

Pick the Odd-Ones Out! Conferring Legitimacy of Initial Coin Offerings by Distinction

Completed Research Paper

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Abstract

In what ways do new entrepreneurial ventures gain legitimacy and attract critical resources? According to a growing body of cultural entrepreneurship research, new ventures require distinctiveness to stand out, but existing research suggests that distinctiveness counteracts with organizational legitimacy. We challenge this assumption that distinctiveness is counterproductive to achieving legitimacy and suggest that distinctiveness can serve as a source of legitimacy. The significance of this assumption lies in the fact that it fundamentally alters the relationship between distinctiveness and resources acquired from novelty-seeking audiences. We also show how online media affects the distinctiveness - resource acquisition tradeoff as a dichotomous instrument. Finally, based on our theoretical assumptions, we examine how new ventures acquire resources through initial coin offerings (ICOs). Our analysis of 306 ICOs across 29 market categories shows that while higher levels of distinctiveness may lead to superior ICO performance, public sentiments expressed on media can shift legitimacy.

Keywords: Organizational legitimacy, optimal distinctiveness, online media, initial coin offerings, blockchain.

Introduction

Entrepreneurial ventures require legitimacy in the eyes of resource-providing audiences¹ to acquire critical resources (Lounsbury and Glynn 2001; Zimmerman and Zeitz 2002). The attainment of legitimacy – defined as “a generalized conception or presumption that an entity’s actions are desirable, proper, or reasonable within any collectively constructed set of norms, values, beliefs, and definitions” (Suchman 1995, p. 574)² – is critical for all organizations, but is especially difficult for new ventures that must contend with their liability of newness (Navis and Glynn 2011). Early-stage new ventures lack access to traditional legitimacy signals, such as track record of successful products (Fisher et al. 2016), and often consist of little more than extended fictions of potential future states of existence (Gartner et al. 2016). As a result, legitimacy is a vital pre-condition for new ventures’ resource acquisition, development, and long-term survival.

Cultural entrepreneurship theory highlights entrepreneurial storytelling³ as the central driver of the legitimacy of new ventures’ and suggests that entrepreneurial stories need to achieve “optimal

¹ The term *resource-providing audiences* refers to investors and stakeholders with financial, non-financial, and intellectual stakes in a firm.

² There are two conceptualizations of legitimacy in the literature. First, legitimacy is a non-observable organizational property (e.g., Taeuscher et al. 2020). Second, it is an active endorsement (e.g., Deephouse 1996) or a judgment made by individual evaluators (Tost 2011). Both of these conceptualizations are applicable to our research context.

³ The term *entrepreneurial storytelling* is sometimes referred to as *entrepreneurial narratives* or *entrepreneurial stories*.

distinctiveness” to attract resources effectively (Lounsbury and Glynn 2001, 2019; Navis and Glynn 2011). Within the cultural entrepreneurship framework, optimal distinctiveness refers to the degree to which an entrepreneurial story deviates from a market category’s prototypical story. Distinctiveness matters because it enables an unknown new venture to stand out and attract attention from resource-providing audiences. However, institutional theorists have long argued that distinctiveness can counteract the attainment of legitimacy (Powell and DiMaggio 2012). The basic argument is that departing from a categorical prototype results in a reduction in new venture’s understandability⁴ because it prevents audiences from linking the new venture to a familiar cognitive template for sensemaking (Navis and Glynn 2011). Therefore, high distinctiveness can prevent resources’ acquisition because audiences may disregard a new venture that they cannot fully comprehend. Thus, previous research identifies the fundamental tradeoff between similarity and distinctiveness and suggests that entrepreneurial ventures will be most effective at attracting resources if they can convey a moderate level of distinctiveness (Lounsbury and Glynn 2001, 2019; Martens et al. 2007; Navis and Glynn 2011, 2010).

