraging literature on signaling theory, we argue that the source credibility, trustworthiness, and attractiveness associated with a celebrity investor will positively influence external investor sentiment towards the focal firm, thereby garnering a premium for the celebrity-backed firm. By combining start-up investor data with celebrity Q-Rating data over a 20-year period, our findings reveal that firms tend to raise larger sums of capital and raise capital more quickly in the subsequent financing round following a celebrity's investment. However, we also observe that these subsequent deals are financed by larger investment syndicates whose members have less deal making experience. As a result, we find that celebrity investors have no impact on successful firm exits.

Keywords: celebrity investor; venture capital; signaling theory; celebrity endorsements

Introduction

Reputation is a critical asset for any firm looking to reduce information gaps between themselves and their potential customers, suppliers, and investors (Deephouse, 2000; Rindova et al., 2005). New ventures and start-ups, however, are at a significant disadvantage because they lack key reputational indicators such as proven quality and past experiences (Aldrich & Fiol, 1994; Gomulya et al., 2019; Stinchcombe, 1965). This creates an unfortunate problem for start-ups attempting to acquire external financing, as firm reputation has been found to be a significant factor in investor decision making (Fischer & Reuber, 2007; Plummer, Allison, & Connelly, 2016). Therefore, if a start-up wishes to increase its growth rate or maintain a first mover advantage, they must find a way to signal their potential value to outside stakeholders (Bafera & Kleinert, 2023; Colombo, Franzoni, & Rossi-Lamastra, 2015; Vanacker et al., 2020).

Drawing from signaling theory (Spence, 1973), one way startups can boost their reputation is by aligning with a prominent third party (Connelly et al., 2011). Signaling theory examines how endorsements made by reputable entities such as venture capital firms, industry experts, academic institutions, or strategic alliance partners can emit a signal of reputational quality to outside stakeholders (Colombo et al., 2019; Gomulya et al., 2019). These signals are often a reflection of the endorsing party's reputation, and audiences will interpret these signals based off their opinion of the signaler (Pollock et al., 2010; Rindova et al., 2006). Because the interpretation of signals is inherently subjective, start-ups must ensure that signals being sent on their behalf are visible to the intended audience and convey a message of prominence and quality to potential investors, customers, or suppliers (Boivie, Graffin, & Gentry, 2016; Rindova et al., 2006).

While past reputation and signal theory literature has done a thorough job of explaining the influence of signals sent by traditional, high-status endorsers such as venture capitalists, industry

experts, and key customers on startup fundraising, we know relatively little as to how signals sent by high status individuals whose prominence and expertise lie outside of the relevant industry or entrepreneurial finance are received by external audiences. These signals, such as those sent by celebrity investors in startups, are extremely high in prominence and visibility but are often lacking a message of categorical or industry expertise – a key factor used by researchers in determining a signal's strength (Rindova et al., 2006). It is possible that sophisticated investor audiences respond to signals of prominent or famous individuals differently than signals sent by prototypical investors and industry experts. At first glance this may seem like a random association to make, but the phenomenon of celebrity investors in start-ups has seen an exponential increase in investment activity over the past decade, with the number of venture capital deals involving a celebrity investor increasing from just 34 in in 2014 to 387 deals in 2021. As the number of celebrity-backed investments continues to grow, it becomes prudent to understand if start-ups experience any short term or long benefits from this arrangement.

The purpose of this paper is to understand how the unique signaling qualities of celebrity investments influence the trajectories of the firms they invest in, specifically by answering the question: how does the presence of a celebrity investor subsequently impact a start-up's fundraising? By combining literature on firm reputation and signal theory with marketing literature on celebrity endorsements, we propose that signals emitted by a celebrity's investment will have greater visibility than traditional investor signals and carry an emotional resonance that will effectively compensate for a lack of industry expertise. By simultaneously leveraging data on start-up investment deals in the United States from the Pitchbook dataset and data on each individual celebrity's Q-Rating, we are able to identify the impact of a celebrity investor on a start-up's subsequent fundraising round and find that on average start-ups raise larger amounts of

capital and do so in a shorter period of time than similar start-ups with traditional investors. Furthermore, we find that a celebrity's degree of fame and likeability also has an impact on how quickly a celebrity-invested firm is able to raise money. However, we find no evidence of any overlap between the celebrity's professional expertise and the invested firm's product impacts start-up fundraising.

This paper makes two theoretical contributions. First, we contribute to literature on signaling theory by demonstrating how sophisticated external investors interpret signals sent by celebrity investors with high levels of visibility and emotional resonance, but low levels of professional expertise. Second, we contribute to entrepreneurship literature by highlighting the value of celebrity investors in startup fundraising and describe how a startup's post investment performance differs following a celebrity investment as opposed to an investment from traditional angel and venture capital investors.

Theoretical Background and Hypotheses Development

Importance of Reputation in Startup Fundraising

Although a start-up may initially rely on funding from friends and family in its earliest stages, access to external financing is one of the main factors in determining the long term success of a new venture (Gilbert et al., 2006; Plummer, Allison, & Connelly, 2016). Start-ups with higher levels of capitalization are able to undertake more ambitious strategies and scale up faster to meet demand (Cooper, Gimeno-Gascon, & Woo, 1994). As a result, securing external financing is considered to be a significant achievement for a nascent venture which can dramatically change its trajectory (Kerr & Nanda, 2009; Plummer, Allison, & Connelly, 2016).

Firm reputation is defined "as stakeholders' perceptions of a firm's ability to create value relative to its competitors" (Rindova, et al., 2005, p. 1033). Therefore, it acts as a pivotal asset which significantly impacts a firm's ability to differentiate itself in a competitive market (Barney, 1991; Deephouse, 2000; Fombrun & Shanley, 1990). A firm's reputation encompasses two distinct dimensions: perceived quality and prominence (Rindova et al., 2005). Perceived quality refers to resource based signals such as the inputs being used in production or the assets a company holds, whereas prominence reflects the firm's visibility and salience within the stakeholders' cognitive landscapes. As firms age, they provide more evidence of quality and become more prominent, thereby increasing their reputation over time (Aldrich & Fiol, 1994). Studies have shown a positive correlation between a firm's reputation and its performance, indicating that investors are more willing to invest in startups which they perceive as reputable (Fombrun & Shanley, 1990; Rindova et al., 2005; Roberts & Dowling, 2002).

Beyond attracting financial capital, a strong reputation fosters trust among a broader set of stakeholders, including customers, partners, and employees. This trust is particularly vital for start-ups as they navigate the challenges of market entry and scale-up, serving as a foundation to establish durable relationships and strategic alliances (Aldrich & Fiol, 1994). Unfortunately, however, start-ups lack traditional indicators of firm quality such as available resources or proven experience due to their "liability of newness" (Stincombe, 1965), making it more difficult for them to acquire capital than more established firms (Fischer & Reuber, 2007; Gomulya et al., 2019).

In order to attract outsider investors, start-ups must generate the reputational aspect of prominence through communication and association (Rindova et al., 2006). Engaging with reputable third parties, such as venture capitalists with esteemed track records or industry influencers, offers a pathway to "borrow" reputation and leverage these affiliations as endorsements of the startup's

potential (Gomulya et al., 2019; Plummer et al., 2016). Although, this approach is not without its challenges, as the alignment with external entities necessitates a careful consideration of fit and the potential implications for the startup's own identity and strategic direction.

Signaling Theory as an Indicator of Firm Reputation and Quality

Under conditions of uncertainty, individuals look to the opinions of others to make up their own minds (Rao, Davis, & Ward, 2000; Rao et al., 2001; Rindova et al., 2005). In the context of startups, where information asymmetry and uncertainty prevail, signaling theory posits that certain actions or attributes of endorsing third parties can serve as proxies for underlying qualities or capabilities that are otherwise difficult for external parties to observe directly (Gomulya et al., 2019; Spense, 1973). This is particularly relevant for new ventures seeking to establish their credibility and attract investment in the absence of a traditional indicators of firm quality. These prominence-based signals, ranging from endorsements by reputable entities to the aspects of the founders' backgrounds (Arthurs, Busenitz, Hoskisson, & Johnson, 2009; Plummer, Allison, & Connelly, 2016; Stuart & Abetti, 1990), act as demonstrations of the startup's potential for success and operational capabilities.

A critical form of signaling for start-ups involves securing endorsements from entities or individuals with established reputations such as venture capital firms, industry experts, or other startups known for their success stories (Gomulya et al., 2019). Research indicates that startups often experience enhanced market valuations and superior performance subsequent to receiving endorsements from prestigious VC firms (Lee et al., 2011; Pollock et al., 2010), underwriters (Gulati & Higgins, 2003; Sanders & Boivie, 2004), and executives (Deutsch & Ross, 2003). Another line of research suggests that the establishment of new ventures is fostered by

endorsements from influential stakeholders in related sectors. These endorsements function as proxies of a startup's quality, suggesting that the endorser has conducted due diligence and found the venture promising. Signaling theory posits that signals hold value due to the expense incurred by those conveying them (Spense, 1973). In the context of endorsements, it suggests that endorsers risk damaging their reputations should the endorsed firms underperform. Thus, by staking their own reputations, endorsers communicate the quality and potential of the endorsed firm (Gomulya et al., 2019). This form of "reputation borrowing" can significantly enhance a startup's attractiveness to potential investors by reducing the perceived risk associated with its nascent status (Plummer et al., 2016). Additionally, studies have explored the relationship between an organization's reputation and various positive outcomes, including the ability to command premium prices (Rao & Monroe, 1996; Rindova et al., 2005), firm performance (Deephouse, 2000; Roberts & Dowling, 2002), longevity (Rao, 1994), the quality of job applicants (Turban & Cable, 2003).

The different methods of signaling encompass a variety of different attributes and actions that can indicate a startup's reputation and quality. For instance, the educational background and professional experience of the founding team can signal aspects of the venture's human capital quality, while strategic partnerships and customer traction can indicate the market validation and operational viability (Heeley et al., 2007; Hsu & Ziedonis, 2013; Reuber & Fischer, 2005). Furthermore, investment-based endorsements – such as those given by venture capital firms – can be extremely prominent signals to outsiders. Because less than 1% of start-ups receive venture capital for example (Rao, 2013), an endorsement by a prestigious venture capital firm can help a start-up sign contracts with suppliers and alliance partners (Pollock et al., 2010; Pollock & Gulati,

2007). As a firm gains experience and reaches different stages of its growth cycle, it accumulates multiple signals which ultimately craft a narrative that acts as the firm's reputation to outsiders.

The Transference of Celebrity from Third Party Endorsers to a New Venture

It is important to recognize that the interpretation of signals is inherently subjective, and reputational aspects such as perceived quality and prominence are only as important as the context by which they are received (Rindova et al., 2006). This subjectivity underscores the importance of tailoring signals to align with the expectations and values of the target audience, be it investors, partners, or customers. Additionally, audiences may receive messages differently if the endorser's reputation is based on specific attributes or a "generalized impression of favorability" (Boivie, Graffin, & Gentry, 2016, p. 190). Research has found that simply having the necessary resources of quality is not enough to influence a firm's reputation, but rather a firm's perceived quality is mediated by the firm's public recognition (Deephouse, 2000; Rindova et al., 2005). As a result, the prominence aspect of a signaler's reputation is a crucial determinant in the likelihood of a signal will being received by an audience.

Visibility, or the size and reach of one's signaling (Pfarrer, Pollock, & Rindova, 2010), is an aspect of both reputation (Fombrun, 1996) and celebrity (Rindova et al., 2006). Reputation combines prominence (visibility) and perceived quality based off of available resources, whereas celebrity combines visibility with emotional resonance (Pfarrer, Pollock, & Rindova, 2010). Emotional resonance refers to the underlying likeability, excitement, and respect that a high status individual commands. Celebrity is an intangible asset that can promote a firm or product (Rindova et al., 2006). We believe that in the case of high-status endorsers, signaling theory should acknowledge

both social approval aspects of reputation and celebrity, thereby considering emotional resonance alongside prominence and perceived quality.

One common, yet prominent signal familiar to consumers that incorporates these distinctive properties is that of the celebrity endorsement. A concept consistently found in marketing literature, celebrity endorsements allow firms to leverage the fame of a celebrity to help promote a brand or product (Erdogan, 1999; Pfarrer et al., 2010). Unlike traditional endorsements which signal quality and potential through the industry validation, celebrity involvement introduces a layer of societal recognition and emotional engagement, creating a multifaceted reputation that resonates on both professional, consumer, and personal levels. McCracken (1989) found that affectionate meaning can transfer from an individual to a product in three stages through a third-party intermediary, like a celebrity (Erdogan, 1999).

A celebrity's visibility, in and of itself, is not sufficient to signal quality to a third party. Rather, their emotional resonance and credibility imbues an expectation of high quality and worth. These factors often emanate from the celebrity's high performance in their professional field, and feelings of general likeability and attraction as well (Erdogan, 1999). This transference of attributes from the celebrity to the product or brand they're endorsing can be particularly beneficial to young firms with no history of high performance or quality, allowing them to engender trust among potential customers (Chung & Cho, 2017; Rindova et al., 2006).

However, there are limits to the degree of reputational transfer between a celebrity and a firm or product. Reputational transfer relies on how well known the celebrity is (Lange et al., 2011). Furthermore, reputation is tailored to both specific attributes and specific audiences – ranging from highly detailed traits to broader characteristics (Jensen et al., 2012). Reputations that focus on

those specific attributes rely on being recognized for those distinct qualities and fulfilling the expectations of those groups who recognize the signal (Boivie, Graffin, & Gentry, 2016; Lange et al., 2011).

Marketing literature on celebrity endorsements uses two distinct models to differentiate between reputational transfer based off of specific attributes of the endorser versus general feelings of favorability: the Source Credibility Model and the Source Attractiveness Model. The Source Credibility Model proposes that a message's impact is largely influenced by the perceived expertise and trustworthiness of the endorser (Dholakia & Sternthal, 1977; Hovland & Weiss, 1951). Expertise is defined as the knowledge, experience, and skills relevant to the subject of the endorsement; when a celebrity possesses relevant expertise, they are notably effective in persuasion (Aaker, 1997) and enhance brand recognition (Chung & Cho, 2017). Trustworthiness involves the honesty, credibility, and integrity of the source (Erdogan, 1999). Credible sources, such as celebrities, can shape beliefs, opinions, attitudes, and behaviors through internalization, a process where the audience adopts the influencer's views and values as their own (Erdogan, 1999).

Other types of reputation, however, may be rooted in broader, less specific attributes that generate overall positive perceptions (Lange et al., 2011). While general reputations can influence a wide range of audiences, specific, attribute-based reputations are more impactful within targeted groups (Boivie, Graffin, & Gentry, 2016). The Source Attractiveness Model suggests that the effectiveness of a message is influenced by the endorser’s similarity to the receiver, familiarity with the endorser, and likability of the endorser (McGuire, 1985). Similarity refers to the perceived resemblance between the source and the receiver. Familiarity involves recognizing the source through repeated exposure, while likability stems from positive reactions to the source's physical appearance and behavior. Attractiveness encompasses not just physical traits but a range of admirable qualities

such as intellectual abilities, personality traits, lifestyle choices, or athletic skills that consumers might find appealing in a celebrity (Erdogan, 1999).

In the formation of public opinion, a "social influence" dynamic often prevails, leading certain organizations to attract a disproportionate amount of public attention and support based on broad and vague impressions (Kuran & Sunstein, 1999; Rindova et al., 2005). For instance, attributes specific to a firm or start-up, such as having prestigious executives, accumulate benefits linearly. In contrast, endorsements from esteemed third parties, like venture capital firms or IPO underwriters, accrue benefits in a curvilinear manner, exhibiting diminishing returns (Pollock et al., 2010; Plummer, Allison, & Connelly, 2016). Thus, endorsements from well-known and reputable sources are crucial in helping start-ups secure the trust and support of potential investors, suppliers, and customers.

The Impact of Celebrity and Fame on Start-Up Fundraising

As previously mentioned, the prominence of celebrity investors has significantly increased over the past ten years. These extremely wealthy and highly recognizable individuals include academy award winning actors such as Leonardo DiCaprio, world class athletes such as Serena Williams and David Beckham, and prominent tabloid figures such as Kim Kardashian and Paris Hilton. We define a celebrity investor as a highly recognizable individual from the entertainment or sports industries who acts as an accredited investor by investing capital in a startup in exchange for equity. Celebrity investors differ from celebrity endorsers in several ways, but the most important difference is that a celebrity investor makes a capital contribution to the firm whereas a celebrity endorser is employed to market the brand as a contractor without any ownership stake. Furthermore, celebrity investors may invest in a firm without any intention of formally marketing

the product through traditional media channels. That being said, we believe that different elements of a celebrity's reputation – including their visibility, perceived quality, and emotional resonance – can be transferred to the firms they endorse and signaled to other investors.

There has been a limited amount of scholarship studying the phenomena of celebrity investors in startup fundraising. Blaseg & Hornuf (2024) studied the impact that an investment made by a celebrity had on a new venture's performance. They specifically looked at how recognizable or "well known" celebrity investors on the popular television show tv show "Shark Tank" influenced the startup's sales after the episode aired. The authors found that startups which received investments on the show from investors who were more recognizable to the general public had higher sales on average than startups which received funding less recognizable investors with relevant industry experience. These results support the idea that celebrity investors can act as endorsers to potential customers, similar to traditional celebrity product endorsements in advertising. However, the question still remains as to how outside investors and the market for fundraising capital will respond to an investment made by a celebrity.

Thanks to the high visibility of the celebrity investors, we believe that investments made by a celebrity will garner significantly more attention than investments made by traditional investors. In order to be considered in a market, you must first be visible in it. Therefore, attracting attention is a necessary aspect of reputation building (Petkova, Rindova, & Gupta, 2013). Due to their small size and limited resources, new organizations typically have direct access to only a limited pool of stakeholders (Hallen, 2008), and therefore struggle to garner market attention. The media can help mitigate this issue by exposing a wide array of stakeholders to the organization through coverage.

Extant literature has also suggested that venture capital firms use public recognition as a key indicator of a new organization's potential value. The media plays a critical role in this by allocating attention, which both reflects and influences collective stakeholder focus (Petkova, Rindova, & Gupta, 2013). Research by Vanacker et al. (2020) demonstrates that media attention can amplify the impact of weak performance signals when acquiring capital. This research found that media attention increased the signal strength of potential or unrealized performance indicators such as human capital, social ties, and certifications (prominence-based reputation indicators [Rindova et al., 2005]). Despite qualitative evidence suggesting weak signals are less economically impactful than strong signals (Cumming, Fleming, & Suchard, 2005), the statistical findings of Vanacker et al. (2020) do not support a weaker effect of unrealized versus realized performance, and instead find that unrealized performance is particularly effective in attracting funding.

In summary, we believe that the reputation of celebrity investors can be transferred to the firms they invest in and that the increased visibility and emotional resonance that celebrities subsequently pass on to the firms will lead to significantly more attention and trustworthiness being applied to their firm than firms financed by traditional investors. As a result, our baseline hypotheses state:

> *H1a: Start-ups will raise more capital in the financing round following a celebrity's investment.*
>
> *H1b: Start-ups will raise capital more quickly in the financing round following a celebrity's investment.*

The Moderating Effects of Emotional Resonance via Source Attractiveness and Source Credibility

A celebrity investor's popularity is also worth taking into consideration. A positive emotional response to a celebrity by the audience will significantly impact the way a signal is interpreted. As previously mentioned, the emotional resonance that an audience has with a celebrity is based off of the familiarity, likability, and attractiveness – with higher emotional resonance being linked to higher levels of trustworthiness (Erdogan, 1999). The marketing industry has been performing this analysis on celebrity endorsements for decades using the Q-Rating, a measure of a celebrity's visibility and likeability within a given demographic, to better understand a celebrity's promotional potential (Bialik, 2010). We believe that a similar logic will apply to celebrity investors, and that celebrities who are more recognizable (i.e., popular) and more highly regarded (i.e., likeable) will generate greater feelings of favorability towards their firm than less likeable celebrities. As a result, hypothesis 2a and 2b state:

> *H2a: Start-ups which receive funding from celebrities with higher Q-Ratings will raise more capital than start-ups with low Q-Rating celebrity investors and non-celebrity investors.*
>
> *H2b: Start-ups which receive funding from celebrities with higher Q-Ratings will raise capital more quickly than start-ups low Q-Rating celebrity investors and non-celebrity investors.*

Moreover, the professional credibility of the celebrity investor with regards to the product that he or she is investing in is important to consider as well. According to the Source Credibility Model, the persuasiveness of a message is also dependent on the endorser's perceived competence and trustworthiness in the eyes of the audience (Dholakia & Sternthal, 1977; Erdogan, 1999; Hovland

& Weiss, 1951). If the celebrity's expertise appears to be positively aligned with the firm they are investing in, they will appear to be more trustworthy (Aaker, 1997). However, if the celebrity's expertise has little to do with the firm they are investing in, there will be a lower degree of confidence in their endorsement signal (Chung & Cho, 2017). We contend that in situations with a high degree of overlap between a celebrity's professional expertise and the company they are investing, they will appear more credible and a stronger signal will be emitted to outside investors. Whereas weaker signals will be emitted if a celebrity invests in a product category in which he or she has little credibility or expertise in. Therefore, hypothesis 3a and 3b state:

H3a: Start-ups with a high category match celebrity investor will raise more capital than start-ups with a professionally unaligned celebrity investors and non-celebrity investors.

H3b: Start-ups with a high category match celebrity investor will raise capital more quickly than start-ups with a professionally unaligned celebrity investors and non-celebrity investors.

Data and Variables

In order to test our hypothesis, we collected data from two specific sources. First, we used the global-level PitchBook dataset to collect specific investor, company, and deal information. Second, to create a sample of celebrities and measure their popularity, we relied the on YouGov's Most Recognizable Ratings List in order to collect a list of the 3,000 most recognizable individuals in the United States. YouGov surveys adults in the United States and asks them if they recognize a particular celebrity and then asked whether or not they liked said celebrity. YouGov then categorizes each celebrities' survey results by age and gender demographics. This allows to

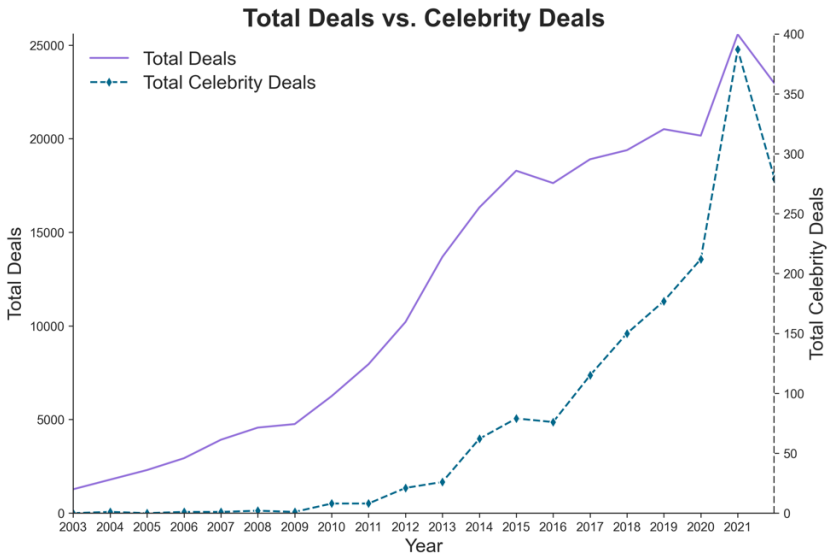
identify the *fame* of a celebrity, or how recognizable they are, as well as their *popularity*, a measure of how likeable the celebrity is.

Our initial sample focused on pre-exit financing deals for firms headquartered in the United States between the years 2003 and 2022. In order to be included in the Pitchbook data set, each startup must have secured at least one financing deal worth more than $10,000[1]. Furthermore, we dropped deals from our sample for a lack of key data points, specifically any deal on Pitchbook which was lacking data on key deal specifics such as the premoney valuation of the firm or the deal's size.

Finally, we removed two extreme celebrity outliers from our sample. Retired professional football player Joe Montana is named as the founder and managing director partner of Liquid2Ventures and actor Ashton Kutcher is listed as a cofounder of SoundVentures, both of which are very prominent Venture Capital firms located in Silicon Valley. Of the 1,606 celebrity deals we identified in our dataset, Liquid2Ventures accounted for 360 and SoundVentures accounted for 220. As a result, we decided to remove these deals from our sample because they are unrepresentative of the other celebrity backed investments. In total, our models analyzed 52,725 unique deals, with 1,026 of those being celebrity investor deals. As seen in Figure 1, both the number of celebrity and traditional venture capital deals exponentially increased year over year from 2002 until 2021.

[1] $10,000 is the threshold for Pitchbook to involve a startup in the dataset.

Figure 1



Dependent Variables

Our first dependent variable, *dealsize*, was used to calculate the amount of capital invested into a company by an investor or group of investors for a specific transaction. As previously mentioned, raising external financing is a crucial aspect of a firm's ability to grow (Colombo, Franzoni, & Rossi-Lamastra, 2015; Davila, Foster, & Gupta, 2003) and gather quality resources which are relevant for building a reputation (Deephouse, 2000; Rindova et al., 2005). Data on the deal size for each individual deal was sourced from Pitchbook.

Similarly, the dependent variable *fundraising_time* is used to determine the length of time between securing one round of financing and the company's subsequent financing deal. Data was collected from PitchBook and was calculated by subtracting the length of time in days between a company's current deal and their previous deal. Extant literature has found that timing is a critical factor

particular for the early-stage ventures to build their competitive advantage (Lippman & McCardle, 1987), and the amount of time that it takes for companies to raise capital is specifically related to market volatility (Li & Mahoney, 2011) and cost of financing (Morellec et al., 2015).

Independent Variables

In order to test hypotheses 1a and 1b, the dummy variable *celebrity_deal* was used to identify a celebrity investment deal. This was executed by matching our list of 3,000 famous celebrities' names from YouGov and comparing it to the names listed in Pitchbook's Deal-Investor spreadsheet. Both celebrity's stage name and legal names were searched against the PitchBook dataset in order to ensure maximum coverage. We identified a total of 660 names fully matching celebrity names (legal or stage) within the pitchbook database, and a subsequent analysis was performed searching news headlines on Google News and the company's website to confirm that 1) a person with that name invested in the company, 2) the person is actually the celebrity and does not coincidentally share the same name, 3) the celebrity is not a founder of the company, 4) the celebrity is not a politician or made famous as a businessman (e.g., Bill Gates, Richard Branson). In total 379 unique celebrities were confirmed to be investors within the PitchBook dataset. We then used their specific investor ID to identify the deals they were investing in.

In order to determine the company's subsequent deal after a celebrity had invested, we ordered every investment deal that a startup receives chronologically and numbered them 1 (first deal received) up to 16 (largest number of deals for a single company in the dataset). A deal was given a "1" in the variable $celebrity\_deal_{t=-1}$ if the firm's previous deal was a celebrity deal. Furthermore, any additional variables which contain the subscript "t=-1" will be referring to the deal prior to the dependent variable's deal.

To test hypotheses 2a and 2b, the variable *celebrity_qrating* were used to measure each individual celebrity's public perception by demographic. The Q-Rating is a popularity metric developed by the US based marketing firm Marketing Evaluations Inc., and is calculated by using the following formula (Erdogan, 1999):

$$Q\text{-}Rating = \left(\frac{Positive\ Popularity}{Have\ Heard\ Of}\right) \times 100$$

This formula adjusts the positive popularity score to account for the total awareness, essentially giving us a measure of how favorably known the celebrity is among those who are aware of them. Furthermore, these ratings can be calculated for specific demographic groups. We collected the "positive popularity" and "have heard of" variables for each of our celebrities from YouGov for both men and women in the millennial and Gen X demographics. In our study, we used the start-up CEO's age and gender to help us identify which Q-Rating would be appropriate for said company. For example, actor Leonardo DiCaprio has a Q-Rating of 73 for millennial men and 75 for millennial women, therefore if the CEO was a woman born after 1983, we would use 75 as the Q-Rating for that company.

For hypotheses 3a and 3b, the dummy variable *high_category_match* is inspired by the source credibility model (Dholakia & Sternthal, 1977; Erdogan, 1999; Hovland & Weiss, 1951) and is used to measure the endorsement credibility of a celebrity with a given product. For example, if a star basketball player invests in a FinTech company there is little overlap between the athlete's professional qualifications and the company's product and would therefore be classified as a low category match or "0" dummy variable. However, if an athlete were to invest in a company which produces fitness tracking devices, the athlete would be perceived as having more expertise on the product and the deal would be considered a high category match or "1". The category matching

was performed using two steps. First, leveraging “Description” and “Keywords” variables provided by the PitchBook dataset based on their internal algorithm for our dictionary, we then classified relevant keywords to specific celebrity professions such as “Actor”, “Athlete”, “Director”, “Influencer/Model”, and “News Reporter”. The keywords were based off features to describe specific professions- for example, actors had keywords such as “beauty”, “film”, “health”, “media”, and “wellness, whereas athletes had keywords such as “activity”, “coaching”, “fitness”, “health”, “nutrition”, and “training”. A full list of the keywords can be found in Appendix 1. Second, a research assistant independently classified the level of category match between each celebrity and the product they invested in.

Controls

The variable *premoney_valuation* is sourced from Pitchbook’s Deal spreadsheet and used to identify the value of the firm prior to that specific deal’s investment. Premoney valuation refers to the value of a company before it receives external funding or the latest round of financing. It is used by investors to determine how much equity they should receive in exchange for their investment in the company. The valuation is calculated based on the company's past performance, future business prospects, and market conditions. Unlike premoney valuation, postmoney valuation adds the amount of new capital received from investors to the premoney valuation, representing the company's worth after the funding round. (Premoney valuation, retrieved 2024).

Finally, because we are using a panel dataset, industry and year fixed effects were used to account for marco-level heterogeneity. Industry fixed effects were categorized by their PitchBook industry classification.

Empirical Analysis and Results

Table 1 presents descriptive statistics for the variables in our analysis and Table 2 presents a correlation table for our key variables. The average time between fundraising deals in our sample was approximately 490 days and the average deal size was $8.75 million dollars.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
fundraising time	111962	489.588	426.353	1	3646
dealsize	196211	8.725	63.159	0	12800
celebrity deal	196211	.002	.049	0	1
celebrity qrating	196211	.152	3.108	0	83.871
high category match	196211	0	.021	0	1
premoneyvaluation	77334	103.693	987.462	.001	94400

Table 2: Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) fundraising_time	1.000					
(2) dealsize	-0.012	1.000				
(3) celebrity deal	-0.010	0.033	1.000			
(4) celebrity qrating	-0.009	0.033	0.989	1.000		
(5) high category match	-0.008	0.006	0.395	0.401	1.000	
(6) premoneyvaluation	-0.031	0.514	0.025	0.025	-0.044	1.000

To help us understand impact of a celebrity investor on a start-up's subsequent ability to raise more capital, and test hypotheses 1a, 2a, and 3a, a linear regression model was used to estimate the impact of the variables $celebrity\_deal_{t=-1}$, $celebrity\_qrating_{t=-1}$, and $high\_category\_match_{t=-1}$ on $dealsize_{t=0}$. Table 3 reports the results of our model. As predicted in hypothesis 1a, the presence of a celebrity investor can increase the subsequent deal size, when controlling for the pre-money

value of the firm and the funding stage. Again, we see that an increase in celebrity Q-Rating will increase deal size, meaning that celebrity popularity and visibility appear to have an impact on start-up fundraising. However, we did not find any evidence that an overlapping match between a celebrity's profession and the company's product had any impact on a startup's fundraising.

Table 3: Multiple Linear Regressions for Deal Size

	(1) dealsize $_{t=0}$	(2) dealsize $_{t=0}$	(3) dealsize $_{t=0}$	(4) dealsize $_{t=0}$	(5) dealsize $_{t=0}$
celebrity_deal$_{t=-1}$		14.419**			
		(5.736)			
celebrity_qrating $_{t=-1}$			.222**	.782	
			(.09)	(.543)	
celebrity_qrating_squared $_{t=-1}$				-.009	
				(.008)	
high_category_match $_{t=-1}$					1.027
					(6.106)
premoneyvaluation $_{t=0}$	.041***	.041***	.041***	.041***	.041***
	(.012)	(.012)	(.012)	(.012)	(.012)
premoneyvaluation $_{t=-1}$	-.004	-.004	-.004	-.004	-.004
	(.02)	(.02)	(.02)	(.02)	(.02)
dealsize $_{t=-1}$	.131	.13	.13	.13	.131
	(.175)	(.174)	(.174)	(.174)	(.175)
_cons	.746	.856	.86	.842	.747
	(5.105)	(5.111)	(5.112)	(5.112)	(5.106)
Observations	51076	51076	51076	51076	51076
Time FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
VC Round FE	Yes	Yes	Yes	Yes	Yes

Standard errors are in parentheses

**** p<.01, ** p<.05, * p<.1*

In order to understand impact of a celebrity investor on a start-up's subsequent fundraising time and test hypotheses 1b, 2b, and 3b, a linear regression model was used to estimate the impact of the variables $celebrity\_deal_{t=-1}$, $celebrity\_qrating_{t=-1}$, and $high\_category\_match_{t=-1}$ on $fundraising\_time_{t=0}$. Table 4 reports the results of our model. As predicted in hypothesis 1b, the presence of a celebrity investor can decrease the fundraising time of a firm by approximately 43 days when controlling for the size of a firm, total number of investors in a firm, and funding stage. Furthermore, we see that an increase in celebrity q-rating will decrease fundraising time, meaning that celebrity popularity and visibility appear to have an impact on start-up fundraising. However, we did not find any evidence that an overlapping match between a celebrity's profession and the company's product had any impact on a startup's fundraising.

Table 4: Multiple Linear Regressions for Fundraising Time

	(1)	(2)	(3)	(4)	(5)
	fundraising time $_{t=0}$	fundraising time $_{t=0}$	fundraising time $_{t=0}$	fundraising time $_{t=0}$	fundraising time $_{t=0}$
celebrity_deal$_{t=-1}$		-43.422**			
		(18.897)			
celebrity_qrating $_{t=-1}$			-.636**	-4.177*	
			(.308)	(2.227)	
celebrity_qrating_squared $_{t=-1}$				.055	
				(.035)	
high_category_match $_{t=-1}$					-79.227*
					(42.333)
premoneyvaluation $_{t=0}$	-.009***	-.009***	-.009***	-.009***	-.009***
	(.003)	(.003)	(.003)	(.003)	(.003)
premoneyvaluation $_{t=-1}$	.004	.004	.004	.004	.004
	(.003)	(.003)	(.003)	(.003)	(.003)
dealsize $_{t=-1}$	-.043**	-.042**	-.042**	-.042**	-.043**
	(.018)	(.017)	(.017)	(.017)	(.018)
_cons	-44.048	-44.094	-44.108	-44.023	-44.049
	(54.997)	(54.981)	(54.982)	(54.985)	(54.987)
Observations	47250	47250	47250	47250	47250
Time FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
VC Round FE	Yes	Yes	Yes	Yes	Yes

Standard errors are in parentheses

**** p<.01, ** p<.05, * p<.1*

Additional Analysis

In order to further understand how celebrity investors impact the start-ups they invest in, we performed several additional rounds of analysis.

Impact of Celebrity Investors on Firm Exits

We begin by investigating if the favorable attention and reputation received by celebrity-invested firms had an impact on firm exits. Once again using PitchBook's company data, we compared the likelihood of a start-up performing an initial public offering (IPO), being acquired by another entity (corporate or private equity), or going out of business for firms with a celebrity investor versus firms without a celebrity investor. As can be seen in our results in Appendix 2, we find no evidence that celebrity investors have an influence on the likelihood of a specific type of firm exit. We do find evidence that shows that if a celebrity firm is going to IPO, it will do so more quickly than firms without celebrity investors when controlling for deal size, with time, industry, and financing round fixed effects. Results can be found in Appendix 3.

Total Number of Investors in a Post Celebrity Deal

In order to help us explain the impact and mechanism that celebrity investors have on fundraising, we wanted to understand if firms in their post-celebrity investment round were raising more money from an equivalent number of individuals to traditional financing rounds, or if the celebrity firms were attracting a larger number of investors – ultimately allowing them to raise more capital that way. The variable *total_investors* is used to determine for the number of investors which invested within a single deal. Using the same independent variables and controls from our main analysis, we found that firms with a celebrity investor attract more investors in the round following a celebrity investment. Results can be found in Appendix 4.

Equity Given to Celebrity Investors

While the premise of this study is to better understand how celebrity investors impact the start-ups they invest in, it is also worth knowing if celebrities receive a premium for the additional attention they bring to a firm. The variable *percent acquired* was used as a dependent variable to calculate the ownership percentage an investor team receives for their particular deal. As seen in Appendix 5, on average celebrity investors acquire a greater percentage of ownership than traditional investors when controlling for the pre-money valuation of the firm, the deal size, the total number of investors, and the financing round.

Impact of Celebrity Investors on Later Stage Fundraising Rounds

Furthermore, while our study had focused on the round following a celebrity's investment, we also wanted to examine the impact of a celebrity's investment two rounds later. This would help us understand if the celebrity's impact on fundraising was permanent or fleeting. Using the variables $celebrity\_deal_{t=-2}$, $celebrity\_qrating_{t=-2}$, and $high\_category\_match_{t=-2}$, we ran a similar regression to our main analysis and found that there are diminishing returns to a celebrity's investment over time. Two deals after the celebrity's investment, we find no impact of a celebrity investor on deal size. However, the fundraising time of a celebrity invested firm continues to remain faster than traditional start-ups. This gives us further evidence for the signal theory aspect of a celebrities investment. Results of this analysis can be found in Appendices 6 and 7.

Influence of Celebrity Endorsed Marketing on Start-Up Fundraising

An alternative explanation for the increases in deal size and fundraising time is that celebrity investors undertake marketing campaigns for the companies they invest in. In order to separate

out the impact of direct marketing promotions made by the celebrity investor from the impact of traditional signaling theory, we plan on running two distinct analyses. First, we are looking at the direct promotions made by a celebrity on social media. We are in the process of obtaining the Meta Content Library from the Inter-university Consortium for Political and Social Research (ICPSR) in order to search each celebrity in our data set's Facebook and Instagram pages for endorsements of the companies they have invested in. We are specifically interested in social media posts in between the time of the celebrity's investment and the start-up's subsequent financing deal.

Additionally, Petkova, Rindova, and Gupta (2013) discussed the impact that media has on venture financing. We are also in the process of collecting news articles related to the celebrity investments, to see if an increase in the number of news articles written about a celebrity's investment in a start-up has any influence on the start-up's subsequent financing.

Discussion and Conclusion

In this paper, we looked into the growing celebrity investor phenomenon to understand whether start-up firms that received an investment from a celebrity investor saw fundraising benefits in their subsequent financing rounds. Drawing from management literature on firm reputation and signal theory, as well as marketing literature on celebrity endorsements, we argued that the reputation of a celebrity investor can be transferred to the firms that they invest in, and that the increased visibility and emotional resonance that celebrities subsequently pass on to the firms will lead to significantly more attention and trustworthiness being applied to the firm than firms financed by traditional investors. We also argued that this effect would be moderated by the source attractiveness of a celebrity investor and the source category match between a celebrity and the firm or product they invest in.

Employing the PitchBook dataset and YouGov's survey on Celebrity Q-Rating for firms and celebrities in the United States, our preliminary results suggest the celebrity investors influence fundraising for the firm's subsequent deal following the celebrity's investment. Our results indicate that the presence of a celebrity investor significantly reduces the time it takes for a startup to secure financing in the subsequent round (approximately 43 days faster), underscoring the power of celebrity-driven visibility. This aligns with previous findings that visibility acts as a crucial intermediary that can convert passive awareness into active interest and investment (Petkova, Rindova, & Gupta, 2013). Furthermore, firms tend to attract a large number of investors and raise more capital in the post celebrity deal financing round. We also found that a celebrity's Q Rating, a measure of popularity, positively influenced both the speed of fundraising and the amount of capital raised. This suggests that the emotional resonance of a celebrity, which reflects their broader societal appeal, plays a critical role in signaling. Finally, our results show very limited support for the signaling importance of source category matching in celebrity investment endorsements. With the categorical match between a celebrity's profession and the company they invest in only showing a slightly significant influence on fundraising speed and no effect on deal size.

Our further analyses explored whether the impact of celebrity investors extends beyond the first subsequent fundraising round. We find that after the first post-celebrity financing round, celebrity investors appear to have a dwindling effect on fundraising. Furthermore, while there was no significant evidence suggesting that celebrity investors increase the likelihood of a startup performing an IPO or being acquired, celebrities on average received a larger percentage of equity than traditional investors when controlling of the size of equity they contribute. This means that

either start-ups misevaluate the long-term benefits that a celebrity investor may bring, or that the subsequent round fundraising benefits that a celebrity investor brings are worth the premium.

This study makes two theoretical contributions. First, signaling theory (e.g., Spence, 1973; Gomulya et al., 2019) emphasizes that the value of a signal lies in its ability to credibly convey non-verifiable information about a firm's potential, quality, or reliability. We extend this framework by incorporating insights from marketing literature on celebrity endorsements to examine how such signals specifically influence outside investors. While celebrity endorsements in consumer markets leverage visibility and emotional appeal to shape perceptions and behaviors (Erdogan, 1999; McCracken, 1989), we argue that celebrity investors can similarly enhance a startup's visibility among outside investors. Beyond visibility, the emotional resonance and perceived source attractiveness associated with celebrity investors may amplify their signaling power, potentially outweighing traditional metrics such as expertise or industry experience. For investors, the fame and popularity of celebrity backers may serve as a particularly potent signal of credibility and attractiveness, shaping perceptions of the startup's potential.

Our study also points to the limits of reputational transfer from celebrities to firms. While celebrity visibility and popularity enhance fundraising outcomes, there was limited evidence to support the impact of a celebrity's direct relevance or professional expertise to the business (e.g., a sports figure investing in a sports-related startup did not significantly alter fundraising outcomes). This suggests that the signaling power of celebrities stems more from their general influence and less from their specific expertise, contrasting with some traditional views in signaling theory which emphasize the relevance of the signal to the signaled quality or capability.

Second, we contribute to the entrepreneurship and venture capital literature. Research has found that the speed of fundraising is related to a firm's growth rate, and quickly raising capital is critical for maintaining a first mover advantage (Colombo, Franzoni, & Rossi-Lamastra, 2015; Davila, Foster, & Gupta, 2003). Investors tend to prefer firms with higher levels of human capital, social capital, and ventures with lower levels of uncertainty experience shorter fundraising rounds (Ahlers et al., 2015). We have found that investors are also drawn to other famous investors and celebrity human capital that has little relevant expertise in the business' key industry. This supports findings by Vanacker et al., (2020) that positive media attention can influence investor evaluations.

Overall, this study demonstrates the complex interplay between celebrity-driven visibility, emotional resonance, and startup fundraising dynamics. It challenges traditional notions of signaling by highlighting the multifaceted ways in which emotional and attentional mechanisms can influence stakeholder decisions in environments characterized by high uncertainty. Our findings encourage a broader conceptualization of signaling mechanisms, suggesting that the strategic use of celebrity as a signaling method can serve as a powerful tool for new ventures seeking to quickly build up their reputation.

Limitations and Opportunities for Future Research

One limitation of our study that we are hoping to address in the future is with the static nature of our fame and popularity scores which we sourced from YouGov. At the time of our data pull, YouGov's data had been aggregated from the years 2017 through the end of 2023 – with fame and popularity scores for each celebrity being averaged over the time period. With our current set of data we unfortunately have no way to calculate a celebrity's fame or popularity in the exact year

that they made the investment. Furthermore, as previously mentioned in the additional analysis section, we are going to analyze the effect of direct marketing promotions by celebrity investors which will add a critical layer to understanding the interplay between signaling and direct influence.