In this paper, we challenge the notion that distinctiveness necessarily counteracts the attainment of legitimacy. Institutional theory conceptualizes legitimacy as a multi-dimensional construct (Aldrich and Fiol 1994; Scott 2014; Suchman 1995), but research on optimal distinctiveness mainly focuses on how distinctiveness threatens organizations’ cognitive legitimacy – broadly defined as an organization’s comprehensibility (Suchman 1995). Yet, distinctiveness may affect a venture’s normative legitimacy – i.e., its perceived congruence with the normative expectations of an audience (Suchman 1995). We argue that entrepreneurial venture audiences differ in their normative expectations (Fisher et al. 2017), therefore, distinctiveness will increase a new ventures’ legitimacy in the eyes of novelty-seeking audiences. New ventures can gain legitimacy because (and not despite) of their distinctiveness when seeking resources from novelty-seeking audiences. This distinction is significant because it substantially alters the predicted relationship between distinctiveness and resource acquisition for novelty-seeking audiences.

Novelty-seeking audiences rely on media information to reduce information asymmetry. Media information legitimate firms by influencing stakeholder perceptions of desirability and appropriateness of firm actions and characteristics (Elsbach 1993; Zuckerman 1999). Within organization research, the role of traditional media is examined from a strategic viewpoint as a costly legitimating device for established organizations. However, we propose that online media has gained popularity among entrepreneurs as a cost-effective and two-way communication medium that can simultaneously serve to legitimate or delegitimize ventures. Discursive evaluations of online media users especially silent majority (Mai et al. 2018) shapes how audiences perceive legitimacy of a venture by activating a legitimating or delegitimizing frame, which shifts cognitive legitimacy by creating implicit associations with a legitimate or illegitimate field of practice. So we believe that online media can positively or negatively affect the normative legitimacy by changing the cognitive legitimacy. We endorse the dichotomous role of online media in that; it is comparable to traditional media as a strategic device to manage legitimacy through venture-managed online activity, and as a feedback system (Lenz and Burilkov 2017) to the venture (or its offerings) which resides outside of the strategic control of a venture.

In this paper, we set two main objectives. First, we reinterpret online media’s dichotomous role in cultural entrepreneurship theory in terms of agenda setting and affect-based opinion device. Second, we challenge the presumption that the attainment of legitimacy is necessarily counteracted by distinctiveness as reported by institutional theorists (Aldrich and Fiol 1994; Scott 2014; Suchman 1995). We use these theoretical propositions to investigate how early-stage entrepreneurial ventures obtain resources from Initial Coin Offerings (ICOs) audiences – one of the most important crowdfunders of blockchain-related new ventures (Fisch 2019). A typical new venture is more likely to attract financial resources than any other traditional mode of early-stage (e.g., Initial Public Offerings) or later-stage financing (Catalini and Gans 2016). We characterize ICO investors as novelty-seeking audiences and argue that competitive and normative benefits of distinctiveness exceed its potential cognitive liabilities in the ICOs context. We therefore depart from previous studies on optimal distinctiveness and predict that distinctiveness has a strongly positive effect on the acquisition of resources from ICOs audiences rather than inverted U-shaped effect. Furthermore, we

⁴ Here, *understandability* refers to how well can the entrepreneurial venture be understood, rather than how well the entrepreneurial venture can understand.

hypothesize, extending our main proposition, that the legitimizing effect of distinctiveness depends on the presence of alternative sources of legitimacy. In the absence of alternative sources of legitimacy, we propose that distinctiveness will provide the most benefits.

We use data from 306 ICOs across 29 market categories to test our hypothesis. To identify ICO project narratives' content patterns, we use a topic modeling approach (Hannigan et al. 2019) and then quantify the extent to which any given ICO narrative deviates from the prototypical narrative in its market category. Our study provides strong evidence that distinctive entrepreneurial stories have a strong positive impact on the acquisition of resources from the ICOs audiences. We found that distinctive entrepreneurial stories strongly influenced underpricing (proxy variable for legitimacy) providing support for our proposition that distinctiveness can serve as a source of normative legitimacy and that distinctiveness thus helps – rather than weakens – the attainment of legitimacy from novelty-seeking audiences.