One interesting area for future research is to understand the motivations for firms accepting investments from a celebrity. What benefits do these firms foresee when partnering with a celebrity, and how does that influence their negotiating. Furthermore, do these firms value the fame and visibility that accompanies a famous celebrity over the expertise of a highly experienced angel investor? Along those lines, we also believe that researchers may want to further investigate the motivations of celebrities when selecting a firm to invest in. Do these highly visible celebrities evaluate projects simply for financial reasons, or do they select firms to finance based off the celebrity's personal passions or prosocial ambitions?

References

Aaker, J. L. (1997). Dimensions of brand personality. *Journal of Marketing Research, 34*(3), 347-356. doi:10.1177/002224379703400304

Ahlers, G. K., Cumming, D., Günther, C., & Schweizer, D. (2015). Signaling in equity crowdfunding. Entrepreneurship theory and practice, 39(4), 955-980.

Aldrich, H. E., & Fiol, C. M. (1994). Fools rush in? the institutional context of industry creation. *Academy of Management Review, 19*(4), 645-670.

Arthurs, J. D., Busenitz, L. W., Hoskisson, R. E., & Johnson, R. A. (2009). Signaling and initial public offerings: The use and impact of the lockup period. Journal of Business Venturing, 24(4), 360-372.

Audia, P. G., Freeman, J. H., & Reynolds, P. D. (2006). Organizational foundings in community context: Instruments manufacturers and their interrelationship with other organizations. Administrative Science Quarterly, 51(3), 381-419.

Bafera, J., & Kleinert, S. (2023). Signaling theory in entrepreneurship research: A systematic review and research agenda. *Entrepreneurship Theory and Practice, 47*(6), 2419-2464.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99-120.

Bermiss, Y. S., Hallen, B. L., McDonald, R., & Pahnke, E. C. (2017). Entrepreneurial beacons: The yale endowment, run-ups, and the growth of venture capital. *Strategic Management Journal, 38*(3), 545-565.

Bialik, C. (2010, Feb 27,). Lights, camera, calculator! the new celebrity math. Wall Street Journal Retrieved from https://www.wsj.com/articles/SB10001424052748704479404575088143982459472

Blaseg, D., & Hornuf, L. (2024). Playing the business angel: the impact of well-known business angels on venture performance. *Entrepreneurship Theory and Practice*, *48*(1), 171-204.

Boivie, S., Graffin, S. D., & Gentry, R. J. (2016). Understanding the direction, magnitude, and joint effects of reputation when multiple actors' reputations collide. *Amj, 59*(1), 188-206. doi:10.5465/amj.2014.0521

Bruton, G. D., Ahlstrom, D., & Li, H. L. (2010). Institutional theory and entrepreneurship: where are we now and where do we need to move in the future?. *Entrepreneurship Theory and Practice*, 34(3), 421-440.

Chung, S., & Cho, H. (2017). Fostering parasocial relationships with celebrities on social media: Implications for celebrity endorsement. *Psychology & Marketing, 34*(4), 481-495.

Colombo, M. G., Franzoni, C., & Rossi–Lamastra, C. (2015). Internal social capital and the attraction of early contributions in crowdfunding. Entrepreneurship theory and practice, 39(1), 75-100.

Colombo, M. G., Meoli, M., & Vismara, S. (2019). Signaling in science-based IPOs: The combined effect of affiliation with prestigious universities, underwriters, and venture capitalists. *Journal of Business Venturing, 34*(1), 141-177.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of management*, 37(1), 39-67.

Cooper, A. C., Gimeno-Gascon, F. J., & Woo, C. Y. (1994). Initial human and financial capital as predictors of new venture performance. *Journal of Business Venturing, 9*(5), 371-395.

Cumming, D., Fleming, G., & Suchard, J. (2005). Venture capitalist value-added activities, fundraising and drawdowns. Journal of Banking & Finance, 29(2), 295-331.

Davila, A., Foster, G., & Gupta, M. (2003). Venture capital financing and the growth of startup firms. Journal of business venturing, 18(6), 689-708.

Deephouse, D. L. (2000). Media reputation as a strategic resource: An integration of mass communication and resource-based theories. *Journal of Management, 26*(6), 1091-1112.

Deutsch, Y., & Ross, T. W. (2003). You are known by the directors you keep: Reputable directors as a signaling mechanism for young firms. Management science, 49(8), 1003-1017.

Dholakia, R. R., & Sternthal, B. (1977). Highly credible sources: Persuasive facilitators or persuasive liabilities? *Journal of Consumer Research, 3*(4), 223-232. Retrieved from http://www.jstor.org/stable/2489608

Erdogan, B. Z. (1999). Celebrity endorsement: A literature review. *Journal of Marketing Management, 15*(4), 291-314.

Fischer, E., & Reuber, R. (2007). The good, the bad, and the unfamiliar: The challenges of reputation formation facing new firms. *Entrepreneurship Theory and Practice, 31*(1), 53-75.

Fombrun, C.J. (1996) 'Reputation: Realizing Value from the Corporate Image', Cambridge, MA: Harvard Business School Press.

Fombrun, C., & Shanley, M. (1990). What's in a name? reputation building and corporate strategy. *Academy of Management Journal, 33*(2), 233-258.

Gilbert, B. A., McDougall, P. P., & Audretsch, D. B. (2006). New venture growth: A review and extension. Journal of management, 32(6), 926-950.

Gomulya, D., Jin, K., Lee, P. M., & Pollock, T. G. (2019). Crossed wires: Endorsement signals and the effects of IPO firm delistings on venture capitalists' reputations. *Academy of Management Journal, 62*(3), 641-666.

Gulati, R., & Higgins, M. C. (2003). Which ties matter when? the contingent effects of interorganizational partnerships on IPO success. *Strategic Management Journal, 24*(2), 127-144. doi:10.1002/smj.287

Hallen, B. L. (2008). The causes and consequences of the initial network positions of new organizations: From whom do entrepreneurs receive investments?. Administrative Science Quarterly, 53(4), 685-718.

Heeley, M. B., Matusik, S. F., & Jain, N. (2007a). Innovation, appropriability, and the underpricing of initial public offerings. *Amj, 50*(1), 209-225.

Hovland, C. I., & Weiss, W. (1951). The influence of source credibility on communication effectiveness. *Public Opinion Quarterly, 15*(4), 635-650.

Hsu, D. H., & Ziedonis, R. H. (2013). Resources as dual sources of advantage: Implications for valuing entrepreneurial-firm patents. *Strategic Management Journal, 34*(7), 761-781.

Jensen, M., Kim, H., & Kim, B. K. (2012). Meeting expectations: A role-theoretic perspective on reputation.

Kerr, W. R., & Nanda, R. (2009). Democratizing entry: Banking deregulations, financing constraints, and entrepreneurship. Journal of Financial Economics, 94(1), 124-149.

Kuran, T. and C. Sunstein. (1999). "Availability Cascades and Risk Regulation," Stanford Law Review51, 683–768.

Lange, D., Lee, P. M., & Dai, Y. (2011). Organizational reputation: A review. *Journal of Management, 37*(1), 153-184.

Lee, P. M., Pollock, T. G., & Jin, K. (2011). The contingent value of venture capitalist reputation. *Strategic Organization, 9*(1), 33-69.

Li, Y., & Mahoney, J. T. (2011). When are venture capital projects initiated?. Journal of business venturing, 26(2), 239-254.

Lippman, S. A., & McCardle, K. F. (1987). Does cheaper, faster, or better imply sooner in the timing of innovation decisions?. Management Science, 33(8), 1058-1064.

McCracken, G. (1989). Who is the celebrity endorser? Cultural foundations of the endorsement process. Journal of consumer research, 16(3), 310-321.

McGuire, W. J. (1985). Chapter attitudes and attitude change. *Handbook of Social Psychology,* , 233-346.

Moore, C. B., Bell, R. G., Filatotchev, I., & Rasheed, A. A. (2012). Foreign IPO capital market choice: Understanding the institutional fit of corporate governance. Strategic Management Journal, 33(8), 914-937.

Morellec, E., Valta, P., & Zhdanov, A. (2015). Financing investment: The choice between bonds and bank loans. Management Science, 61(11), 2580-2602.

Ohanian, R. (1991). The impact of celebrity spokespersons' perceived image on consumers' intention to purchase. *Journal of Advertising Research.*

Petkova, A. P., Rindova, V. P., & Gupta, A. K. (2013). No news is bad news: Sensegiving activities, media attention, and venture capital funding of new technology organizations. *Organization Science, 24*(3), 865-888. doi:10.1287/orsc.1120.0759

Pfarrer, M. D., Pollock, T. G., & Rindova, V. P. (2010). A tale of two assets: The effects of firm reputation and celebrity on earnings surprises and investors' reactions. *Amj, 53*(5), 1131-1152.

Plummer, L. A., Allison, T. H., & Connelly, B. L. (2016). Better together? Signaling interactions in new venture pursuit of initial external capital. *Academy of Management Journal*, 59(5), 1585-1604.

Pollock, T. G., Chen, G., Jackson, E. M., & Hambrick, D. C. (2010). How much prestige is enough? assessing the value of multiple types of high-status affiliates for young firms. *Journal of Business Venturing, 25*(1), 6-23.

Pollock, T. G., & Gulati, R. (2007). Standing out from the crowd: The visibility-enhancing effects of IPO-related signals on alliance formation by entrepreneurial firms. Strategic Organization, 5(4), 339-372.

Pre-money valuation. Investopedia. Retrieved from https://www.investopedia.com/terms/p/premoneyvaluation.asp#:~:text=Pre%2Dmoney%20valuation%20is%20a,to%20be%20offered%20for%20sale.

Rao, A. R., & Monroe, K. B. (1996). Causes and consequences of price premiums. Journal of business, 511-535.

Rao, H. (1994). The social construction of reputation: Certification contests, legitimation, and the survival of organizations in the American automobile industry: 1895–1912. Strategic management journal, 15(S1), 29-44.

Rao, H., Davis, G. F., & Ward, A. (2000). Embeddedness, social identity and mobility: Why firms leave the NASDAQ and join the New York Stock Exchange. Administrative Science Quarterly, 45(2), 268-292.

Rao, H., Greve, H. R., & Davis, G. F. (2001). Fool's Gold: Social Proof in the Initiation and Abandonment of Coverage by Wall Street Analysts. Management Communication Quarterly, 46(3), 479-485.

Rao, D. 2013, July 22. Why 99.95% of entrepreneurs should stop wasting time seeking venture capital. Forbes. Retrieved from: https://www.forbes.com/sites/dileeprao/2013/07/22/why-99-95-of-entrepreneurs-should-stop-wasting-time-seeking-venture-capital/

Reuber, A. R., & Fischer, E. (2005). The company you keep: How young firms in different competitive contexts signal reputation through their customers. Entrepreneurship theory and practice, 29(1), 57-78.

Rindova, V. P., Pollock, T. G., & Hayward, M. L. (2006). Celebrity firms: The social construction of market popularity. Academy of management review, 31(1), 50-71.

Rindova, V. P., Williamson, I. O., Petkova, A. P., & Sever, J. M. (2005). Being good or being known: An empirical examination of the dimensions, antecedents, and consequences of organizational reputation. *Amj, 48*(6), 1033-1049.

Roberts, P. W., & Dowling, G. R. (2002). Corporate reputation and sustained superior financial performance. *Strategic Management Journal, 23*(12), 1077-1093.

Ross, D. G., & Shin, D. H. (2024). Do financial market frictions hurt the performance of women-led ventures? A meta-analytic investigation. Strategic Management Journal, 45(3), 507-534.

Sanders, W. G., & Boivie, S. (2004). Sorting things out: Valuation of new firms in uncertain markets. *Strategic Management Journal, 25*(2), 167-186.

Spence, M. 1973. Job market signaling. Quarterly Journal of Economics, 87: 355–374.

Stuart, R. W., & Abetti, P. A. (1990). Impact of entrepreneurial and management experience on early performance. *Journal of Business Venturing, 5*(3), 151-162.

Turban, D. B., & Cable, D. M. (2003). Firm reputation and applicant pool characteristics. Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior, 24(6), 733-751.

Vanacker, T., Forbes, D. P., Knockaert, M., & Manigart, S. (2020). Signal strength, media attention, and resource mobilization: Evidence from new private equity firms. *Amj, 63*(4), 1082-1105.

YouGov ratings FAQ. Retrieved from https://today.yougov.com/about/ratings-faq

Appendix 1: Keywords for Profession Category Matching

Actors:

- Auditions
- Beauty
- Casting
- Character
- Cinema
- Drama
- Entertainment
- Film industry
- Hollywood
- Improvisation
- Media
- Monologue
- On-screen
- Performance art
- Screenplay
- Stage
- Theater arts
- TV series
- Voice acting

News Reporter:

- Journalism
- Media
- Radio
- Weather

Influencer/Model:

- Beauty
- Brand ambassador
- Collaboration
- Commercial shoots
- Digital marketing
- Fashion blogging
- Fashion shows
- Fitness modeling
- Influencer campaigns
- Lifestyle
- Makeup tutorials
- Photo shoots
- Social media presence
- Sponsored content
- Style tips
- Trendsetting
- Vlogging
- Wellness

Film Director:

- Art
- Casting
- Cinema
- Directing
- Film
- Editing
- Media
- Screen
- Script
- Set design
- Storyboarding
- Visual storytelling
- Workshops

Athletes:

- Aerobics
- Agility
- Championships
- Coaching
- Endurance sports
- Fitness
- Gym training
- Health
- Marathon
- Nutrition
- Olympics
- Physical conditioning
- Professional sports
- Sports psychology
- Team sports
- Technique
- Track and field
- Water sports
- Weight training
- Wellness

Musicians:

- Album releases
- Band
- Choir
- Composing
- Electronic music
- Festivals
- Live
- Lyricism
- Music
- Music Teaching
- Orchestra
- Solo artist
- Sound engineering
- Studio recording
- Tour dates
- Vocal

Appendix 2:
Influence of Celebrity Investors on Firm Exits

	ipo	acquisition	outofbusiness
celebrity_deal	.751	-.272	.255
	(.582)	(.487)	(.343)
dealsize	.016***	.008***	-.024***
	(.006)	(.002)	(.006)
premoneyvaluation	-.002**	-.002	0
	(.001)	(.001)	(.003)
_cons	-3.98***	-5.202***	-1.954***
	(.626)	(.783)	(.395)
Observations	18540	18969	19325
Time FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
VC Round FE	Yes	Yes	Yes

Standard errors are in parentheses
**** p<.01, ** p<.05, * p<.1*

Appendix 3:
Influence of Celebrity Investors on Exit Time

	(1)	(2)	(3)
	deal_ipo_time	deal_acqtime	deal_oob_time
celebrity_deal	-41.324**	-13.343	15.834
	(17.828)	(40.492)	(57.296)
dealsize	.031**	.152	.105
	(.016)	(.129)	(.203)
premoneyvaluation	.002	.015	-.007
	(.001)	(.027)	(.011)
_cons	5402.692***	4456.571***	4479.169***
	(66.657)	(459.586)	(261.488)
Observations	2440	8461	5747
Time FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
VC Round FE	Yes	Yes	Yes

Standard errors are in parentheses
**** p<.01, ** p<.05, * p<.1*

Appendix 4:
Influence of Celebrity Investors on Total Number of Investors in Subsequent Deal

	(1)	(2)	(3)	(4)	(5)
	totalinvestors $_{t=0}$	totalinvestors $_{t=0}$	totalinvestors $_{t=0}$	totalinvestors $_{t=0}$	totalinvestors $_{t=0}$
celebrity_deal $_{t=-1}$		1.815***			
		(.448)			
celebrity_qrating $_{t=-1}$			.028***	.047	
			(.007)	(.063)	
celebrit_qrating_squared $_{t=-1}$				0	
				(.001)	
high_category_match $_{t=-1}$					1.702*
					(1.022)
premoneyvaluation $_{t=0}$	0***	0***	0***	0***	0***
	(0)	(0)	(0)	(0)	(0)
dealsize $_{t=0}$	.004*	.004*	.004*	.004*	.004*
	(.002)	(.002)	(.002)	(.002)	(.002)
_cons	-.44	-.436	-.435	-.436	-.44
	(.365)	(.365)	(.365)	(.365)	(.365)
Observations	57727	57727	57727	57727	57727
Time FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
VC Round FE	Yes	Yes	Yes	Yes	Yes

Standard errors are in parentheses
**** p<.01, ** p<.05, * p<.1*

Appendix 5:
Celebrity Equity Acquired

	(1)	(2)	(3)
	percent acquired	percent acquired	percent acquired
dealsize	.01***	.01***	.01***
	(.004)	(.004)	(.004)
premoneyvaluation	-.001***	-.001***	-.001***
	(0)	(0)	(0)
celebrity_deal		1.27***	1.27***
		(.463)	(.463)
early_stage			8.488**
			(3.397)
_cons	19.266***	19.272***	10.784***
	(1.133)	(1.133)	(3.539)
Observations	65853	65853	65853
Time FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
VC Round FE	Yes	Yes	Yes

Standard errors are in parentheses
**** p<.01, ** p<.05, * p<.1*

Appendix 6:
Influence of Celebrity Investors on Second Subsequent Round's Deal Size

	(1) $dealsize_{t=0}$	(2) $dealsize_{t=0}$	(3) $dealsize_{t=0}$	(4) $dealsize_{t=0}$	(5) $dealsize_{t=0}$
$celebrity\_deal_{t=-2}$		12.489			
		(9.54)			
$celebrity\_qrating_{t=-2}$			.179	1.56	
			(.148)	(1.131)	
				-.022	
$celebrity\_qrating\_squared_{t=-2}$					
				(.017)	
$high\_category\_match_{t=-2}$					7.105
					(8.602)
$premoneyvaluation_{t=0}$	.028*	.028*	.028*	.028*	.028*
	(.015)	(.015)	(.015)	(.015)	(.015)
$premoneyvaluation_{t=-2}$	.017	.017	.017	.017	.017
	(.024)	(.024)	(.024)	(.024)	(.024)
$dealsize_{t=-2}$	.565**	.564**	.564**	.564**	.565**
	(.281)	(.282)	(.282)	(.282)	(.281)
_cons	-3.34	-3.415	-3.399	-3.473	-3.345
	(4.164)	(4.149)	(4.152)	(4.148)	(4.164)
Observations	34214	34214	34214	34214	34214
Time FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
VC Round FE	Yes	Yes	Yes	Yes	Yes

Standard errors are in parentheses
**** p<.01, ** p<.05, * p<.1*

Appendix 7:
Influence of Celebrity Investors on Second Subsequent Round's Fundraising Time

	(1) fundraising time $_{t=0}$	(2) fundraising time $_{t=0}$	(3) fundraising time $_{t=0}$	(4) fundraising time $_{t=0}$	(5) fundraising time $_{t=0}$
celebrity_deal $_{t=-2}$		-74.097***			
		(21.838)			
celebrity_qrating $_{t=-2}$			-1.112***	-5.084	
			(.356)	(3.347)	
celebrity_qrating_squared $_{t=-2}$				.062	
				(.053)	
high_category_match $_{t=-2}$					-13.255
					(54.522)
premoneyvaluation $_{t=-0}$	-.005**	-.005**	-.005**	-.005**	-.005**
	(.002)	(.002)	(.002)	(.002)	(.002)
premoneyvaluation $_{t=-2}$	.004*	.004	.004	.004	.004*
	(.002)	(.002)	(.002)	(.002)	(.002)
dealsize $_{t=-2}$	-.394***	-.387***	-.387***	-.388***	-.394***
	(.083)	(.082)	(.082)	(.082)	(.083)
_cons	-76.542*	-76.228*	-76.292*	-76.12*	-76.555*
	(42.569)	(42.551)	(42.554)	(42.548)	(42.57)
Observations	32389	32389	32389	32389	32389
Time FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
VC Round FE	Yes	Yes	Yes	Yes	Yes

Standard errors are in parentheses
**** p<.01, ** p<.05, * p<.1*

Patrick Smith

Casting the Sequel: How Awards-Based Recognition Influences Repeat Collaboration Efforts in the Independent Film Industry

Abstract

This study examines how differences in awards-based recognition influence the likelihood of repeated collaboration among team members working in temporary organizations. Focusing on the independent film industry, this study explores how team-based awards versus individual-based awards affect the continuity of key creative collaborations such as directors, writers, and producers. Drawing on theories of causal ambiguity and social construction literature such as signaling theory and status, this paper argues that positive recognition of a team's collective efforts reinforces coordination and a collective identity, thereby increasing the probability of future collaboration. In contrast, when only one team member is publicly recognized, the performance narrative becomes individualized, weakening the incentive to re-configure the team. Furthermore, changes in the status hierarchy significantly influence the singularly awarded individuals to seek out other high-status collaborators on their next project.

Using a dataset of 2,126 films and over 13,000 key cast members from the Sundance Film Festival, this study finds that team-based recognition increases the likelihood of re-collaboration, while individual-based recognition does not. Results show that key cast members on films which receive a team-based award, such as the Sundance Film Festival's Grand Jury Prize, are more likely to re-collaborate on the subsequent film project. Additionally, individual awards given to a single key cast member on a film project had no influence on the overall ratio of key cast members that were willing to re-collaborate. This effect is far stronger for key cast members who win an individual award than for key cast members who work on films which receive a team award, and there does not appear to be an halo effect for teammates of award-winning individuals either.

Keywords: Temporary Organizations; Project-Based Teams; External Recognition; Causal Ambiguity; Signaling; Status

Introduction

Temporary organizational forms such as project-based teams, academic research groups, venture capital syndicates, task forces, and film crews involve member interactions that are confined to a predetermined, limited timeframe established before the project begins (Bakker, 2010; Schwab, & Sydow, 2016). Despite their temporary nature, these organizational forms are not necessarily single-shot interactions and instead provide the opportunity for repeated interaction after the completion a particular project or period of time (Bakker et al., 2016; Schwab & Miner, 2008). In fact, the majority of extant research on temporary organizations has focused on performance differences that occur when teams choose to re-collaborate (Bechky, 2006; Grabher, 2004; Ebers & Maurer, 2016; Lewis, Lange, & Gillis, 2005). This literature has found that temporary organizational teams improve performance after repeat interactions – regardless of the success of the initial interaction (Narayan & Kadiyali, 2016). Individual performances of a team's members often increase as they accumulate organization-specific tacit knowledge over repeat interactions, which also explains why star-performers underperform when changing teams (Huckman & Pisano, 2006; Jones et al., 1998).

Unfortunately, however, most temporary and project-based teams don't stick together over time – it's inherent in the name. So rather than ask what happens if temporary organizations re-collaborate, Schwab & Miner (2008) studied what specific factors motivate individuals working in a temporary organization decide to re-collaborate after a successful performance. Their study identified three necessary elements that must be present to facilitate re-collaboration: *awareness* of the team's success, *attribution* of success to specific elements of the team's performance, and the *ability* to freely reconfigure back into the same teams. Two of the elements, awareness of success and ability to reconfigure, may be influenced by industry and scheduling outside of the

team's control; in certain industries such as consulting (Baker & Faulkner, 1991; Jones, 1996), a temporary team's members may have already selected their next project before the focal project has concluded thereby inhibiting their ability to re-configure. Although, Schwab & Miner's (2008) third element, attribution of success, is a purely subjective interpretation that each individual member of a team makes on his or her own.

Research on causal ambiguity has found that decision makers have a limited ability to discern how specific competencies contribute to organizational outcomes (King, 2007). Factors that are difficult to articulate and codify due to their tacitness, complexity, or specificity are the most frequent source of causal ambiguity (Clough & Piezunka, 2020; King & Zeithaml, 2001; Reed & DeFillippi, 1990). Therefore, if the build-up of organization-specific tacit knowledge is both a key factor in the performance of temporary teams, but also the most ambiguous causal factor to identify, then members of temporary teams are at a distinct disadvantage in correctly identifying and attributing the causal factors of their own team's success. This leaves open the door for prominent external evaluators to have a significant influence on how both a team and its members attribute performance success to specific causal factors, and subsequently their likelihood of re-configuration.

The purpose of this paper is to understand how the specificity of external recognition (and the status associated with it) towards an entire team versus a specific team member influences re-collaboration efforts among high performing team. Literature on social construction has found that in times of ambiguity, individuals look to the opinions of influential others to help reduce uncertainty (Pollock & Rindova, 2003: Rindova et al., 2005; Weick, 1995). Prominent establishments such as the media and certification institutions have the ability to confer social approval assets such as legitimacy, reputation, and ultimately status onto both individuals and

organizations (Pollock & Ridnova, 2003; Rao, 1994). These status inducing awards influence not only how external audiences view the awarded firm or individual, but also motivate awarded individuals to seek out similarly recognized collaborators (Rao, Davis, & Ward, 2000). This study proposes that team-based recognition encourages the internal team members to look inwardly at team-based processes that facilitated their success and increase their likelihood of re-configuration. Furthermore, a team-based award will increase the status and prominence of the team or the team's product but will have a limited impact on the status of each individual team member – maintaining status parity across the team. On the other hand, an individual-based award directs attention away from the team's internal processes and towards the performance of a single individual, regardless of how dependent that individual's success was on the performance of his or her teammates. Furthermore, an individual-based award provides the awarded individual with the opportunity to collaborate with other high-status individuals and reduces their incentive to re-collaborate with their current teammates.

Empirically, this study analyzes the impact of team- and individual-based performance awards in the independent film industry. This study specifically looks at how key cast members such as directors, writers, producers, cinematographers, editors, and lead actors/actresses react to awards given to the film (team-based recognition) versus awards given to specific individual performances. The sample is centered around the 2,126 films which have been showcased at the Sundance Film Festival from 1978 through 2022, and the employment history of the over 13,000 key cast members that worked on those particular films. The Sundance Film Festival is the preeminent independent film festival in North America, with a strict evaluation criteria for showcased movies and an audience of high-status film industry members. Simply being selected

for the festival is already a huge accomplishment for independent filmmakers, but winning one of the Grand Jury Prizes can turn a film into an Oscar contender and an individual into a star.

Results show that key cast members on films which receive a team-based award, such as the Sundance Film Festival's Grand Jury Prize, are more likely to re-collaborate on the subsequent film project. Additionally, individual awards given to a single key cast member on a film project had no influence on the overall ratio of key cast members that were willing to re-collaborate. Further analysis does find, however, that the film cast members who are awarded with an individual award at Sundance do see a significant boost in the number of other award-winning cast members they work with on their subsequent project. This effect is far stronger for key cast members who win an individual award than for key cast members who work on films which receive a team award, and there does not appear to be an halo effect for teammates of award-winning individuals either.

This paper makes two primary contributions: First, these findings contribute to literature on temporary teams by identifying the role that external evaluators play in temporary team formation decisions. Previous literature focused on the role of inter-team dynamics and objective performance metrics, whereas this research shows that recognition given by prominent third parties can encourage team members to re-collaborate under certain contexts, or motivate recognized star performers to move on. Second, this paper makes a contribution to social construction literature by demonstrating the power of individual-based recognition as a status-enhancing event in comparison to team-based recognition. Even members of teams that won more prestigious prizes, such as the Sundance Grand Jury prize, received less of a status boost from their team-based award than cast members on other films that won a less prestigious individual award.

Theoretical Background

Temporary Organizations

Temporary organizational forms, defined as "sets of organizational actors working together on a complex task over a limited period of time" (Goodman & Goodman, 1976, p. 494), have emerged as the primary method of organization across a range of industries such as academia, consulting, construction, the film and theater industries, and venture capital syndicates (Bakker, 2010; Bakker, et al., 2016). In project-based industries, temporary organizational forms allow for better mobilization and efficiency among specialized talent (Bakker, 2010; Jones, 1996), with three distinct organizational stages: team assembly, collaboration on the project, and the disassembly period (Sydow, Lindkvist, & DeFillippi, 2004). Unlike traditional organizational forms that rely on persistent structure and hierarchies, temporary organizational forms must quickly establish trust and coordination under conditions of high uncertainty and minimal organizational governance (Jones, 1996; DeFillippi & Arthurs, 1998).

Although temporary organizations are structured to quickly adapt and mobilize specialized talent, they frequently encounter challenges related to learning and coordination (Bechky, 2006; Grabher, 2004). Projects that rely exclusively on one-off partnerships limit potential economies of standardization, knowledge transfer between similar projects, and cumulative organizational learning (Ebers & Maurer, 2016). In contrast, recurring collaboration among team members enables groups to enhance their collective problem-solving techniques (McEvily & Marcus, 2005), establish more stable and clearly defined roles (Beckhy, 2006), and enhance their ability to utilize and further develop existing competencies (Manning & Sydow, 2011; Ebers & Maurer, 2016). Even teams who performed poorly during their first collaboration will see an improvement in performance during their second interaction (Narayan & Kadiyali, 2016).

Moreover, recurrent partnering helps solidify organizational routines such as collective knowledge, skills, beliefs, and accumulated experiences of the group through repeat interactions (Li & Rowley, 2002). Consistent team membership enables individuals to recognize teammates' capabilities and limitations more effectively, thereby improving coordination and facilitating the establishment of shared processes critical for achieving collective goals (Lewis, Lange, & Gillis, 2005). However, introducing new team members disrupts existing routines and cognitive frameworks, posing unique challenges to the group's functional efficiency (Lewis, Lange, & Gillis, 2005). A study by Huckman & Pisano (2006) also provided empirical evidence illustrating firm-specific performance differences among freelance professionals, finding that repeated engagements with the same contracting organization enhanced performance. This perspective reflects the idea of firm-specific human capital, where performance is closely tied to routines, tacit coordination, and relational knowledge that are deeply embedded within a particular organization's social and structural context (Groysberg, Lee, & Nanda, 2008). Extant literature has found that even highly talented individuals underperformed when switching firms, underscoring that their prior success was not solely due to their individual talent but instead rooted in the collaborate systems of their former team (Groysberg, Lee, & Nanda, 2008; Mindruta et al., 2025).

Given the clear performance benefits associated with recurrent partnering, understanding its drivers becomes crucial. Schwab & Miner (2008) emphasized performance satisfaction as a critical determinant of future partnerships. Their conditional model states that recurrent partnering is conditional on: (1) awareness of the successful outcome, (2) attribution of the outcome to specific team behaviors, and (3) the ability to re-configure for future actions. Yet, given the dissolution of formal entities upon project completion, temporary organizations inherently face difficulties in preserving organizational memory and effectively fulfilling these conditions.

Of Schwab & Miner's three conditional steps, awareness of success at the time of re-configuration and ability to reconfigure can be impacted by factors outside of the control of team members. While the success of a project may seem obvious, awareness of a successful project outcome may not be possible at the time of re-configuration. In some industries with tight scheduling, workers may have already configured into their subsequent project team before the current project has completed. Furthermore, in hybrid-temporary organizations, individuals may not have full autonomy to configure into their preferred team (Schwab & Miner, 2008). Attribution of success, however, can be highly subjective and vary from individual to individual within the same team (Mosakowski, 1997). Accurately evaluating the source of a successful performance is inherently challenging due to the nature of tacit capabilities acquired during collaborative working experiences (Azoulay, Repenning, & Zuckerman, 2010; Reed & DeFillippi, 1990; Sorenson & Waguespack, 2006). If teammates do not understand or value of coordination processes and organization-specific knowledge, then they will not attribute a project's successful performance to team-specific factors (Clough & Piezunka, 2020). Therefore, causal ambiguity around tacit-related knowledge may actually be the key factor preventing temporary organizations from continuously re-configuring.

Causal Ambiguity in Temporary Organizations

Causal ambiguity is a cognitive and strategic phenomenon characterized by uncertainty regarding the specific factors that lead to organizational outcomes. It captures decision-makers' limited comprehension of how specific competencies directly translate into competitive advantages (King, 2007). Managers typically make strategic decisions by predicting outcomes based on their cognitive models of cause and effect, derived from accumulated experiences and interpretations of prior events (Gavetti, Levinthal, & Rivkin, 2005). However, these interpretations are frequently

flawed or incomplete due to inherent ambiguities centered around tacitness, complexity, and specificity of the competency (Reed & DeFillippi, 1990). This fundamental ambiguity about causal connections reflects a profound uncertainty among managers about how specific competencies generate competitive advantages (King & Zeithaml, 2001). For instance, tacit knowledge, being inherently intuitive and unarticulated, poses significant challenges for managers seeking to precisely identify its role in driving performance (King & Zeithaml, 2001). Organizational culture and values, being deeply embedded and difficult to transfer, further amplify this form of ambiguity (Mosakowski, 1997).

Two primary sources of causal ambiguity are relevant for temporary organizations – tacitness and complexity. As previously discussed in the previous section on Temporary Organizations, tacitness encompasses competencies arising from experiential, often implicit, knowledge, which proves challenging to codify and explicitly articulate. Because this knowledge is accumulated over time through direct experience, it typically remains informal and resistant to formal instruction or codification (Polanyi, 1967; Wagner & Sternberg, 1985). Since tacit knowledge is embedded within individuals or teams, identifying its precise role in organizational success becomes exceedingly difficult, thus increasing ambiguity. Complexity also significantly contributes to causal ambiguity by involving numerous interconnected routines, experiences, and technologies. The intricate interplay among these components means that a comprehensive understanding of the team's mechanics eludes most of its members. Consequently, managers face considerable difficulty in accurately attributing specific organizational outcomes to discrete causes, leading to enhanced ambiguity when evaluating performance (Nelson & Winter, 1985)

The Role of External Evaluators in Reducing Ambiguity

Individuals rely on the opinions and judgment of external third parties when make decisions under high levels of uncertainty (Rao, Davis, & Ward, 2000; Rindova et al., 2005). Signaling theory posits that when performance cannot be directly observed or attributed, signals from prominent third parties serve as proxies for an organization or individual's quality and capabilities (Spence, 1973). The most effective signals are those which are the result of past performance, and then subsequently create a clear linkage between past accomplishments and future success (Rao, 1994). However, not all signals – particularly signals for new organizations or inexperienced individuals – can be based off of past performance. In these situations, prominent endorsements made by third parties such as institutions, award bodies, and the media can act as a signal of high performance and quality to observers. In the context of this study, award-based recognition functions as a form of certification that evaluates team outputs and is trusted by less informed market participants (Rao, 1994)

While extant literature on third party signaling has been studied through the lens of external audiences, the causal ambiguity that temporary organizations face may lead internal members of the organization to benefit from external signals as well. Because temporary organizations configure and re-configure in a marketplace setting, certifications and recognition from prominent third parties could motivate re-configuration – particularly when the recognition is directed towards the team's collective success. This research proposes that the recognition of a team's collective success from a prominent third party will not only reduce ambiguity related to the performance of the team, but also motivate them to consider and value the tacit and organization specific assets that the temporary team possesses. As a result, hypotheses 1 and 2 focus on how the external signal influences the internal audience of team members, with hypothesis 1 stating:

H1: Team-based recognition (awards) increase the likelihood that the project-based team will re-collaborate on future projects.

However, an individual-based award may actually generate misinformation and additional ambiguity towards the team's success. As previously discussed, individual performance (including star performance) is often dependent on organization-specific human capital, with performance tied to routines, tacit knowledge, and complementarities among team members (Groysberg, Lee, & Nanda, 2008; Huckman & Pisano, 2006; Mindruta et al., 2025). If attention is being directed towards one individual and away from the entire team's contribution, then the members of the team may be unable to recognize the tacit complementarities that they established together. Furthermore, if only one member of a team is being recognized for their performance, then the other members of the team may feel resentment of a lack of ownership over the project's successful outcome (Gray, Knight, & Baer, 2020), leading to bitter feelings and less motivation to re-collaborate. It seems possible that an individual-based award may actually motivate non-award winners to seek out other collaborators, and as a result, hypothesis 2 states:

H2: Individual-based recognition (awards) increase the likelihood that the project-based team will dissolve and not collaborate on future projects.

Status Conveying Awards

In addition to helping internal team members assert causality to their team's successful performance, awards given by prominent external evaluators are also status-conveying signals being sent out to audiences outside of the team. Unlike reputation, which emerges from direct evaluations of past performance, status is often inferred through visible associations with esteemed partners or institutions (Rindova et al., 2006). Producers and individuals with higher status receive

relatively more opportunities than low-status competitors (Podlony, 1993). Because certification contests rank participants into 'winners' and 'losers', these contests create structure by which winners are of higher status in the eyes of marketplace consumers (Rao, 1994; Benjamin & Poldony, 1999). Because collaboration on project-based teams is facilitated through a marketplace-like setting (Sydow, Lindkvist, & DeFillippi, 2004), award-winners and those who participated on award-winning teams may be viewed as more desirable by other potential collaborators.

Additionally, other award-winners may seek to work with the newly awarded individual. Because an organization or individual's status is determined based off of their affiliations, connections with higher-status collaborators tend to elevate one's perceived prestige, while associations with lower-status peers can be viewed as liabilities (Podolny, 1993). Over time, even small differences in perceived status can lead to disproportionately large advantages in access to resources and partnerships with other high-status actors (Azoulay, Stuart, & Wang, 2014; Merton, 1968). As a result, this research expects to see an increase in the number of other award-winners that members of award-winning teams will collaborate with. Therefore, hypothesis 3 states:

> *H3: Team-based recognition (awards) increase the likelihood the team's members will collaborate with higher status peers on their subsequent project.*

However, the structured nature of award contests can also exaggerate minor differences between participants, creating artificial distinctions among otherwise comparable teammates (Rao, 1994). In the case of individual awards, the awarded individual may consider themselves to be superior to their teammates and seek out other high-status individuals to collaborate with on future assignments. Furthermore, if the awarded individual chooses not to re-collaborate with their teammates, then the status of those teammates may be collective diminished as well. From an

external viewpoint, research has found that prestigious individual prizes such as the Nobel prize have been found to draw disproportionate attention to the recipient, narrowing the visibility of others operating in the field (Reschke, Azoulay, & Stuart, 2018). If a single individual on a project-based team receives an individual award, then other members of the team are at risk of being overshadowed and ignored by other potential collaborators. Therefore, Hypothesis 4 separately predicts the impact of individual-focused recognition award on the award winner, as well as the subsequent impact on his or her teammates:

H4a: Individual-based recognition (awards) increase the likelihood the recognized individual will collaborate with higher status peers on their subsequent project.

H4b: Individual-based recognition (awards) given to a project teammate will have no impact on the level of status of new peers on their subsequent project.

Empirical Setting

This study investigates the likelihood of project team re-collaboration among high-performing teams by focusing on the independent film industry, specifically looking at films showcased at the Sundance Film Festival (Sundance). Sundance provides a compelling empirical setting for several reasons. As the largest independent film festival in the United States, Sundance is widely regarded as the top showcase for up and coming filmmakers and those in the independent film industry (Sundance, n.d.). The festival functions not only as a cultural showcase, but also as a key networking event for industry professionals looking to finance and cast their next project (Sperling, 2024).

Firms showcased at Sundance are selected through a highly competitive process, making them useful proxies for the high quality of the films. This is in line with prior studies which have looked at success in the film industry via either a financial perspective (Schwab & Miner, 2008; Sorenson & Waguespack, 2006) or through evaluations by critics (Rossman, Esparza, & Bonacich, 2010). Furthermore, awards at Sundance are facilitated out on both a team and individual level. The Grand Jury Prizes, for example, are awarded out on a team basis, whereas Special Jury Prizes are awarded to individual cast members for their exceptional performance (Sundance, n.d.).

Finally, winning an award at Sundance can be considered a significant status-enhancing event. The 2021 film *CODA*, which premiered at Sundance became the first Sundance film to win an Academy Award for Best Picture. Furthermore, two individual awards were presented to *CODA*'s key cast members at the Academy Awards: Actor Troy Kotsur and Writer Sian Heder (Buchanan, 2023). In this respect, Sundance-selected films offer a unique opportunity to observe how high status team-specific and individual-specific awards influence team collaborations over time.

Data and Variables

Historical data on films showcased at the Sundance Film Festival originate from two primary sources. The main source of data was provided by the Internet Movie Database's (IMDB) non-commercial datasets. This vast database has information on both film details such as name, genre, and premiere date, but also a vast collection of cast member information as well. The IMDB titles were then matched to movie titles listed on the Sundance Film Festival's website using an exact matching algorithm. In total I were able to identify 2,126 feature length films which were showcased at the festival. By linking the Sundance films to a unique IMDB title identifier (tconst), I was able to subsequently identify all listed cast members for each movie showcased at the festival from 1978 until 2022. After specifically filtering for cast members that had the roles of director,

writer, producer, editor, cinematographer, and lead actor/actress, I had a total of 13,917 unique individuals in my dataset. I specifically selected those roles because they not only provide essential resources for the film: the writer provides the script, the producer provides the funding, the cinematographer films the actors, the editor cuts the film, and the director orchestrates all of the pieces into a single piece of work. The specific key cast members who worked on any Sundance feature-length film are considered to be my "Focal Group". Extensive work was also performed to ensure that individuals who worked several roles (i.e., writer and director) were not double counted.

Using the unique IMDB identifier (nconst), I then located all of the other films that the 13,917 key cast members had worked on in their careers – both before and after their Sundance film. This allowed me to understand what films the individual had worked on prior to the Sundance film, their next film project following the festival, and the other teammates they collaborated with on those projects. Over the course of their careers, these 13,917 key cast members worked on over 500,000 film projects, leading to an average of approximately 40 film and television projects per person at the time of their Sundance showcased film[2].

Information on Sundance award winners was once again provided by Sundance's own website. Awards were divided between team-based awards and individual-awards based off of the descriptions on the festival's website (Sundance, n.d.). Team awards were classified as any award given to the film project as a whole, such as the Grand Jury Prizes and Audience Awards. The festival used to give team awards under two classifications: "Dramatic" films and "Documentary" films, however, in the year 2001 the festival began further subdividing the awards into U.S. and

[2] Individual television episodes are considered "projects" by IMDBs metrics, leading to the high per person averages. Further this includes all roles that the individual performed across their career.

World Cinema categories – meaning that today there are four total Grand Jury Prizes and four total Audience Awards given out. Additional Jury Awards are given out for directing, screenwriting, editing, and acting which are awarded to an individual cast member. Like the team awards, these awards distinctions are also made for U.S. winners and international winners. Over time, the number of awards has increased from 8 awards for feature length films (both team & individual) in 1984 to 36 awards for awards in 2023.

Additional award data was collected on other major film industry awards such as the Academy Awards, Golden Globes, Cannes Film Festival, Venice Film Festival, as well as guild-specific awards such as the Screen Actors Guild (SAG) awards. Evaluation of firms and individuals that specifically won (or in the case of the Academy Awards were simply nominated) a "Best Picture" type award, as well as individual specific awards such as "Best Actor/Actress", "Best Director", "Best Cinematography", and "Best Screenplay". As of this moment, data is being collected from each award bodies' website, with matching to IMDB identifiers forthcoming.

The analysis was performed using two separate data sets. A cross-sectional dataset of the 2,126 Sundance Films tests team-based metrics and re-collaboration rates related to Hypotheses 1 and 2, and a panel dataset of the 13,917 key cast members tests the individual-status related Hypotheses 3 and 4.

Dependent Variables

Two dependent variables have been constructed to test my hypotheses. The variable *continued_collaboration_ratio* is a team-based variable was created to test Hypotheses 1& 2, and it is calculated as the number of key cast members who continued working together on their subsequent film project divided by the total number of key cast members on the film. The

continued collaboration was derived by evaluating, for each Sundance film, the next film project across all key cast roles (director, writer, producer, lead actor/actress, cinematographer, and editor), grouping identical IMDB tconsts IDs, and counting the number of cast members who share that same next film role. If no post Sundance collaborations were present, the value of the dependent was 0.