Theoretical Background

Entrepreneurial Storytelling and Optimal Distinctiveness

Cultural entrepreneurship theory indicates that entrepreneurial storytelling is a source of organizational identity-building and antecedent for new ventures' legitimation and resource acquisition (Lounsbury and Glynn 2001; Snihur 2016). Entrepreneurial stories commonly refer to a deliberately constructed narrative about the venture. For example, statements about founders' beliefs ("We value our users because they trust our platform for safekeeping of their money"), the characteristics of the market opportunity ("The demand for a structural transition of businesses' towards blockchain is rapidly growing"), the product's technology ("Our product uses Ethereum's Plasma Cash Protocol as its underlying technology"). Entrepreneurial storytelling represent the primary criterion for evaluations of new ventures' legitimacy because new ventures usually have limited access to resource-providing audiences (Lounsbury and Glynn 2001).

One of the most common propositions in cultural entrepreneurship has evolved under the notion of "optimal distinctiveness" (Lounsbury and Glynn 2001). The proposition focuses on distinctiveness as an attribute of entrepreneurial storytelling. As new ventures often lack access to more strategic sources of differentiation, they commonly differentiate themselves through entrepreneurial storytelling that deviates from the prototypical entrepreneurial storytelling of their market category (Navis and Glynn 2011). Distinctiveness, however, is conceptualized as antithetical to the attainment of (cognitive) legitimacy because it hinders the audiences' ability to comprehend the proposed new venture (Aldrich and Fiol 1994). Resource-providing audiences need to evaluate new ventures under conditions of high uncertainty – i.e., a "lack of clarity such that it is challenging to construe or differentiate opportunities" (Davis et al. 2009) – because they are generally unfamiliar with the resource-seeking new ventures (Navis and Glynn 2011). Prior studies have shown that uncertainty negatively affects ventures' ability to attain cognitive legitimacy from various audiences, such as investors (Martens et al. 2007) and consumers (Pontikes 2012). New ventures become less uncertain when they conform to a category's prototype because audiences can more easily comprehend an unknown new venture when they can locate it in a familiar category (Suchman 1995). For instance, Elsbach and Kramer (2003) indicated how Hollywood producers evaluate movie pitches much more favorably when they can cognitively match a movie with an existing category prototype. An entrepreneurial story that is similar to the category's prototype legitimates because it helps the audience to easily recognize the venture as "one of those" (Bitektine 2011).

Entrepreneurial Storytelling as a Source of Normative Legitimacy

Entrepreneurial stories can also serve as source of attaining normative legitimacy. Normative legitimacy refers to an organization's perceived congruence with the normative expectations in its institutional environment (Scott 2008). Ventures gain normative legitimacy when audiences perceive them to engage in "the right thing to do" (Suchman 1995). In Lounsbury and Glynn's (2001) original formulation of cultural entrepreneurship theory, normative legitimation represents a major function of entrepreneurial stories. To be effective, the content of entrepreneurial stories must resonate with audiences' interests and societal norms to enable favorable interpretations of a new venture (Lounsbury and Glynn 2001). Entrepreneurial stories can support perceptions of normative legitimacy through claims that convey the venture's congruence with the audience's normative expectations (Lounsbury and Glynn 2001). Whether an entrepreneurial story will normatively legitimate a venture thus depends on audiences' expectations about

what it means to “do the right thing”. The extant literature on organizational finance has framed “do the right thing” in the social context where the congruence between a firm’s actions and society is evaluated by the magnitude of overall-good that the action produces for societal well-being. Although investing into social well-being is a strong cost-oriented signal that reduces information asymmetry, early-stage new-ventures operate in uncertain environments, have a global audience and therefore configure to span over greater good beyond unit social vector to attain legitimacy despite limited financial resources. Therefore, we redefine the definition of “do the right thing” for crowdfunding context as “the degree of suitability on economic, social, and ecological vectors”. In doing so, we argue that audiences investing in boundaryless (Catalini and Gans 2016) and uncertain markets (Fisch 2019) tend to substitute their expectations of legitimacy by relying on the aggregative strength of trio-vector (i.e., economic, social, and ecological) benefits. For example, some audiences may seek an increase in their wealth by focusing only on the economic aspects while others might pursue combined strength of social and economic features of an offering. Ideally, ventures promising gains across multiple facets of “do the right thing” will signal stronger reduction of asymmetric information than with ventures relying on unit vector. To this end, we rely on generally accepted assumptions about economic, social and ecological benefits set out in the extant literature on organizational finance, economics, sustainability, and corporate social responsibility. The economic vector encompasses monetary aspects that bring benefits to the investor, social vector embodies everything that produces greater good for the society, and ecological vector covers greater benefits for the environment and natural surroundings in which the society exists.