The second dependent variable of interest is *subsequent_star_ratio*, which is an individual-based variable. The purpose of this variable is to identify if one member of a team winning an individual award reconfigures the team's status hierarchy, and motivates the awarded individual the opportunity to work with other high-status members of the film industry. This variable was calculated by first identifying every individual who has won a Golden Globe Award, a Guild Award, a Golden Palm from Cannes, or been nominated for an Academy Award for the categories of acting, cinematography, directing, editing, and writing. Then, if that award was earned prior to the Sundance Film, or the post-Sundance collaboration they were considered a high-status collaborator. I then constructed a ratio of the number of high-status key cast members on the post-Sundance project for any subsequent project (high-status or not) performed by one of the members of the focal organization.

The purpose of the *subsequent_star_ratio* is to identify the number of award winners working on the subsequent film for all key cast members (not just award winners). The data behind this variable is currently under collection, but it will be calculated by identifying the number of previous award winners (and academy awards nominees) working as key cast members on a film and dividing that by the total number of key cast members. This variable helps to answer Hypothesis 3, by identifying the status level of future collaborators following the Sundance Film Festival.

Independent Variables

Two independent variables have been used to identify movies which won awards at the Sundance Film Festival and test Hypotheses 1 and 2. The first variable, *team_award* is a dummy variable which indicates any feature-length film (i.e., not documentary or short film) which won a Grand Jury Prize at the Sundance Film Festival. The Grand Jury Prize is the most prestigious film award given out at Sundance every year, and two are awarded to feature-length films each year – one to the best U.S. film showcased at the festival and a second to the best International. The second variable, *individual_award* indicates if an individual on the team won a Special Jury Award for a particular professional category such as the "World Cinema Dramatic Special Jury Award for Acting" or the "US Dramatic Special Jury Award for Editing". This dummy variable is specific to individual's winning a Special Jury Award for their performance on the focal film.

In order to answer Hypotheses 3 and 4, three separate independent variables were developed. Once again the variable *team_award* is used, but because the dataset used for Hypotheses 3 and 4 is a panel dataset of individual cast members and their relevant work experience. In this instance, individuals were given the dummy value of 1 if they were a key cast member on an award winning film. Second, the dummy variable *individual_award_winner* was used to single out the individual on a Sundance Film who won a Special Jury Award for their performance and test Hypothesis 4a. Finally, the dummy variable *teammate_award_winner* was given to key cast members on a Sundance Film whose teammate won an individual award. For example, if a cinematographer won a Special Jury Prize for a film, then the director, lead actor/actress, editor, producer, and writer won would receive a 1 for this value.

Controls

Several control variables were also incorporated into the analysis to account for the previous work history and past collaborations of key cast members, the quality of the films produced, and the production location. First, the number of key cast members on a given film project was controlled for using the variable *key_cast_size*. This variable counts the number of unique individuals working as key cast members on a film. Second, past literature has shown that if temporary teams have decided to re-collaborate on a second project, then they are significantly more likely to re-collaborate on the third project (Sorenson & Waguespack, 2006). As a result, the variable *previous_collaboration_ratio* was used to account for the possibility that the focal Sundance film was a re-collaboration amongst key cast members. This ratio was calculated similarly to the dependent variable *continued_collaboration_ratio*, but instead is backwards looking.

Third, it is possible that the key cast members of Sundance films had won an award prior to their focal film. Therefore, the dummy variable *previous_award_winner* is used to account for any key cast members that had previously won an individual award from the Sundance Film Festival, Academy Awards, Golden Globes, Cannes Film Festival, or Guild Award before the focal film. The similar calculated variable *current_star_ratio* is used for cross-sectional team dataset and accounts for the ratio of previous award winners to on the key cast.

Fourth, the level of experience each cast member has may also influence the likelihood of future collaborations, particularly after winning an award. For example, an individual who wins an award despite having limited prior work experience is going to see a more dramatic change in their status hierarchy than an individual with decades of experience who finally receives an award for their

work. Therefore, the variable *nbr_past_films* is used for the individual panel data set the variable *avg_nbr_past_films* is used for the cross sectional teams data set.

Despite all films accepted films showcased at the Sundance Film Festival meeting a minimum threshold of quality, the variable *imdb_rating* was still used as a measure of the film's quality. This data came straight from the IMDB database. The dummy variable *international* was used to identify films which were nominated in the "World Cinema" category. Finally, fixed effects were used to account for the year the film was released to the public, the genre of the film, and in the case of the individual panel data set – the film's IMDB unique tconst identifier.

Analysis

Team Based Re-Collaboration Analysis

Tables 1 and 2 present the summary statistics and correlations for the sample of 2,126 project teams used to test Hypotheses 1 and 2. The average value of the dependent variable, *continued_collaboration_ratio* is 0.138, indicating that on average, approximately 14% of key cast members reunite on subsequent projects. Team-based awards are relatively rare, occurring in just over 3% of the sample, while individual awards are present in about 5% of films. The mean value of *previous_collaboration_ratio* is 0.131, suggesting that most teams had limited collaboration history prior to the Sundance film. The average number of key cast members on each film was 6.03 and the average number of previous film project experiences prior to Sundance was 46.6 film projects (including individual episodes of television; also includes projects where they participated in smaller roles and were not a key cast member), though both variables exhibit substantial variability. Pairwise correlations indicate no risk of multicollinearity, will all but one coefficient falling below 0.1 in magnitude. Notably, *team_award* is positively correlated subsequent

collaboration (r =0.060), while *individual_award* shows a small negative correlation (r=0.032), both consistent with hypotheses 1 and 2.

Table 1: Summary Statistics – Team Data Set

Variable	Obs	Mean	Std. Dev.	Min	Max
continued collabor~o	2126	.138	.194	0	1
team award	2106	.031	.174	0	1
individual award	2126	.049	.216	0	1
current star ratio	2126	.059	.117	0	.833
previous collabora~o	2126	.131	.195	0	1
imdb rating	2126	6.491	.851	1.6	9
key cast size	2126	6.029	1.267	2	9
avg nbr past films	2126	46.558	51.121	0	561.318
international dummy	2126	.14	.347	0	1

Table 2: Correlation Matrix – Team Data Set

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) continued_coll~i	1.000								
(2) team_award	0.060	1.000							
(3) individual_award	-0.032	0.034	1.000						
(4) current_star_r~o	-0.010	-0.028	0.003	1.000					
(5) previous_colla~o	0.076	-0.008	-0.051	-0.011	1.000				
(6) imdb_rating	0.040	0.109	0.047	0.053	0.027	1.000			
(7) key_cast_size	0.072	-0.028	-0.045	0.061	0.089	-0.090	1.000		
(8) avg_nbr_past_f~s	-0.023	-0.042	-0.048	0.199	0.059	0.049	0.082	1.000	
(9) international_~y	0.038	0.092	0.053	-0.123	0.034	0.083	0.029	-0.056	1.000

Table 3 provides the results for all team-based analysis, and the models used to test Hypotheses 1 and 2. A Generalized Linear Model (GLM) was used for all models to account for the ratio dependent variable of *continued_collaboration_ratio*. Results show of Model 3 that *team_award* has a positive and statistically significant coefficient which indicates that films receiving a team-based award are associated with a 6.7% increase (*p=0.006)* in the likelihood of future collaboration among key cast members – confirming Hypothesis 1. This effect remains robust even after controlling for team size, prior work experience, IMDB rating, and production location. As

expected, the control variable *previous_collaboration_ratio* has a strong positive effect, confirming that teams with prior working relationships before the focal Sundance Film are more likely to re-collaborate following their Sundance film.

Hypothesis 2 proposed that individual awards would increase the likelihood that the project-based team will not collaborate on future projects. Results of Model 5 show that individual-based awards are not significantly associated with a decrease in subsequent team collaboration ($\beta = -0.012$, $p = 0.536$). While the coefficient is negative, it is small in magnitude and statistically insignificant, suggesting that receiving an individual award does not measurably reduce the likelihood of future collaborations among prior teammates – relative to winning no award at all. Therefore, Hypothesis 2 is not confirmed.

Table 3:

	(Model 1)	(Model 2)	(Model 3)	(Model 4)	(Model 5)
	continued_collabor~o	continued_collabor~o	continued_collabor~o	continued_collabor~o	continued_collabor~o
team_award		.067**	.069**		
		(.028)	(.027)		
individual_award				-.019	-.012
				(.018)	(.018)
previous_collab~o			.118***		.118***
			(.024)		(.024)
key_cast_size	.013***	.012***	.011***	.012***	.011***
	(.004)	(.004)	(.004)	(.004)	(.004)
avg_nbr_past_fi~s	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)
imdb_rating	.008	.007	.005	.008	.006
	(.005)	(.005)	(.005)	(.005)	(.005)
international_d~y	.02	.017	.015	.021	.019
	(.013)	(.013)	(.013)	(.013)	(.013)
_cons	-.036	-.029	-.021	-.038	-.031
	(.089)	(.089)	(.095)	(.089)	(.096)
Observations	2126	2106	2106	2126	2126
Time FE	Yes	Yes	Yes	Yes	Yes
Genre FE	Yes	Yes	Yes	Yes	Yes

Individual Based Analysis

As previously stated, the dependent variable of interest for Hypotheses 3 and 4 is *subsequent_star_ratio*, which captures the proportion of other award-winning key cast members on each individual's next film project. As a result, the dataset for this analysis is centered around the individual key cast member (nconst in the IMDB database) for each Sundance film. In total, 13,917 key cast members were identified from the set of 2,126 Sundance showcased films. However, approximately 3,000 of the key cast members did not have a subsequent film project following the Sundance film listed in the IMDB database and were therefore excluded from the analysis. Tables 4 and 5 provide summary statistics and correlation related to this individual-based dataset.

The dependent variable *subsequent_star_ratio* has a mean of only 0.077, indicating that only a small fraction of subsequent collaborators have won a major individual award. The independent variable *team_award* shows a small but negative correlation to subsequent_star_ratio, providing preliminary evidence against Hypothesis 3. *Individual_award_winner* is positively correlated with *subsequent_star_ratio,* suggesting is positively but weakly correlated (r = 0.028) lending initial support to Hypothesis 4a. However, a stronger correlation emerges between subsequent_star_ratio and the previous_award_ratio (r = 0.22) and current_star_ratio (r=0.37), suggesting that those who had previously worked with high-status collaborators are more likely to do so again. By contrast, the independent variable *teammate_award_recipient*, which identifies individuals who worked on a film in which one of their fellow key-cast members won an individual award, shows no meaningful relationship with *subsequent_star_ratio*, providing preliminary support to Hypothesis 4.

Table 4: Summary Statistics – Individual Data Set

Variable	Obs	Mean	Std. Dev.	Min	Max
subsequent star ra~o	10953	.077	.14	0	1
team award	13917	.066	.248	0	1
individual award w~r	13917	.011	.103	0	1
teammate award win~r	13917	.041	.198	0	1
continued collabor~o	13917	.136	.188	0	1
previous collabora~o	13917	.143	.209	0	1
previous award win~r	13917	.105	.622	0	14
current star ratio	13917	.062	.117	0	1
key cast size	13917	6.273	1.147	1	9
nbr past films	13917	39.839	95.402	0	2493
international	13917	.141	.348	0	1

Table 5: Correlation Matrix – Individual Data Set

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) subsequent_sta~o	1.000										
(2) team_award	-0.014	1.000									
(3) individual_awa~r	0.028	0.032	1.000								
(4) teammate_award~r	-0.005	0.061	-0.022	1.000							
(5) continued_coll~i	-0.043	0.032	-0.016	-0.026	1.000						
(6) previous_colla~o	-0.002	-0.028	-0.019	-0.039	0.066	1.000					
(7) previous_award~r	0.220	-0.027	-0.011	-0.023	-0.017	-0.006	1.000				
(8) current_star_r~o	0.369	-0.056	-0.005	-0.012	-0.035	-0.026	0.343	1.000			
(9) key_cast_size	0.060	-0.059	-0.034	-0.034	0.047	0.085	0.033	0.038	1.000		
(10) nbr_past_films	0.066	-0.031	-0.018	-0.032	-0.017	0.021	0.223	0.100	0.051	1.000	
(11) international	-0.113	0.067	0.011	0.027	0.069	0.022	-0.047	-0.133	0.030	-0.004	1.000

Results for the models testing Hypotheses 3, 4a, and 4b can be found below in Table 6. Tests focusing exclusively on key cast members on films which received a team-level award but no individual level award make up the independent variable *team_award_winner*. Results in model 6 show a positive ($\beta = 0.082$, $p = 0.102$), but only borderline significant relationship between receiving a team award and subsequently working with high-status colleagues – providing only limited support for Hypothesis 3.

The generalized linear model shows that receiving an individual award significantly increases the likelihood of collaborating with high-status peers on a subsequent project. Specifically, *individual_award_winner* is associated with a 0.043 increase in the *subsequent_star_ratio* ($p < 0.001$), even after controlling for factors related to the quality of sundance teammates, the level of

prior collaborations, and individual attributes such as previous awards won and experience – confirming Hypothesis 4a. Furthermore, the control *continued_collaboration_ratio* has a negative and significant effect (β = –0.020, p = 0.002) on *subsequent_star_ratio*, indicating that those who do choose to re-collaborate after Sundance are more likely to do so with non-award winners. Furthermore, individual award winners enjoy substantially larger increases in their *subsequent_star_ratio* and consistently more significant effects than key cast members on films which win a team award. These findings reinforce the notion that individual-level recognition sends a stronger and more credible signal of high-status than simply being a member of a high-performing team.

Hypothesis 4b was focused on whether an individual's teammate receiving an individual-based award predicted upward mobility in the award recipient's subsequent collaborations. Results of the generalized linear model can be found in Table 6, and shows no statistically significant relationship between *teammate_award_winner* and *subsequente_star_ratio* (β = 0.004, *p* = 0.494) – nullifying Hypothesis 4. Overall, these findings suggest that the performance recognition of a teammate does not translate into future status gains for the non-recognized members of the team.

Table 6:

	(Model 6)	(Model 7)	(Model 8)	(Model 9)
	subsequent_star_ra~o	subsequent_star_ra~o	subsequent_star_ra~o	subsequent_star_ra~o
team_award		.008*		
		(.005)		
individual_awar~r			.043***	
			(.016)	
teammate_award_~r				.004
				(.007)
continued_colla~o	-.02***	-.021***	-.02***	-.02***
	(.006)	(.006)	(.006)	(.006)
previous_collab~o	.003	.003	.003	.003
	(.006)	(.006)	(.006)	(.006)
previous_award_~r	.022***	.022***	.022***	.022***
	(.003)	(.003)	(.003)	(.003)
current_star_ra~o	.366***	.367***	.366***	.366***
	(.016)	(.016)	(.016)	(.016)
key_cast_size	.006***	.006***	.006***	.006***
	(.001)	(.001)	(.001)	(.001)
nbr_past_films	0	0	0	0
	(0)	(0)	(0)	(0)
international	-.025***	-.026***	-.026***	-.025***
	(.003)	(.003)	(.003)	(.003)
_cons	-.034	-.034	-.034	-.034
	(.031)	(.031)	(.031)	(.031)
Observations	10953	10953	10953	10953
Time FE	Yes	Yes	Yes	Yes
Genre FE	Yes	Yes	Yes	Yes

Standard errors are in parentheses
*** p<.01, ** p<.05, * p<.1*

Additional Analyses and Robustness Checks

Because the dependent variable of interest for hypotheses 1 and 2, *continued_collaboration_ratio*, is a ratio with values ranging from 0 to 1, additional logistic models were run to test the validity of the results. For additional analysis related to the *team_award* variable and hypothesis 1, Appendix 1 show the results of the generalized linear model (GLM) with a logit link and binomial family and Appendix 2 provides results for a fractional logit model. Despite a slight loss in significant, the GLM with a logit link and binomial family shows a positive but marginally significant effect of team-based awards on continued collaboration ($\beta = 0.542$, $p = 0.100$),

suggesting a directional association that does not reach conventional significance levels. In contrast, the fractional logit model produces a nearly identical coefficient ($\beta = 0.542$) that is statistically significant ($p = 0.003$), providing stronger evidence that team-based recognition is associated with higher re-collaboration rates. This model is particularly appropriate given the bounded nature of the dependent variable. Together, the two models offer converging support for Hypothesis 1a, with the fractional logit model yielding the clearest result. Appendixes 3 and 4 provide additional analysis related to *individual_awards* and Hypothesis 2, both the logistic GLM and the fractional logit model found that individual-based awards are not significantly associated with a decrease in future collaboration among team members.

Similarly, Hypotheses 3, 4a ,and 4b use the ratio *subsequent_star_ratio* as their dependent variable with values ranging from 0 to 1. Further analysis conducted on the variable *team_award_winner* can be found in Appendixes 5 and 6. While the effect of *team_award_winner* is only marginally significant in the GLM models, it reaches conventional significant levels in the fractional logit model ($\beta = 0.163$, $p=0.038$). However, when compared to the effects of individual-based awards observed in prior models (such as those testing Hypothesis 4a), the influence of team-based recognition is both smaller in magnitude and less consistent across model specifications. Individual award winners enjoy substantially larger increases in their *subsequent_star_ratio* and consistently significant effects across all model types. Appendixes 7 and 8 show additional GLM with a logit link and Fractional Logit models testing the impact of winning an individual award on the ability to attract future high-status collaborators for Hypothesis 3. Across both robustness models, *individual_award_winner* remains positively and significantly associated with the *subsequent_star_ratio* ($\beta = 0.582$, $p < 0.01$), suggesting that the observed effect is robust to model choice. Similar analyses to confirm the results of Hypothesis 4b can be found in Appendixes 9

and 10 . Both the GLM logit ($\beta = 0.072$, $p = 0.523$) and fractional logit ($\beta = 0.072$, $p = 0.476$) find no significant relationship between *teammate_award_winner* and the *subsequent_star_ratio*.

Conclusions

The primary purpose of this research is to explore how external recognition – specifically the direction and specificity of an award – affects a temporary project team's decision to re-collaborate. Using the independent film industry as context, this study first analyzed the impact of team and individual awards impacted the re-collaboration rate of project teams. Then to gain a better understanding of *why* re-collaboration rates were lower after an individual-award, this study examined how being on an award winning team versus being an award winner will influence an individual's future opportunities to collaborate with high-status colleagues in the future.

Empirical findings confirmed that team-based recognition, such as winning a Sundance Grand Jury Prize, significantly increased the propensity for key cast members to collaborate again on future projects. Teams receiving collective recognition demonstrated a clear increase in their continued collaboration ratio, highlighting the impact that external recognition has helping team's identify their own successful processes and further motivating them to re-collaborate.

However, contrary to initial expectations, individual-based awards did not result in a significant decrease in the likelihood of continued collaboration among team members. Although individual awards significantly boosted the status of recipients, leading them to engage with higher-status collaborators in future projects, the departure of the individual award winner may have been counterbalanced by high levels of re-collaboration of the award winner's teammates. This can be further explained by a lack of a "halo" effect on teammates, with teammates of award winners not experiencing any bump in *subsequent_star_status* at all. Additionally, a direct comparison

between team-award recipients and individual-award recipients revealed a notable and compelling disparity: individuals recognized singularly received substantially greater increases in status and opportunities compared to their counterparts on award-winning teams.

These findings contribute to literature on temporary teams by highlighting the role that external recognition, and the type of recognition provided, plays in the dynamics of team formation and dissolution. While previous research emphasized intra-team processes and internal attributions of performance (Bechky, 2006; Grabher, 2004; Ebers & Maurer, 2016; Lewis, Lange, & Gillis, 2005), this study highlights that signals sent by outside third parties can actually play a role in helping teams better understand their own success.

Finally, this study contributes to social construction scholarship but demonstrating the power of individual-based awards in comparison to team-based accolades on a individual team-member's status. Such awards generate profound status enhancements that alter recipients' collaborative opportunities, attracting other high-status individuals and initiating the Merton effect. This may suggest that individual awards convey clearer signals of quality and status in ambiguous organizational contexts.

Limitations and Opportunities for Future Research

One limitation of this study is that it is unable to measure the actual performance quality of each individual team member. This means we are unable to measure the relative contributions that each member of the team makes to the final project, and ultimately how much of the award or recognition each member should receive. Future research may want to try and articulate the relative contributions of each team member and better link how actual individual performance, awards, and future collaboration opportunities co-exist with each other.

References

Azoulay, P., Repenning, N. P., & Zuckerman, E. W. (2010). Nasty, brutish, and short: Embeddedness failure in the pharmaceutical industry. *Administrative Science Quarterly, 55*(3), 472–507.

Baker, W. E., & Faulkner, R. R. (1991). Role as resource in the hollywood film industry. *American Journal of Sociology, 97*(2), 279–309.

Bakker, R. M. (2010). Taking stock of temporary organizational forms: A systematic review and research agenda. International Journal of Management Reviews, 12(4), 466–486.

Bakker, R. M., DeFillippi, R. J., Schwab, A., & Sydow, J. (2016). Temporary organizing: Promises, processes, problems. Organization Studies, 37(12), 1703–1719.

Bechky, B. A. (2006). Gaffers, gofers, and grips: Role-based coordination in temporary organizations. *Organization Science, 17*(1), 3–21.,

Benjamin, B. A., & Podolny, J. M. (1999). Status, quality, and social order in the california wine industry. *Administrative Science Quarterly, 44*(3), 563–589.

Buchanan, K. (2023, January 30). Which sundance movies could follow 'CODA' to the oscars? *New York Times* Retrieved from https://www.nytimes.com/2023/01/30/movies/sundance-oscars-coda.html

Clough, D. R., & Piezunka, H. (2020). Tie dissolution in market networks: A theory of vicarious performance feedback. Administrative Science Quarterly, 65(4), 972–1017.

DeFillippi, R. J., & Arthur, M. B. (1998). Paradox in project-based enterprise: The case of film making. California Management Review, 40(2), 125–139.

Ebers, M., & Maurer, I. (2016). To continue or not to continue? drivers of recurrent partnering in temporary organizations. Organization Studies, 37(12), 1861–1895.

Gavetti, G., Levinthal, D. A., & Rivkin, J. W. (2005). Strategy making in novel and complex worlds: The power of analogy. *Strategic Management Journal, 26*(8), 691–712.

Goodman, R. A., & Goodman, L. P. (1976). Some management issues in temporary systems: A study of professional development and manpower-the theater case. Administrative Science Quarterly, , 494–501.

Grabher, G. (2004). Temporary architectures of learning: Knowledge governance in project ecologies. *Organization Studies, 25*(9), 1491–1514.

Gray, S. M., Knight, A. P., & Baer, M. (2020). On the emergence of collective psychological ownership in new creative teams. *Organization Science, 31*(1), 141–164.

Groysberg, B., Lee, L., & Nanda, A. (2008). Can they take it with them? the portability of star knowledge workers' performance. *Management Science, 54*(7), 1213–1230.

Huckman, R. S., & Pisano, G. P. (2006). The firm specificity of individual performance: Evidence from cardiac surgery. *Management Science, 52*(4), 473–488.

Jones, C., Hesterly, W. S., Fladmoe-Lindquist, K., & Borgatti, S. P. (1998). Professional service constellations: How strategies and capabilities influence collaborative stability and change. *Organization Science, 9*(3), 396–410.

King, A. W. (2007). Disentangling interfirm and intrafirm causal ambiguity: A conceptual model of causal ambiguity and sustainable competitive advantage. Academy of Management Review, 32(1), 156–178.

King, A. W., & Zeithaml, C. P. (2001). Competencies and firm performance: Examining the causal ambiguity paradox. *Strategic Management Journal, 22*(1), 75–99.

Lewis, K., Lange, D., & Gillis, L. (2005). Transactive memory systems, learning, and learning transfer. *Organization Science, 16*(6), 581–598.

Lewis, K., Lange, D., & Gillis, L. (2005). Transactive memory systems, learning, and learning transfer. Organization Science, 16(6), 581–598.

Li, S. X., & Rowley, T. J. (2002). Inertia and evaluation mechanisms in interorganizational partner selection: Syndicate formation among US investment banks. Academy of Management Journal, 45(6), 1104–1119.

Manning, S., & Sydow, J. (2011). Projects, paths, and practices: Sustaining and leveraging project-based relationships. *Industrial and Corporate Change, 20*(5), 1369–1402.

McEvily, B., & Marcus, A. (2005). Embedded ties and the acquisition of competitive capabilities. *Strategic Management Journal, 26*(11), 1033–1055.

Mindruta, D., Bercovitz, J., Mares, V., & Feldman, M. (2025). Stars in their constellations: Great person or great team? *Management Science, 71*(3), 2170–2191.

Mosakowski, E. (1997). Strategy making under causal ambiguity: Conceptual issues and empirical evidence. *Organization Science, 8*(4), 414–442.

Narayan, V., & Kadiyali, V. (2016). Repeated interactions and improved outcomes: An empirical analysis of movie production in the united states. Management Science, 62(2), 591–607.

Nelson, R. R., & Winter, S. G. (1985). *An evolutionary theory of economic change* harvard university press.

Podolny, J. M. (1993). A status-based model of market competition. American Journal of Sociology, 98(4), 829–872.

Pollock, T. G., & Rindova, V. P. (2003). Media legitimation effects in the market for initial public offerings. Academy of Management Journal, 46(5), 631–642.

Rao, H. (1994). The social construction of reputation: Certification contests, legitimation, and the survival of organizations in the american automobile industry: 1895–1912. *Strategic Management Journal, 15*(S1), 29–44.

Rao, H., Davis, G. F., & Ward, A. (2000). Embeddedness, social identity and mobility: Why firms leave the NASDAQ and join the new york stock exchange. Administrative Science Quarterly, 45(2), 268–292.

Reed, R., & DeFillippi, R. J. (1990). Causal ambiguity, barriers to imitation, and sustainable competitive advantage. *Academy of Management Review, 15*(1), 88–102.

Reschke, B. P., Azoulay, P., & Stuart, T. E. (2018). Status spillovers: The effect of status-conferring prizes on the allocation of attention. *Administrative Science Quarterly, 63*(4), 819–847.

Rindova, V. P., Williamson, I. O., Petkova, A. P., & Sever, J. M. (2005). Being good or being known: An empirical examination of the dimensions, antecedents, and consequences of organizational reputation. Academy of Management Journal, 48(6), 1033–1049.

Rossman, G., Esparza, N., & Bonacich, P. (2010). I'd like to thank the academy, team spillovers, and network centrality. *American Sociological Review, 75*(1), 31–51.

Schwab, A., & Miner, A. S. (2008). Learning in hybrid-project systems: The effects of project performance on repeated collaboration. *Academy of Management Journal, 51*(6), 1117–1149.

Sorenson, O., & Waguespack, D. M. (2006). Social structure and exchange: Self-confirming dynamics in hollywood. *Administrative Science Quarterly, 51*(4), 560–589.

Spence, M. (1978). Job market signaling. Uncertainty in economics (pp. 281–306) Elsevier.

Sperling, N. (2024, January 24). After a slow start, sundance finishes with plenty of sales. *New York Times* Retrieved from https://www.nytimes.com/2024/01/29/business/media/sundance-film-festival-movie-deals.html

Sydow, J., Lindkvist, L., & DeFillippi, R. (2004). Project-based organizations, embeddedness and repositories of knowledge. Organization Studies, 25(9), 1475–1489.

Weick, K. E., & Weick, K. E. (1995). Sensemaking in organizations Sage publications Thousand Oaks, CA.

Appendix 1

continued_collabor~o	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
team_award	.542	.329	1.65	.1	-.103	1.187	*
previous_collabora~o	1.004	.332	3.03	.002	.354	1.654	***
key_cast_size	.094	.056	1.69	.091	-.015	.203	*
avg_nbr_past_films	0	.001	0.16	.875	-.003	.003	
imdb_rating	.042	.081	0.52	.603	-.117	.202	
international_dummy	.114	.188	0.61	.543	-.254	.482	
Constant	-3.255	1.654	-1.97	.049	-6.496	-.013	**

Mean dependent var	0.138	SD dependent var	0.195
Number of obs	2106	Chi-square	49.035
Prob > chi2	0.967	Akaike crit. (AIC)	1441.827

**** p<.01, ** p<.05, * p<.1*

Appendix 2

Fractional logistic regression

Number of obs = 2,106
Wald chi2(69) = 3737.47
Prob > chi2 = 0.0000
Pseudo R2 = 0.0337

Log pseudolikelihood = -816.38184

continued_collaboration_ratio	Coefficient	Robust std. err.	z	P>z	[95% conf.	interval]
team_award	0.542	0.180	3.010	0.003	0.189	0.895
previous_collaboration_ratio	1.004	0.193	5.200	0.000	0.625	1.382
key_cast_size	0.094	0.033	2.880	0.004	0.030	0.158
avg_nbr_past_films	0.000	0.001	0.300	0.763	-0.001	0.002
imdb_rating	0.042	0.046	0.930	0.354	-0.047	0.132
international_dummy	0.114	0.104	1.090	0.274	-0.090	0.319
_cons	-3.255	0.806	-4.040	0.000	-4.835	-1.674

Appendix 3

continued_collabor~o	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
individual_award	-.122	.33	-0.37	.711	-.768	.524	
previous_collabora~o	1	.33	3.02	.002	.352	1.647	***
key_cast_size	.095	.055	1.71	.087	-.014	.203	*
avg_nbr_past_films	0	.001	0.04	.972	-.003	.003	
imdb_rating	.053	.081	0.65	.513	-.105	.211	
international_dummy	.141	.187	0.75	.452	-.225	.507	
Constant	-3.343	1.652	-2.02	.043	-6.58	-.105	**

Mean dependent var	0.138	SD dependent var	0.194
Number of obs	2126	Chi-square	46.445
Prob > chi2	0.983	Akaike crit. (AIC)	1455.541

**** p<.01, ** p<.05, * p<.1*

Appendix 4

Fractional logistic regression

Number of obs = 2,126
Wald chi2(69) = 3792.79
Prob > chi2 = 0.0000
Pseudo R2 = 0.0317

Log pseudolikelihood = -824.53153

continued_collaboration_ratio	Coefficient	Robust std. err.	z	P>z	[95% conf.	interval]
individual_award	-0.122	0.181	-0.680	0.499	-0.476	0.232
previous_collaboration_ratio	1.000	0.193	5.190	0.000	0.622	1.377
key_cast_size	0.095	0.032	2.920	0.004	0.031	0.159
avg_nbr_past_films	0.000	0.001	0.070	0.948	-0.001	0.002
imdb_rating	0.053	0.046	1.160	0.247	-0.037	0.142
international_dummy	0.141	0.105	1.340	0.179	-0.064	0.346
_cons	-3.342	0.807	-4.140	0.000	-4.924	-1.760

Appendix 5

Generalized linear models

subsequent_star_ratio	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
individual_award_w~r	.583	.17	3.42	.001	.248	.917	***
continued_collabor~o	-.324	.132	-2.44	.015	-.583	-.064	**
previous_collabora~o	-.016	.119	-0.13	.895	-.25	.218	
previous_award_win~r	.131	.019	7.09	0	.095	.168	***
current_star_ratio	3.563	.171	20.90	0	3.229	3.898	***
key_cast_size	.12	.02	5.90	0	.08	.16	***
nbr_past_films	0	0	0.84	.402	0	0	
international	-.601	.109	-5.53	0	-.814	-.388	***
Constant	-4.769	.537	-8.87	0	-5.822	-3.716	***

Mean dependent var	0.077	SD dependent var	0.140
Number of obs	10953	Chi-square	2079.684
Prob > chi2	0.000	Akaike crit. (AIC)	4606.887

**** p<.01, ** p<.05, * p<.1*

Appendix 6

Fractional logistic regression

Number of obs = 10,953
Wald chi2(71) = 5357.78
Prob > chi2 = 0.0000
Pseudo R2 = 0.0648

Log pseudolikelihood = -2780.8238

subsequent_star_ratio	Coefficient	Robust std. err.	z	P>z	[95% conf.	interval]
individual_award_winner	0.583	0.173	3.380	0.001	0.244	0.921
continued_collaboration_ratio	-0.324	0.100	-3.240	0.001	-0.519	-0.128
previous_collaboration_ratio	-0.016	0.096	-0.160	0.871	-0.205	0.173
previous_award_winner	0.131	0.019	6.960	0.000	0.094	0.168
current_star_ratio	3.564	0.130	27.380	0.000	3.308	3.819
key_cast_size	0.120	0.017	7.120	0.000	0.087	0.153
nbr_past_films	0.000	0.000	0.780	0.434	-0.000	0.000
international	-0.601	0.078	-7.680	0.000	-0.754	-0.448
_cons	-4.769	0.483	-9.860	0.000	-5.717	-3.822

Appendix 7

Generalized linear model

subsequent_star_ra~o	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
individual_award_w~r	.583	.17	3.42	.001	.248	.917	***
continued_collabor~o	-.324	.132	-2.44	.015	-.583	-.064	**
previous_collabora~o	-.016	.119	-0.13	.895	-.25	.218	
previous_award_win~r	.131	.019	7.09	0	.095	.168	***
current_star_ratio	3.563	.171	20.90	0	3.229	3.898	***
key_cast_size	.12	.02	5.90	0	.08	.16	***
nbr_past_films	0	0	0.84	.402	0	0	
international	-.601	.109	-5.53	0	-.814	-.388	***
Constant	-4.769	.537	-8.87	0	-5.822	-3.716	***

Mean dependent var	0.077	SD dependent var	0.140
Number of obs	10953	Chi-square	2079.684
Prob > chi2	0.000	Akaike crit. (AIC)	4606.887

**** p<.01, ** p<.05, * p<.1*

Appendix 8

Fractional logistic regression

Number of obs = 10,953
Wald chi2(71) = 5357.78
Prob > chi2 = 0.0000
Pseudo R2 = 0.0648

Log pseudolikelihood = -2780.8238

subsequent_star_ratio	Coefficient	Robust std. err.	z	P>z	[95% conf.	interval]
individual_award_winner	0.583	0.173	3.380	0.001	0.244	0.921
continued_collaboration_ratio	-0.324	0.100	-3.240	0.001	-0.519	-0.128
previous_collaboration_ratio	-0.016	0.096	-0.160	0.871	-0.205	0.173
previous_award_winner	0.131	0.019	6.960	0.000	0.094	0.168
current_star_ratio	3.564	0.130	27.380	0.000	3.308	3.819
key_cast_size	0.120	0.017	7.120	0.000	0.087	0.153
nbr_past_films	0.000	0.000	0.780	0.434	-0.000	0.000
international	-0.601	0.078	-7.680	0.000	-0.754	-0.448
_cons	-4.769	0.483	-9.860	0.000	-5.717	-3.822

Appendix 9

Generalized linear model

subsequent_star_ra~o	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
teammate_award_win~r	.072	.112	0.64	.523	-.148	.292	
continued_collabor~o	-.327	.132	-2.47	.013	-.587	-.068	**
previous_collabora~o	-.019	.119	-0.16	.876	-.253	.215	
previous_award_win~r	.131	.019	7.09	0	.095	.167	***
current_star_ratio	3.558	.17	20.91	0	3.224	3.891	***
key_cast_size	.118	.02	5.81	0	.078	.157	***
nbr_past_films	0	0	0.77	.441	0	0	
international	-.596	.109	-5.49	0	-.809	-.384	***
Constant	-4.758	.538	-8.85	0	-5.811	-3.704	***

Mean dependent var	0.077	SD dependent var	0.140
Number of obs	10953	Chi-square	2066.914
Prob > chi2	0.000	Akaike crit. (AIC)	4610.297

**** p<.01, ** p<.05, * p<.1*

Appendix 10

Fractional logistic regression

Number of obs = 10,953
Wald chi2(71) = 5355.93
Prob > chi2 = 0.0000
Pseudo R2 = 0.0642

Log pseudolikelihood = -2782.529

subsequent_star_ratio	Coefficient	Robust std. err.	z	P>z	[95% conf.	interval]
teammate_award_winner	0.072	0.100	0.710	0.476	-0.125	0.269
continued_collaboration_ratio	-0.327	0.100	-3.280	0.001	-0.523	-0.131
previous_collaboration_ratio	-0.019	0.097	-0.190	0.846	-0.208	0.171
previous_award_winner	0.131	0.019	6.960	0.000	0.094	0.168
current_star_ratio	3.558	0.130	27.410	0.000	3.303	3.812
key_cast_size	0.118	0.017	7.000	0.000	0.085	0.151
nbr_past_films	0.000	0.000	0.720	0.471	-0.000	0.000
international	-0.596	0.078	-7.640	0.000	-0.749	-0.443
startyear						
_cons	-4.758	0.483	-9.850	0.000	-5.705	-3.811

Patrick Smith

The Impact of Socioemotional Factors on Litigation Decisions for Family Firms

Abstract

This study investigates the impact of socioemotional influences on a firm's innovation strategy. By examining a family firm's propensity to file patent oppositions, this research is able to identify the effect of non-economic, affect related influences such as the perpetuation of family control and identity on patent dispute negotiations. Results show that family firms with lower levels of family control file more patent opposition lawsuits than family firms with high levels of family control and non-family firms. Furthermore, eponymous family firms are more likely to file patent oppositions than non-eponymous family firms and non-family firms.

Keywords: Socio-emotional Wealth; Family Business; Eponymy; Patent Litigation

Introduction

Emotions play an important role in how managers and owners value their innovations, yet very little strategy and innovation literature has considered the role that affective traits play. Socioemotional factors such as identity and the perpetuation of family control can influence how manager's perceive, react to, and resolve disputes with competing technologies. This study uses the context of European patent oppositions to understand how socioemotional influences can impact a family firm's ability, or inability, to settle patent infringement disputes.

Strategy literature tends to use patents as a proxy for innovation output, and too often ignores the strategic decisions that companies make over patent maintenance and defense. While patents are granted by a government entity and give inventors an exclusive right to a technology for a set period of time, inventors are responsible for protecting and enforcing their own patents. If a patent has been infringed upon, patent holders can either negotiate a licensing agreement with the alleged infringer or file a costly and uncertain patent infringement lawsuit to maintain total exclusivity of the invention (Somaya, 2003; Weatherall & Webster, 2014). This choice between negotiating a license versus patent litigation opens the door for socioemotional factors to influence family firm managers to make risky, seemingly irrational litigation decisions.

Family firms are known for being influenced by affect-related values which can motivate managers to make strategic decisions that are not wealth maximizing (De Massis et al., 2008) This concept, known as socioemotional wealth (SEW) refers to non-financial aspects of the firm such as family control, identity, binding social ties, emotional attachment, and renewal (Berrone et al., 2012). Reductions in socioemotional wealth are realized through reductions in ownership stakes, losses in decision making power, and detachments from the family identity and firm heritage (Gomez-

Mejia et al., 2011; Berrone et al., 2012). Consideration of these socioemotional factors can lead family businesses to pursue different strategies than nonfamily firms in similar industries (Gomez-Mejia et al., 2007). Research has found that consideration of these non-economic factors makes family firms less likely to diversify into new industries and acquire outside firms (Anderson, Duru & Reeb, 2012), as well as invest in exploratory innovation (Block, 2012).

Socioemotional wealth has been cited as one of the main reasons for family firms' lack of exploratory innovation (Duran et al., 2016). Because family firms are more concerned with family control and autonomy, they are less likely to raise capital through debt or the stock market (Mishra & McConaughy, 1999). This limits the amount of resources family firms are able to invest in innovative activities (König et al., 2013). Furthermore, their reluctance to hire outside managers and increased rate of nepotism limits family firms to innovations within the family's knowledge realm (Block, 2012). Therefore, the family control dimension of socioemotional wealth leads family firms to associate a higher value with their sunk innovation costs than non-family firms, and view new exploratory innovation as prohibitively expensive (Berrone et al., 2012).

The individual identities of family owners and family managers are intricately intertwined with the identity and legacy of the family firm (Sluss & Ashforth, 2008; Berrone et al., 2010). As a result, family members may hold an emotional attachment to particular heritage products or service techniques that multiple generations of the family have participated in (Micelotta & Raynard, 2011). The identity dimension of socioemotional wealth makes family owners personalize businesses successes and failures (Berrone et al., 2012), and allows them to take potential business threats more personally.

Consideration of socioemotional influences can lead family firms to make decisions that depart from profit maximizing strategies when defending their intellectual property. This is problematic because patent litigation is very demanding on a firm's resources, requiring significant contributions of both financial capital and managerial time (IPAC, 2003). Additionally, litigating a patent to trial is a risky proposition for patent owners. One study found that half of all patents which are fully litigated through trial are invalidated by the presiding judge (Lemley & Shapiro, 2005). As a result, most attorneys and legal scholars agree that the settlement of lawsuits prior to trial is the best course of action for firms to take (Levy, 1985). Despite this, firms still fully litigate patent disputes with over $300 billion being spent on patent litigation between 1985 and 2009 (Bessen et al., 2018).

Prior studies on determinants of patent litigation have found that firms engaged in patent disputes are deterred by the large costs of litigation, and can receive a 'bargaining surplus' when settling a dispute early (Lanjouw & Lerner, 2000; Somaya, 2003). Firms litigate all the way through to trial when the difference in strategic stakes between the two firms exceeds the value of the 'bargaining surplus' (Somaya, 2003). This difference is typically due to an infringing firm's unwillingness or inability to effectively compensate the patent owner for their perceived value of the patent (Lanjouw & Lerner, 2000). However, extant innovation literature has yet to investigate whether or not socioemotional factors could act as determinants of patent litigation decisions. The added nonfinancial considerations of family ownership such as identity and family control may make it more difficult for alleged patent infringers to adequately compensate family owners in a settlement or licensing agreement. Therefore this study wants to understand if affective factors can influence patent dispute negotiations between firms, and asks the following research question:

Do socioemotional wealth factors make family firms more likely to litigate their patents to trial than non-family firms?

To help answer this question, a preliminary cross-sectional dataset consisting of 2,477 European firms was analyzed to understand the probabilities of both family and non-family firms filing a patent opposition. Preliminary results have found that family firms are significantly more likely to file patent oppositions than non-family firms. However, this effect was only true for firms with fewer family members seated on the board of directors.

By focusing on the socioemotional dimensions of family control and identity, this study showcases how emotions can influence a firm's patenting and innovation strategies. Furthermore, by using patent infringement negotiations as a context this study examines the negative impact that socioemotional wealth can have on negotiations between family and non-family firms. More broadly speaking, this study finds that family firms are more litigious than non-family firms. Finally, this study also isolates the identity aspect between by family firms by comparing eponymous family firms and non-eponymous family firms.

Theoretical Background

Emotional Influences on Innovation

Innovation literature has tended to focus on topics such as managerial attention and cognitive framing when discussing decisions to pursue exploratory versus incremental innovation. This is disappointing because other streams of literature, such as organizational behavior, have found that different emotions and moods can influence cognition (Daniels, 1998). Extant research has explored how temporary emotions and affective states can influence an individual's creativity (Martin et al., 1993; Isen, 1999) with both positive and negative emotions influencing the creative

process. However, this influence only lasts 1-2 days after the emotional trigger (Amabile, Barsade, Mueller & Staw, 2005).

While some research on emotions has looked at managerial confidence and exploratory innovation (Gerstner, Konig, Enders & Hambrick, 2013), most extant literature on affect and innovation tends to use surveys and only measure the influence that daily 'mood' changes have on innovation rather than the 'emotional' drivers behind changes in affective states. Innovation literature is lacking an understanding of how more permanent affective traits and socioemotional factors can influence investments in innovation and motivate managers to defend their intellectual property.