Audiences therefore differ in their normative expectations about appropriate behaviors, which are shaped by their economic, social, and ecological taste which further configures their legitimacy evaluations (Fisher et al. 2017). Although audiences come with different types of expectations, we focus on audiences' expectations of novelty. We define novelty expectations as “the degree to which an audience expects a venture's offering and business model to be novel or unique”. Audiences with a high novelty expectation – which we call novelty-seeking audiences – will more likely evaluate a venture as legitimate if they perceive it as novel.

We propose that ventures will more likely gain normative legitimacy in the eyes of novelty-seeking audiences when their entrepreneurial story is distinctive from the categorical prototype. New ventures often lack objective signals to convey their uniqueness (Rindova et al. 2007), and a distinctive entrepreneurial story will consequently provide an important criterion for audiences' novelty perceptions. Distinctiveness can therefore represent a source of legitimacy when new ventures seek resources from novelty-seeking audiences. This also implies that distinctiveness can cause detrimental effects on new ventures' legitimacy by simultaneously diminishing a venture's cognitive legitimacy while increasing its normative legitimacy. Distinctiveness will enhance a venture's legitimacy if the normative benefits outweigh the cognitive liabilities of distinctiveness. This insight challenges the assumption that distinctiveness necessarily obscures legitimacy, and also provides evidence that distinctiveness offers legitimacy. We depart from common assumption that new ventures necessarily face a tradeoff between differentiation and legitimation. We propose that distinctiveness is primarily related to resource acquisition due to three mechanisms (normative, cognitive, and differentiation), and that the shape of the relationship is dependent on the relative strength of those mechanisms in a given context.

Legitimacy and (Online) Media

Institutional theorists have analyzed the role of media as a strategic device to signal legitimacy. Strategic use of media can influence stakeholder perceptions of desirability and appropriateness of firm actions and characteristics (Elsbach 1993; Zuckerman 1999). Traditional media offers firm-side perspective of information, reducing the opportunity for audience feedback. However, online media has gained popularity as a low-cost, two-way medium that can legitimate or delegitimate ventures. Discursive evaluations among online media audiences generate inter-subjective consensus (Hart 2014), increasing venture-audiences congruence. The post-congruence audiences perceptions are indicative of audience’s likelihood of interest in a firm or its products, and are likely to provide entrepreneurs with some prescriptive benefits (Shepherd and Zacharakis 2003). Additionally, affect-based positive or negative sentiments are a byproduct of discursive assessments that are sometimes independent of logical assumptions and may legitimate or delegitimate a venture based on irrational or herd behavior of audiences. As such, we endorse the dichotomous role of online media – as an effective but rather inexpensive strategic source for achieving legitimacy through venture-managed online activity, and an affect-based device that generates positive or

negative sentiments outside the strategic control of a venture. To the best of our knowledge, past research has defined traditional media as an agenda setting device (McCombs et al. 2014), while the role of online media has been examined in terms of affect-based responses (Swanson et al. 1963). There is a lack of research on how online media functions as agenda-setting and affect-based device in the realm of legitimacy. Unlike normative legitimacy which rests on discursive evaluations (Golant and Sillince 2007; Suchman 1995), we argue that cognitive legitimacy is shaped based on affect-based characteristics of online media. Effect-based characteristics alter audiences' implicit associations with a legitimate or illegitimate field of practice, further legitimizing or delegitimizing a venture.