Family Businesses and Socioemotional Wealth

Transactional theories of management have traditionally viewed emotions as the antithesis of rationality (Ashforth & Humphrey, 1995). However, these theories often view decisions through one specific frame of reference – maximizing financial gains – and tend to ignore frames of reference which are inspired by emotional influences such as status and family values (Shrivastava & Schneider, 1984; Tversky & Kahneman, 1986; Gomez-Mejia et al., 2007). Frames of reference are based on the presentation of a problem, and the "norms, habits, and expectations of the decision maker," (Tversky & Kahneman, 1986, p.257). If business decisions are only viewed through the lens of maximizing financial gains, then any decision which intentionally reduces financial prospects or intentionally increases business risk (despite other benefits) may be seen as irrational (Ashforth & Humprhey, 1995; Wiseman & Gomez-Mejia, 1998). This is particularly relevant in family firms, where emotional attachment towards the business can lead to economically irrational decisions (De Massis et al., 2008).

In order to explain the perceived irrationality of family firms, Gomez-Mejia et al. (2007) developed the concept of socioemotional wealth which states that the principal concern of family business is to preserve the affective value a family receives from its ownership and control of a firm (Berrone et al., 2012). A derivative of both prospect theory and behavioral-agency theory (Kahneman & Tversky, 1979; Wiseman & Gomez-Mejia, 1998), researchers studying socioemotional wealth have found that family firms are loss averse with regards to non-financial concerns (Gomez-Mejia et al., 2007). Examples of socioemotional wealth include family status and reputation, the family's ability to influence the firm's strategic decisions, the capability to provide career opportunities for family members, and the preservation and perpetuation of the family identity (Gomez-Mejia et al., 2007; Miller & Le Breton-Miller, 2014). Reductions in socioemotional wealth are realized through reductions in decision-making capabilities, whether that be through losses in ownership stakes or ceding elements of control to non-family managers (Gomez-Mejia et al., 2011).

Berrone et al. (2012) created the FIBER dimensions to better categorize and operationalize research on socioemotional wealth. The five letters of the acronym stand for Family control, Identity, Binding social ties, Emotional attachment, and the Renewal of family bonds. This research will try to understand how two of these dimensions, the perpetuation of family control and identity, can impact a firm's willingness to protect its intellectual property.

Socioemotional Wealth and the Perpetuation of Family Control

Families must have some ownership and decision making control over their firm in order to generate and capture socioemotional wealth. Without this, families would be unable to influence strategic decisions and incapable of providing family members with careers (Zellweger et al., 2012). The preservation of socioemotional wealth has led family businesses to avoid situations in

which control may be allocated to outside managers or investors. For example, family firms are less likely to diversify into new industries and foreign markets (Anderson, Duru & Reeb, 2012), and less likely to make strategic acquisitions than non-family firms (Miller et al., 2010). Each of these situations have the potential to reduce the family's authority and create conflicting goals between the family and external managers (Gomez-Mejia et al., 2011).

The impact of socioemotional wealth on decision making is moderated by stages of family ownership (Schulze, Lubatkin & Dino, 2003; Gomez-Mejia et al., 2007). In the first stage, the firm is owned and controlled by the founding family. First-stage companies will consider socioemotional impacts more strongly than any other stage. Second-stage firms are owned and operated by extended family members. They also exhibit high levels of socioemotional wealth. The third and final stage is characterized by extended family ownership, but with outside management. Because these firms have already conceded much of the decision making authority to outsiders, third-stage firms have much lower levels of socioemotional wealth (Gomez-Mejia et al., 2007).

Identity and Reputation in Family Firms

Corporate identity is defined as a firm's self-portrayed identity which is externally communicated outsiders (Micelotta & Raynard, 2011). Because this identity is an idealized image that firms actively distribute, companies will strategically build a persona to distinguish themselves from their peers. Research has found that while companies create their own corporate image to project to outsiders, it is often reflected backwards onto the company's employees. This is because members tend to identify with organization for whom their individual identity overlaps with the organizational identity (Dyer & Whetten, 2006). This bond with an organization becomes even

stronger when an individual's social relations also identify with the same organization. The more overlap there is between relational (social) identity and organizational identity, such as family members being co-owners and employees of an organization, the more significant organizational identity becomes in an individual's personal identity (Sluss & Ashforth, 2008). This allows for family members to feel as if the firm's successes are their own, and to take poor performance and competitive threats more personally (Berrone et al., 2010). Because of the identity aspect of socioemotional wealth, the firm becomes an omnipresent part of a family owner's life. Conversely, owners of non-family firms have a more distant and utilitarian view of their firm (Lubatkin, Schulze & Ling, 2005).

Family firms tend to accentuate either their family as the central piece of the company's identity, or connect the company's product to the heritage of the family (Carrigan & Buckley, 2008; Micelotta and Raynard, 2011). When the corporate identity is product focused and linked to the generational know-how of the family, organizational routines and product strategies may be considered "sacred ground" (Salvato, Chirico & Sharma, 2010 p. 322). Family members tend to have direct oversight of innovations in their company (Duran et al., 2016), leading to greater attachment and more rigid mental models.

Furthermore, this linkage between family owners and the family business allows for reputational transfers from the organization's reputation to the reputation of the family itself. Research suggests that family firms exhibit greater willingness to invest in reputation-protecting actions because reputational threats to the firm pose direct risks to the family's social standing within their local community (Berrone et al, 2010). This vulnerability creates a powerful motivation for family shareholders to prioritize corporate reputation, as family members' identification with the firm

establishes a unique reputational interdependence wherein negative perceptions of the business become personal liabilities (Deephouse & Jaskiewicz, 2013). Family owners will pursue corporate strategies that will create positive reputational spillovers for members of the family (Zellweger et al., 2013).

The impact of identity on family members can be strongest in eponymous firms – companies whose firm name is the same as the family name (Zellweger & Astrachan, 2008; Berrone et al., 2010). This increases the reputational costs and benefits of firm ownership and makes overlapping identities unavoidable. Future business opportunities for the eponymous firm owner are linked to the quality and reputation of the firm's products and services (Belenzon, Chatterji & Daley, 2017).

Socioemotional Wealth and Innovation

Extant literature on socioemotional wealth has found that the need for control has a significant impact on a family firm's willingness to adopt discontinuous innovations. Research on innovation in family firms has found that family firms have lower R&D budgets when compared with nonfamily firms (Block, 2012), and tend to prefer investments with more predictable cash flows, such as plant, property and equipment (Block et al., 2013; Duran et al., 2016). As a result, family firms are less likely to invest in exploratory innovation than non-family firms. These tendencies are influenced by a family's propensity to preserve their socioemotional wealth. Exploratory innovation, and the patenting of it, requires specialized human capital and expertise not commonly available within the family (Gomez-Mejia et al., 2014). Incremental innovation projects are typically less capital intensive than exploratory innovation, and are more suited to the family's existing technological capabilities (Block et al., 2013). However, because of their deep-rooted

knowledge, family firms tend to be more efficient with their R&D investments. Duran et al. (2016) found that family firms are better at orchestrating and assigning research tasks and assets among capable employees, and are better able to closely monitor the progress of their R&D projects due to lower observation costs.

König, Kammerlander, & Enders (2013) proposed that family firms were slow to adopt discontinuous technologies because of their more rigid mental models and emotional attachment to current company employees. Mental models can be based off of routines, and the understanding of a routine is dependent upon an individual's role and point of view (i.e. their identity) (Feldman & Pentland, 2003). Top managers at family firms tend to have longer tenures (Berrone et al., 2010), reinforcing commitment to current firm strategies (König et al., 2013). Additionally, family firm's strong sense of community makes them less likely to replace existing lower-level staff with new, differently trained staff (Miller and Le Breton-Miller, 2006; König et al., 2013). Extant innovation and family firm literature has only focused on the role of socioemotional wealth in a firm's decision to adopt and pursue exploratory/discontinuous innovation. Researchers have yet to understand how SEW impacts a firm's patent maintenance and defense strategy.

Patent Infringement Litigation

The decision to go to court is a strategic decision that companies make, yet this decision can often be emotionally based. In order to file a lawsuit, a person or organization must feel as if they have been harmed (Weatherall & Webster, 2014). The most common types of lawsuits that businesses file are contractual disputes (i.e. broken/unfulfilled contracts), fraud allegations, shareholder disputes, and intellectual property (i.e. patent infringement) lawsuits (Bhagat, Bizjak & Coles, 1998). Corporate litigation is a very expensive process and managers must not only discuss the

merit of the case and the likelihood of victory with their attorneys, but also the costs and benefits of initiating the lawsuit (Levy, 1985).

Researchers have found that once litigation has concluded there is a net negative return to the combined valuation of both litigating firms (Bhagat, Bizjak, & Coles, 1998). Both plaintiffs and defendants incur litigation costs beyond the attorney and court fees. For example, indirect costs such as the time employees spend producing evidence, preparing for and testifying in depositions, and meeting with attorneys could disrupt and draw attention away from normal business operations (Bessen & Meuer, 2013). Furthermore, the release of private documents during litigation may open management up to scrutiny (Haslem, 2005), and may impose doubt and sour relations with key customers and suppliers (Bessen & Meuer, 2013).

Plaintiffs in intellectual property disputes are at an increased risk of suffering losses. First, the judges and attorneys working on the case must have a comprehensive understanding of the patented technology and the infringing technology (Weatherall & Webster, 2014). As a result, patent litigation requires a greater investment of both employee time and money (IPAC, 2003). Second, the odds of winning a patent dispute in trial are quite low. One study found that while patent owners win a slight majority of jury trials in the United States, the vast majority of patent disputes which reached the preliminary trial stages were thrown out by judges in summary judgments (Janicke & Ren, 2006). Finally, patent owners are at risk of losing their patents or having them invalidated at the conclusion of a trial. Examinations in patent litigation trials are more thorough than examinations during the application process (Somaya, 2012), and half of all patents which are fully litigated (through to a trial verdict) are invalidated (Lemley & Shapiro, 2005).

Inventors and patent holders need to protect their patents and innovations from rival firms and infringing technologies, however, the concept of patent defense consists of more than just litigation. Less bureaucratic methods such as cease and desist notifications, threats of legal action, and arbitration can also be considered as intellectual property enforcement (Weatherall & Webster, 2014). In fact, patent litigation is quite rare with only 1.5 lawsuits being filed per 100 patents in the United States (Bessen & Meuer, 2005), and far fewer being litigated to the point of summary judgment or trial. How firms choose to defend their patents often depends on their industry. For example, firms in the pharmaceutical industry tend to focus more on litigation and intimidation, whereas firms in the semi-conductor industries are more focused on cross-licensing and settlement negotiations (Somaya, 2003; Reitzig, 2004). Despite these similarities within industries, research has found that different institutional contexts can also influence a firm's patent enforcement strategy (Rudy & Black, 2018).

Extant literature on patent litigation has found three mechanisms for non-settlement in patent disputes. The first two mechanisms, a lack of certainty as to the severity of infringement and differences in private information, will decrease the probability firms agree on a settlement (Shavell, 1982; Priest & Klein, 1984). However, both the uncertainty and information differences will become less severe as negotiations continue, making it unlikely that they are significant drivers of patent litigation. Somaya (2003) identified a third mechanism, asymmetric stakes, to explain why firms are unable to settle patent disputes prior to trial. A firm's strategic stake in a given patent is the value of assets built off of or connected to said patent. The greater the value of assets built off of a patented concept, the greater the strategic stake in a patent (Teece, 1998; Somaya, 2003). If an infringing firm is unable or unwilling to adequately compensate the patent

owning firm for their strategic stake in the disputed patent then the negotiations are significantly more likely to end in trial.

Each individual firm is likely to place emphasis on different aspects of a patent's value when determining its strategic worth (Somaya, 2003). Furthermore, firms need to reinvest in their patented technology to maintain a proprietary advantage (Somaya, 2012; König et al., 2013). If the costs of investing in new exploratory innovation is too high for a firm, it needs to be more protective in defending the IP it currently owns. Because literature has shown that family firms incur additional socioemotional costs when performing exploratory innovation, baseline hypothesis one states:

H1: Family firms are more likely to litigate their patents to trial than non-family firms.

Socioemotional wealth is created by a family's ability to influence the firm's strategic decisions, the capability to provide career opportunities for family members, and the perpetuation of the family identity (Gomez-Mejia et al., 2007). As a result, family control is a "necessary condition" in the generation and preservation of socioemotional wealth, and the impact of socioemotional factors will fluctuate based on the level of control that a family has (Zellweger et al., 2012, p. 851). Literature has found that family firms which have already ceded significant control to outside managers may be less concerned with socioemotional costs than family firms with high levels of control (Gomez-Mejia, 2007; König et al., 2013), and thus, this study assumes families with more control will be more defensive towards patent infringements. Therefore, hypothesis two states:

H2: Family firms with a greater percentage of family members on the board of directors will be more likely to litigate their patents to trial than family firms with few or no members on the board of directors.

Because family owners experience overlapping personal, relational, and organizational identities, they are more sensitive to possible threats against their business (Berrone et al., 2010). This is particular for eponymous firms, where the owner's identity and reputation is publicly linked to the firm (Deephouse & Jaskiewicz, 2013; Belenzon, Chatterji & Daley, 2017). As a result, eponymous firms are more profitable (Belenzon, Chatterji & Daley, 2017; 2020), and higher financial reporting quality than non-eponymous firms (Minichilli, Prencipe, Radhakrishnan & Siciliano, 2022). This study believes that this sensitivity to identity threats will be motivate eponymous firms to be more aggressive in defending their intellectual property from infringement, with hypothesis three stating:

> *H3: Eponymous family firms will be more likely to litigate patents to trail than non-eponymous family firms and non-family firms.*

Empirical Context

The empirical setting for this study focuses on patent oppositions filed with the European Patent Office (EPO). Patents, even those granted by the EPO, are defended on a national level (European Patent Office, 2021). This means that one patent could be separately litigated in 38 different national jurisdictions. The only opportunity patent holders have to dispute a European patent in a single jurisdiction is during the nine month opposition window after a patent has been granted (Harhoff & Reitzig, 2004; European Patent Office, 2021). Therefore, firms concerned with the validity of a new European patent will want to take advantage of this opposition period.

In the United States, patent holding firms initiate patent disputes by first filing a lawsuit with the courts and then begin settlement negotiations with the alleged infringers during the early stages of

the lawsuit (Somaya, 2003; Weatherall & Webster, 2014). If the patent holding party and the infringing party come to an agreement, the lawsuit is dropped and the matter is considered closed (Somaya, 2003). What separates European patent oppositions from similar style lawsuits in the United States is that once the EPO opposition process has formally begun the EPO can still revoke a patent even if the two litigating parties have already come to a settlement outside of court (Harhoff & Reitzig, 2004). This discourages firms from filing EPO oppositions until all settlement negotiations have been exhausted. Approximately 30% of all EPO patent oppositions end with the revocation of the disputed patent (Harhoff & Reitzig, 2004).

Data

In order to test my hypotheses, I collected financial, ownership, and intellectual property data on a total of 2,477 European firms. Each firm had over 50 million euros in annual turnover and was controlled by a global ultimate owner residing in either France, Germany, Italy, or Spain. Therefore, foreign subsidiaries were excluded from the analysis. Moreover, each firm in my sample owned at least 1 active patent. Privately held, publicly listed, and state-owned firms were all included in the sample.

Financial and intellectual property data was collected from Bureau van Dijk's Orbis and Intellectual Property databases. Unfortunately, I only had access to historical financial information for the years 2021 and 2018. Because my current list of patent oppositions only runs through October of 2021, the resulting sample is a cross-sectional data set for the year 2018.[3]

[3] Currently waiting on BvD historical financial data for years 2012-2017. Once the data has been received and cleaned this study will be expanded to a full panel data set.

Family firm ownership information was first collected from two separate databases. First, information on Italian family firms was collected from the AUB Observatory. The AUB Observatory is a consortium of AIDaF, UniCredit, and Bocconi University which collects information governance and financial performance on Italian family firms with turnover greater than 20 million euros. The AUB Observatory considers privately held firms with more than 50% family ownership and publicly held firms with more than 25% ownership to be family firms. Bocconi University has begun collecting similar information for family firms in France, Germany, and Spain using the same family ownership thresholds as the AUB Observatory. This adds a level of consistency in identifying family firms in all four countries. Both the AUB and Bocconi databases listed the last names of each family firm's controlling family, allowing me to identify the number of family members present on the board of directors. In total, 1,682 of the 2,477 firms in my sample were identified as family firms.

I cross referenced each firm in my dataset with patent opposition data collected from the European Patent Office's TLS 231 legal events table. This table contains information on patent opposition filings from 1981 through October of 2021. Over 30,000 opposition filings were matched to companies within my sample, with 1,040 of these filings occurring during 2018.

Finally, a subset of the largest 250 companies in my sample were researched to identify their founding origins. Companies whose name matched the first or last name of one of the founders were considered to be eponymous. Of the total 250 firms, 119 of the firms were family firms and 54 were eponymous family firms.

Variables

Dependent Variable

The dependent variable in my analysis is the binary variable *filed_opposition* which assigns a value of 1 for firms which filed at least one patent opposition during the year 2018. The TLS 231 database gives information on opposition filings, self-induced opposition terminations, and oppositions which were rejected by the EPO. For each firm in my sample, an opposition was not counted if it was quickly revoked by the opponent. However, oppositions which were rejected by the EPO were counted towards a firm's total opposition count. Therefore, as long as the number of oppositions filed in 2018 was greater than the number of oppositions it self-terminated, said firm would receive a *filed_opposition* value of 1.

Independent Variables

The variable *family_firm* is used to test the baseline hypothesis, and is given the value of 1 if identified as a family firm by the AUB observatory. Because gains and losses in socioemotional wealth are significantly tied to a family's control over decision making (Berrone et al., 2012; Chirico et al., 2020), a variable is needed to account for the degree of managerial control that a family has. Therefore, the variable *percentage_of_family_directors* calculates and controls for the percentage of family members sitting on the firm's board of directors, and is used to test hypothesis 2.

The dummy variable *eponymous_family* was used to test hypothesis 3, and signals whether or not a firm shares its name with the founding family. Data on company origins was collected for 250 firms in my sample by collecting information on each company's founders from the company website. If the name of the company matched one of the names of the founders, the firm is

considered to be eponymous. By doing so, this study is able to further isolate the identity by separating families which share a name with their company and those which do not.

Control Variables

Somaya (2003) found that asymmetric stakes were a leading determinant of patent litigation, and firms whose patents are connected to the company's other assets will generate more asymmetry between themselves and the infringing firm. In order to estimate the strategic stakes each firm has in its intellectual property, the variable *ip_to_assets_ratio* was included. This ratio is calculated by dividing each firm's total patent value (according to Bureau van Dijk) by their total assets. Firms with a higher ratio will be considered to have a higher strategic stake in their intellectual property.

The greater the number of patents a firm has, the higher the likelihood that one of its patents will be infringed upon. Therefore, the logged variable *ln_patent_count* uses data from Bureau van Dijk to control for the number of patents a firm owns. In addition, the more available cash a firm has to pursue and finance litigation, the more likely it will be to do so. By controlling for a firm's current ratio, I am able to account for the impact of short-term financial strength in litigation decisions.

Standard controls are also used for firm size (*ln_revenue*; *ln_employees*) and firm age (*age*). Finally, industry level and country level fixed effects were included to account for macro-level heterogeneity. Industry fixed effects were categorized by their two digit NACE code.

Empirical Analysis and Results

I have included the analysis testing hypotheses 1 and 2 below. As previously mentioned, I am still collecting data on eponymous firms and have yet to run any regressions regarding hypothesis 3. A summary of the descriptive statistics for the main independent variables and key controls can be found below in Table 1, with additional correlations found in Table 2.

Table 1

	Count	Mean	Std. Dev.	Max	Min
filed_opposition	2,477	0.06	0.24	1.00	-
family_firm	2,477	0.68	0.47	1.00	-
percentage_of_family_directors	2,477	0.30	0.38	1.00	-
ip_total_assets_ratio	2,477	0.03	0.12	2.35	-
patent_count	2,477	602.89	3,794.47	108,578.00	1.00
age	2,477	48.73	37.09	118.00	-
revenue	2,477	2,738,700.00	10,300,000.00	244,000,000.00	100,300.00
employees	2,477	9,673.69	35,764.23	664,500.00	-
current_ratio	2,463	2.04	2.35	59.24	-

Table 2

		1	*2*	*3*	*4*	*5*	*6*
1	*filed_opposition*	1					
2	*family_firm*	-0.04	1				
3	*ip_total_assets_ratio*	0.25	-0.10	1			
4	*patent_count*	0.30	-0.08	0.16	1		
5	*percentage_of_family_directors*	-0.14	0.55	-0.09	-0.10	1	
6	*age*	0.17	-0.08	0.03	0.17	-0.17	1

A logistic regression estimating the impact of *family_firm* on *filed_opposition* was used to test hypothesis 1. Model 1 in Table 3 shows the baseline results, while Models 2, 3, and 4 each consider a new context specific control, and Model 5 incorporates all of the standard firm-level controls. The results show that family firms are significantly more likely to file patent-oppositions than non-family firms once firm-level controls have been included ($\beta = 0.797$, $p < .01$), confirming hypothesis 1.

Table 3

DV: *filed_opposition*	Model 1	Model 2	Model 3	Model 4	Model 5
family_firm	-0.423**	0.364*	0.541**	0.912***	0.797***
	(0.186)	(0.205)	(0.214)	(0.255)	(0.260)
percentage_of_family_directors		-2.964***	-2.762***	-1.965***	-1.906***
		(0.493)	(0.489)	(0.519)	(0.525)
ip_total_assets_ratio			3.102***	0.187	-0.11
			(0.638)	(0.444)	(0.503)
ln_patent_count				0.728***	0.801***
				(0.061)	(0.085)
age					-0.0002
					(0.003)
ln_revenue					-0.0961
					(0.116)
ln_employees					-0.0337
					(0.052)
current_ratio					0.0849***
					(0.031)
Constant	-1.651	-1.636	-1.656	-5.628***	-4.465**
	(1.068)	(1.073)	(1.072)	(1.241)	(1.759)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	2,153	2,153	2,153	2,153	2,142
Prob > chi2	0.000	0.000	0.000	0.000	0.000
Pseudo R2	0.115	0.164	0.197	0.399	0.408

Furthermore, firms with a higher percentage of family members sitting on the board of directors were actually significantly less likely to file a patent opposition ($\beta = -1.906$, $p < .01$), rejecting hypothesis 2.