Legitimacy and Underpricing

Underpricing in initial public offerings (IPOs) occurs when the company's stock is initially issued at a lower price (issue price or offer price) than when it is later sold on a publicly accessible exchange (current price). According to Chanson et al. (2018), underpricing is defined in relation to ICOs as: "the difference between the ICOs issuance price and the closing price of the coins at the end of a workweek on at least one publicly accessible exchange." We will continue to use the term underpricing, since it is well established in management and finance literature, to refer to the difference between the issue price and the closing price following listing. There are several reasons why underpricing is frequently observed in initial public offerings. One rationale is that firms deliberately use the signaling effects of underpricing to emphasize their superior quality as well as to capitalize on favorable conditions in later funding rounds following the listing, thus maximizing their profits. Booth and Chua (1996) argue that the issuer's desire for widespread ownership leads to underpricing. Aggarwal et al. (2002) assert that organizations purposefully underprice their stock in order to stimulate demand following an initial public offering. In the case of Initial Coin Offerings, a small group of founders determines the issuance price based on future expectations. ICOs are typically in their infancy, which gives them a great deal of freedom in determining their valuation. Since the capital market can be accessed directly through the blockchain, there is no need for underwriters and third parties have little influence. Therefore, we believe that underpricing ICOs would ultimately benefit the issuing project. Our work suggests that more legitimate entrepreneurial ventures will experience a greater degree of underpricing due to audience perceptions being reflected in the closing price five days after IPO (e.g., Lundmark et al. 2017).

Market Category Viability

Market categories are economic transaction mechanisms that exist between producers and consumers are given meaning by actors and audiences who interact with them (Kennedy et al. 2010). Cultural entrepreneurship theory holds a key assumption that market categories can shape perceptions of new ventures (Navis and Glynn 2010). We focus on "market category viability" (Lo et al. 2020) – the degree to which a market category is viable for the audiences – as an important property of market categories. The viability of a market category grows when it is perceived as balanced along coherence and distinction that make up the "zone of viability". Following that, we determine a category's feasibility based on its balance of coherence and distinctiveness. Additionally, we believe that an unbalanced category will fall out and become less appealing.

Research Context and Hypotheses

We test our theoretical assumptions by analyzing the behavior of Initial Coin Offerings (ICOs) underpricing as a proxy for the legitimacy of an early-stage new venture. Figure 1 gives an overview of our theoretical model.

Distinctiveness and Initial Coin Offerings (ICOs)

We will now turn our attention to the normative benefits, cognitive liabilities, and competitive benefits of distinctiveness in the context of Initial Coin Offerings. Anchoring to the observation that ICO investors have high novelty expectations, we expect that distinctiveness will positively influence ICO investors' evaluations of a venture's normative legitimacy. ICO investors will more likely perceive a venture as novel when its entrepreneurial story is distinctive from the prototypical story in its market category. Previous research on investment accruing mechanisms' (e.g., crowdfunding) suggests that investment-seeking ventures rarely hold objective signals of their novelty (Catalini and Gans 2016) and that investors invest relatively little effort in the due diligence of investment-seeking ventures (Catalini and Gans 2016). Hence, it seems plausible that the distinctiveness of its entrepreneurial story will affect investors' perception of a