Eponymous Firms

To analyze the impact of an eponymous name on a patent protection, an additional set of logistic regressions were run on the sub-sample of the largest 250 firms in the sample. The same control

variables as used to test hypotheses 1 and 2 were used in this set of regressions as well. Summary statistics of the 250 firms can be found in Table 4.

Table 4

	Count	Mean	Std. Dev.	Min	Max
filed_opposition	250	0.164	0.371	0	1
eponymous_family	250	0.216	0.412	0	1
family_firm	250	0.476	0.500	0	1
percentage_of_family_directors	250	0.127	0.258	0	1
ip_total_assets_ratio	250	0.031	0.117	0	1
patent_count	250	8343.788	21319.420	1	191244
age	250	104.544	25.796	2	114
revenue	250	1.53ex07	1.241	303890	2.44ex08
employees	241	55979.980	1.432	12	664500
current_ratio	250	1.382	0.553	0.385	3.697

As is seen below in Table 5, *eponymous_family* has a positive and significant impact on the number of oppositions filed by a firm. Additionally, the separation of eponymous and non-eponymous family firms indicates that non-eponymous family firms actually have a negative impact than not only eponymous family firms, but non-family firms as well. As a result, hypothesis 3 is supported.

Table 5

DV: *filed_opposition*	Model 5	Model 6	Model 7	Model 8
eponymous_family	1.237**	1.327**	2.143**	2.739***
	(0.611)	(0.620)	(0.840)	(0.985)
family_firm dummy	-1.327**	-1.327**	-1.370*	-2.008**
	(0.569)	(0.577)	(0.733)	(0.879)
parent_value_to_total_assets		-0.085*	-7.690*	-16.431**
		(1.396)	(4.570)	(6.664)
patent_count			0.872***	1.290***
			(0.197)	(0.346)
age				-0.0550
				(0.023)
ln_revenue				0.237
				(0.555)
ln_employees				-0.406
				(0.516)
current_ratio				0.979*
				(0.508)
constant	1.523	1.574	-4.617**	-2.613
	(1.549)	(1.552)	0.028	(5.907)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes
Observations	142	142	138	135
Prob > chi2	0.036	0.061	0.000	0.000
Pseudo R2	0.105	0.105	0.317	0.397

Conclusions

Extant literature on strategy and innovation has focused on how cognition helps firms select and invest in exploratory innovation, yet very little attention has been applied to help understand how managerial emotions influence innovation decisions. The little amount of innovation research on emotions has focused on how temporary moods effect creativity (Martin et al., 1993; Isen, 1999), and how personality traits may influence innovative risk taking (Gerstner, Konig, Enders,

Hambreck, 2013). No extant literature has looked at how emotions influence a firm's decision to defend its intellectual property. This paper argues that socioemotional factors can influence managers to become more protective of their firm's patented innovations.

Two specific dimensions of socioemotional wealth were tested as possible mechanisms to explain this phenomenon. Family owners receive affect related value from the control they have over the firm's decision making process (Gomez Mejia et al., 2007). Literature has found that family owners are heavily involved in the development of innovations within their company (König et al., 2013; Duran et al., 2016) and tend to prefer incremental innovations within the family's knowledge realm as opposed to exploratory innovations which would require ceding control to outside financing and technical managers (Block, 2012). However, the results of this preliminary study have found that family firms with a higher percentage of family members sitting on the board of directors are less likely to file patent oppositions than family firms with fewer or no family members sitting on the board of directors. This adds complexity to the findings of (Zellweger et al., 2012; König et al., 2013), which stated that family firms are less likely to cede control to outsiders in an effort to preserve socioemotional wealth. If families with high levels of managerial control are less defensive towards intellectual property threats, we can reason that they are more comfortable giving up their exclusive rights and negotiating licenses with outside firms. This gives support to a study by Chirico et al. (2020) which found that family firms with lower levels of ownership and control were more protective of the little SEW that they still held. This is because families with lower levels of family control are at the greatest odds of losing control all together. As a result of these findings, high levels of family control can be ruled out as a possible mechanism for family firm's increased rate of patent litigation. A different mechanism, such as the socioemotional wealth dimension of identity, may better explain this phenomenon.

Extant research on socioemotional wealth and innovation primarily focus on the family control dimension of socioemotional wealth. This paper further explores how overlapping individual and organizational identities can influence patent defense decisions, with empirical analysis forthcoming. Extant literature on identity has found that overlapping individual, relational, and organizational identities can drive family members to view threats to the company more personally (Berrone et al., 2012). Furthermore, family members can become emotionally attached to the firm and its products, making them more willing to defend them (Micelotta & Raynard, 2011). This study moves beyond reputational and public opinion concerns of identity, and is the first to extend the concept of identity to the strategic defense of a firm's intellectual property and innovations.

By directly comparing eponymous and non-eponymous family firms this study is better able to isolate the identity element of socioemotional wealth. Results show that eponymous family firms are significantly more likely to file patent oppositions than non-eponymous family firms and non-family firms. It suggests that managers of eponymously named firms may be more impressionable to overlapping firm and family identities, and as a result more protective of the firm's intellectual property. The mixed findings between firm control and identity indicate that each FIBER dimension of socioemotional wealth initiate a unique response to the same threat.

Furthermore, there may be reputational elements to consider as well. Family firms may be more willing to defend their intellectual property due to the potential reputational impacts could occur if another firm's products become mistakenly identified with the family firm. If another firm is able to produce a lower-quality product with similar design features or products that prevents consumers from distinguishing between two products, it could dimmish the reputation of the focal

family firm's business and ultimately the reputation of the family itself (Berrone et al., 2010; Depphouse & Jaskiewicz, 2013; Zellweger et al., 2013).

Many of the themes of SEW and innovation, in particular SEW's impact on patent defense decisions, can be relevant to literature outside of family firms. For example, entrepreneurs and long-tenure CEOs may be more likely to have identity overlaps between themselves and their firm, and to take business successes and failures more personally.

This research also supplements extant research on family firms by confirming the findings of Gomez-Mejia et al. (2007), once again proving that family firms take on additional risk in order to preserve SEW. This study found that family firms are more willing to risk losing their intellectual property in order to maintain their exclusive rights to a technology. Moreover, this study has identified that socioemotional wealth has an impact on negotiations between family and non-family firms. The combination of economic and non-economic costs incurred by family firms encourages them to associate a higher value to their assets, leading to larger bargaining differences between them and outside firms. Future research may want to investigate these themes in other contexts such as mergers and acquisitions, alliances, and private investment.

Finally, the results of this study are also of real world importance. Patent litigation is a costly, and risky proposition for patent holding firms. Firms must honestly evaluate the value of their intellectual property and the likelihood of winning a case before proceeding with a lawsuit or patent opposition. Managers and owners who let emotions dictate their decisions are at a higher chance of losing their intellectual property all together.

Limitations

As previously mentioned, this is a preliminary study focusing on the year 2018. Therefore, the results are limited to a single year and additional years of information need to be collected in order to understand how this effect is subject to differing economic environments.

Moreover, this study only examines the likelihood of a firm filing a patent opposition, rather than trying to understand which types of patents family firms choose to protect. Future research may want to investigate if family firms are more willing to protect patents (and their associated assets) which are tied to historical and sentimental aspects of the firm. Finally, the firms used in my sample all had over 100 million euros in annual revenue. The motivating effects of litigation decisions may be different for small and medium sized family firms.

References

Amabile, T. M., Barsade, S. G., Mueller, J. S., & Staw, B. M. (2005). Affect and creativity at work. *Administrative Science Quarterly, 50*(3), 367-403. doi:10.2189/asqu.2005.50.3.367

Anderson, R. C., Duru, A., & Reeb, D. M. (2012). Investment policy in family controlled firms. *Journal of Banking & Finance, 36*(6), 1744-1758. doi:https://doi.org/10.1016/j.jbankfin.2012.01.018

Anderson, R. C., & Reeb, D. M. (2003). Founding-family ownership and firm performance: Evidence from the S&P 500. *The Journal of Finance, 58*(3), 1301-1328. doi:https://doi.org/10.1111/1540-6261.00567

Ashforth, B. E., & Humphrey, R. H. (1995). Emotion in the workplace: A reappraisal. *Human Relations, 48*(2), 97-125. doi:10.1177/001872679504800201

Ball, G. G., & Kesan, J. P. (2009). Transaction costs and trolls: Strategic behavior by individual inventors, small firms and entrepreneurs in patent litigation. *SSRN Electronic Journal,* doi:10.2139/ssrn.1337166

Baron, R. A. (2008). The role of affect in the entrepreneurial process. *Amr, 33*(2), 328-340. doi:10.5465/amr.2008.31193166

Belenzon, S., Chatterji, A. K., & Daley, B. (2017). Eponymous entrepreneurs. *American Economic Review, 107*(6), 1638-1655.

Belenzon, S., Chatterji, A. K., & Daley, B. (2020). Choosing between growth and glory. *Management Science, 66*(5), 2050-2074. doi:10.1287/mnsc.2019.3296

Berrone, P., Cruz, C., & Gomez-Mejia, L. (2012). Socioemotional wealth in family firms: Theoretical dimensions, assessment approaches, and agenda for future research. *Family Business Review, 25*(3), 258-279. doi:10.1177/0894486511435355

Berrone, P., Cruz, C., Gomez-Mejia, L., & Larraza-Kintana, M. (2010). Socioemotional wealth and corporate responses to institutional pressures: Do family-controlled firms pollute less? *Administrative Science Quarterly, 55*(1), 82-113. doi:10.2189/asqu.2010.55.1.82

Bessen, J., & Meurer, M. J. (2005). Lessons for patent policy from empirical research on patent litigation. *Lewis & Clark Law Review, 9*(1), 1-28. Retrieved from https://heinonline.org/HOL/P?h=hein.journals/lewclr9&i=21 https://heinonline.org/HOL/PrintRequest?handle=hein.journals/lewclr9&collection=0&div=8&id=21&print=section&sction=8

Bessen, J., & Meurer, M. J. (2013). The private costs of patent litigation. *Journal of Law, Economics & Policy, 9*(1), 59-96. Retrieved from https://heinonline.org/HOL/P?h=hein.journals/jecoplcy9&i=63 https://heinonline.org/HOL/PrintRequest?handle=hein.journals/jecoplcy9&collection=0&div=8&id=63&print=section&sction=8

Bessen, J., Neuhäusler, P., Turner, J. L., & Williams, J. (2018). Trends in private patent costs and rents for publicly-traded united states firms. *International Review of Law and Economics, 56*, 53-69. doi:https://doi.org/10.1016/j.irle.2018.07.001

Bhagat, S., Bizjak, J., & Coles, J. L. (1998). The shareholder wealth implications of corporate lawsuits. *Financial Management, 27*(4), 5-27. doi:10.2307/3666410

Block, J. H. (2012). R&D investments in family and founder firms: An agency perspective. *Journal of Business Venturing, 27*(2), 248-265. doi:https://doi.org/10.1016/j.jbusvent.2010.09.003

Block, J., Miller, D., Jaskiewicz, P., & Spiegel, F. (2013). Economic and technological importance of innovations in large family and founder firms: An analysis of patent data. *Family Business Review, 26*(2), 180-199. doi:10.1177/0894486513477454

Carrigan, M., & Buckley, J. (2008). 'What's so special about family business?' an exploratory study of UK and irish consumer experiences of family businesses. *International Journal of Consumer Studies, 32*(6), 656-666. doi:https://doi.org/10.1111/j.1470-6431.2008.00696.x

Chirico, F., Criaco, G., Baù, M., Naldi, L., Gomez-Mejia, L., & Kotlar, J. (2020). To patent or not to patent: That is the question. intellectual property protection in family

firms. *Entrepreneurship Theory and Practice, 44*(2), 339-367. doi:10.1177/1042258718806251

Cruz, C. C., Gómez-Mejia, L. R., & Becerra, M. (2010). Perceptions of benevolence and the design of agency contracts: CEO-TMT relationships in family firms. *Amj, 53*(1), 69-89. doi:10.5465/amj.2010.48036975

Daniels, K. (1998). Towards integrating emotions into strategic management research: Trait affect and perceptions of the strategic environment. *British Journal of Management, 9*(3), 163-168. doi:https://doi.org/10.1111/1467-8551.00081

Deephouse, D. L., & Jaskiewicz, P. (2013). Do family firms have better reputations than non-family firms? an integration of socioemotional wealth and social identity theories. *Journal of Management Studies, 50*(3), 337-360. doi:10.1111/joms.12015

De Massis, A., Chua, J. H., & Chrisman, J. J. (2008). Factors preventing intra-family succession. *Family Business Review, 21*(2), 183-199. doi:https://doi.org/10.1111/j.1741-6248.2008.00118.x

Duran, P., Kammerlander, N., van Essen, M., & Zellweger, T. (2016). Doing more with less: Innovation input and output in family firms. *Amj, 59*(4), 1224-1264. doi:10.5465/amj.2014.0424

Dyer, W. G., & Whetten, D. A. (2006). Family firms and social responsibility: Preliminary evidence from the S&P 500. *Entrepreneurship Theory and Practice, 30*(6), 785-802. doi:10.1111/j.1540-6520.2006.00151.x

The enforcement of patent rights intellectual property advisory committee. (November 2003).

European patent guide(2021).

Feldman, M. S., & Pentland, B. T. (2003). Reconceptualizing organizational routines as a source of flexibility and change. *Administrative Science Quarterly, 48*(1), 94-118. doi:10.2307/3556620

Gerstner, W., König, A., Enders, A., & Hambrick, D. C. (2013). CEO narcissism, audience engagement, and organizational adoption of technological discontinuities. *Administrative Science Quarterly, 58*(2), 257-291. doi:10.1177/0001839213488773

Gomez–Mejia, L. R., Campbell, J. T., Martin, G., Hoskisson, R. E., Makri, M., & Sirmon, D. G. (2014). Socioemotional wealth as a mixed gamble: Revisiting family firm R&D investments with the behavioral agency model. *Entrepreneurship Theory and Practice, 38*(6), 1351-1374. doi:10.1111/etap.12083

Gómez-Mejía, L. R., Haynes, K. T., Núñez-Nickel, M., Jacobson, K. J. L., & Moyano-Fuentes, J. (2007). Socioemotional wealth and business risks in family-controlled firms: Evidence from

spanish olive oil mills. *Administrative Science Quarterly, 52*(1), 106-137. doi:10.2189/asqu.52.1.106

Gomez-Mejia, L., Cruz, C., Berrone, P., & De Castro, J. (2011). The bind that ties: Socioemotional wealth preservation in family firms. *Annals, 5*(1), 653-707. doi:10.5465/19416520.2011.593320

Harhoff, D., & Reitzig, M. (2004). Determinants of opposition against EPO patent grants—the case of biotechnology and pharmaceuticals. *International Journal of Industrial Organization, 22*(4), 443-480. doi:https://doi.org/10.1016/j.ijindorg.2004.01.001

Haslem, B. (2005). Managerial opportunism during corporate litigation. *The Journal of Finance, 60*(4), 2013-2041. doi:https://doi.org/10.1111/j.1540-6261.2005.00786.x

Isen, A. M. (1999). On the relationship between affect and creative problem solving. *Affect, Creative Experience, and Psychological Adjustment, 3*(17), 3-17.

Janicke, P. M., & Ren, L. (2006). Who wins patent infringement cases. *AIPLA Quarterly Journal, 34*(1), 1-44. Retrieved from https://heinonline.org/HOL/P?h=hein.journals/aiplaqj34&i=11 https://heinonline.org/HOL/PrintRequest?handle=hein.journals/aiplaqj34&collection=0&div=8&id=11&print=section&sction=8

Kahneman, D., & Tversky, A. (2013). Prospect theory: An analysis of decision under risk. *Handbook of the fundamentals of financial decision making: Part I* (pp. 99-127) World Scientific.

König, A., Kammerlander, N., & Enders, A. (2013). The family innovator's dilemma: How family influence affects the adoption of discontinuous technologies by incumbent firms. *Amr, 38*(3), 418-441. doi:10.5465/amr.2011.0162

Lanjouw, J. O., & Lerner, J. (2000). The enforcement of intellectual property rights: A survey of the empirical literature. *The economics and econometrics of innovation* (pp. 201-224) Springer.

Lemley, M. A., & Shapiro, C. (2005). Probabilistic patents. *Journal of Economic Perspectives, 19*(2), 75-98.

Levy, F. K. (1985). The managerial economics of civil litigation. *Management Science, 31*(3), 323-342. doi:10.1287/mnsc.31.3.323

Lubatkin, M. H., Schulze, W. S., Ling, Y., & Dino, R. N. (2005). The effects of parental altruism on the governance of family-managed firms. *Journal of Organizational Behavior, 26*(3), 313-330. doi:https://doi.org/10.1002/job.307

Martin, L. L., Ward, D. W., Achee, J. W., & Wyer, R. S. (1993). Mood as input: People have to interpret the motivational implications of their moods. *Journal of Personality and Social Psychology, 64*(3), 317-326. doi:10.1037/0022-3514.64.3.317

Micelotta, E. R., & Raynard, M. (2011). Concealing or revealing the family?: Corporate brand identity strategies in family firms. *Family Business Review, 24*(3), 197-216. doi:10.1177/0894486511407321

Miller, D., & Le Breton–Miller, I. (2014). Deconstructing socioemotional wealth. *Entrepreneurship Theory and Practice, 38*(4), 713-720. doi:10.1111/etap.12111

Miller, D., & Le Breton-Miller, I. (2006). Family governance and firm performance: Agency, stewardship, and capabilities. *Family Business Review, 19*(1), 73-87. doi:10.1111/j.1741-6248.2006.00063.x

Miller, D., Le Breton-Miller, I., & Lester, R. H. (2010). Family ownership and acquisition behavior in publicly-traded companies. *Strategic Management Journal, 31*(2), 201-223. doi:https://doi.org/10.1002/smj.802

Minichilli, A., Prencipe, A., Radhakrishnan, S., & Siciliano, G. (2022). What's in a name? eponymous private firms and financial reporting quality. *Management Science, 68*(3), 2330-2348. doi:10.1287/mnsc.2021.3974

Mishra, C. S., & Mcconaughy, D. L. (1999). Founding family control and capital structure: The risk of loss of control and the aversion to debt. *Entrepreneurship Theory and Practice, 23*(4), 53-64. doi:10.1177/104225879902300404

Priest, G. L., & Klein, B. (1984). The selection of disputes for litigation. *The Journal of Legal Studies, 13*(1), 1-55. doi:10.1086/467732

Reitzig, M. (2004). Improving patent valuations for management purposes—validating new indicators by analyzing application rationales. *Research Policy, 33*(6), 939-957. doi:https://doi.org/10.1016/j.respol.2004.02.004

Rudy, B. C., & Black, S. L. (2018). Attack or defend? the role of institutional context on patent litigation strategies. *Journal of Management, 44*(3), 1226-1249. doi:10.1177/0149206315605168

Salvato, C., Chirico, F., & Sharma, P. (2010). A farewell to the business: Championing exit and continuity in entrepreneurial family firms. *Null, 22*(3-4), 321-348. doi:10.1080/08985621003726192

Schulze, W. S., Lubatkin, M. H., & Dino, R. N. (2003). Exploring the agency consequences of ownership dispersion among the directors of private family firms. *Amj, 46*(2), 179-194. doi:10.5465/30040613

Shavell, S. (1982). Suit, settlement, and trial: A theoretical analysis under alternative methods for the allocation of legal costs. *The Journal of Legal Studies, 11*(1), 55-81. doi:10.1086/467692

Shrivastava, P., & Schneider, S. (1984). Organizational frames of reference. *Human Relations, 37*(10), 795-809. doi:10.1177/001872678403701002

Sluss, D. M., & Ashforth, B. E. (2008). How relational and organizational identification converge: Processes and conditions. *Organization Science, 19*(6), 807-823. doi:10.1287/orsc.1070.0349

Somaya, D. (2003). Strategic determinants of decisions not to settle patent litigation. *Strategic Management Journal, 24*(1), 17-38. doi:https://doi.org/10.1002/smj.281

Somaya, D. (2012). Patent strategy and management: An integrative review and research agenda. *Journal of Management, 38*(4), 1084-1114. doi:10.1177/0149206312444447

Teece, D. J. (1998). Capturing value from knowledge assets: The new economy, markets for know-how, and intangible assets. *California Management Review, 40*(3), 55-79. doi:10.2307/41165943

Tversky, A., & Kahneman, D. (1986). Rational choice and the framing of decisions. *Multiple criteria decision making and risk analysis using microcomputers* (pp. 81-126) Springer.

Weatherall, K., & Webster, E. (2014). Patent enforcement: A review of the literature. *Journal of Economic Surveys, 28*(2), 312-343. doi:https://doi.org/10.1111/joes.12009

Wiseman, R. M., & Gomez-Mejia, L. (1998). A behavioral agency model of managerial risk taking. *Amr, 23*(1), 133-153. doi:10.5465/amr.1998.192967

Zellweger, T. M., & Astrachan, J. H. (2008). On the emotional value of owning a firm. *Family Business Review, 21*(4), 347-363. doi:10.1177/08944865080210040106

Zellweger, T. M., Kellermanns, F. W., Chrisman, J. J., & Chua, J. H. (2012). Family control and family firm valuation by family CEOs: The importance of intentions for transgenerational control. Organization Science, 23(3), 851-868. doi:10.1287/orsc.1110.0665

Zellweger, T. Nason, R. S., Nordqvist, M., & Brush, G. (2013). Why Do Family Firms Strive for Nonfinancial Goals? An Organizational Identity Perspective. Entrepreneurship Theory & Practice, 37(2), 229-248. doi:10.1111/j.1540-6520.2011.00466.x