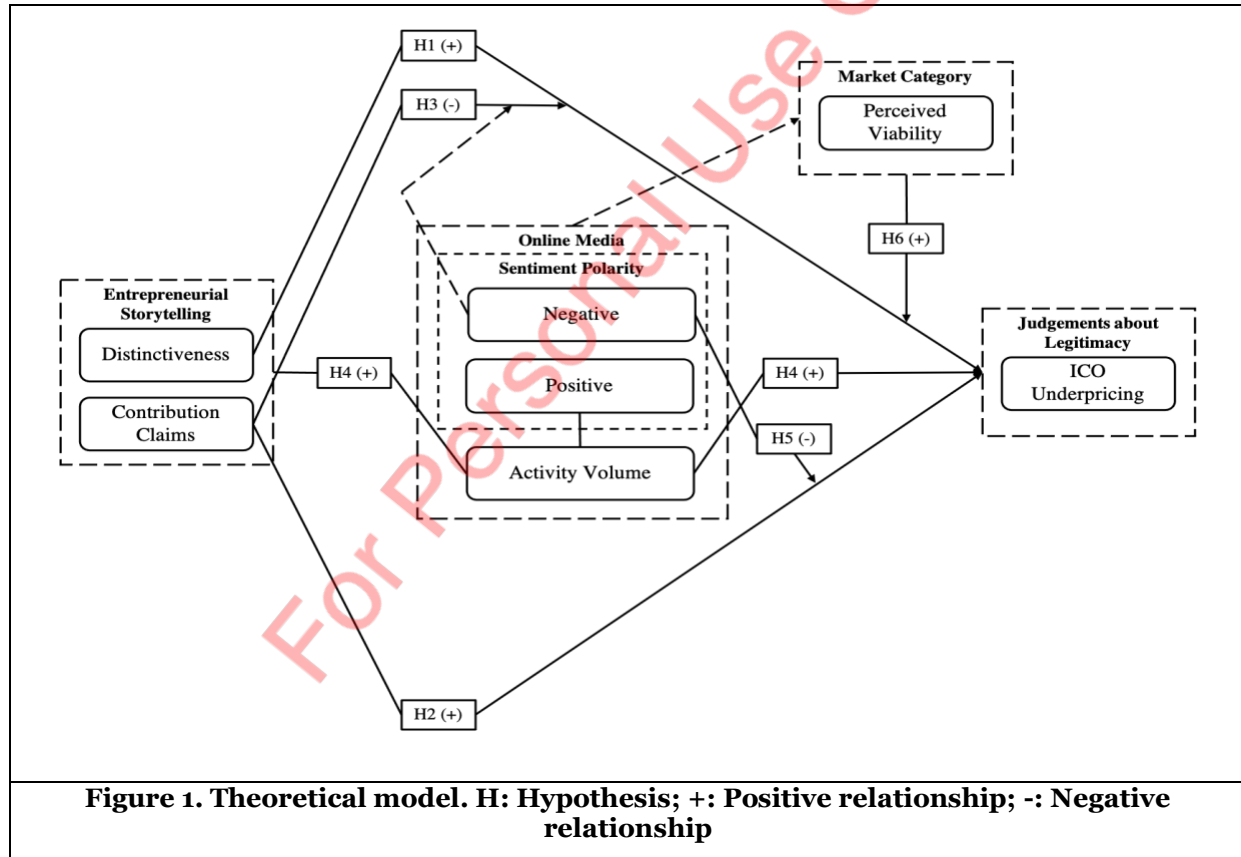
venture's novelty. The distinctiveness of entrepreneurial stories will therefore support ventures' normative legitimacy in the eyes of investors. We thus depart from prior optimal distinctiveness research, which commonly predicts a curvilinear relationship between distinctiveness and desirable performance outcomes (e.g., Deephouse 1999), and hypothesize:

H1: Distinctiveness positively affects the judgements about legitimacy of an ICO venture.

Normatively Legitimizing Claims

Ventures can further gain normative legitimacy through claims that resonate with audiences' normative expectations (Lounsbury and Glynn 2001). Fisher et al. (2017) propose that the audiences abide by community norms and that investment-seeking ventures can consequently gain legitimacy through contribution claims – claims that “reflect the contribution a venture will make to the acceptable norms of a community and how it will provide value to the members of that community”. The collected qualitative evidence supports this preposition and suggests that claims – unlike previous studies that expounds the relevance of non-financial claims in certain environments (e.g., Díez-Martín et al. 2020) – which resonate with both financial and non-financial motives of audiences have higher relevance in uncertain environments. Furthermore, contrary to some researchers (e.g., Taeuscher et al. 2020) who explicate contribution claims in the realm of social vector, we deviate by focusing on total outcome across three vectors – social, economic, and ecological. We thus hypothesize:

H2: Contribution claims positively affects the judgements about legitimacy of an ICO venture.



Investors will therefore infer a venture's normative appropriateness from entrepreneurial stories' distinctiveness and contribution claims. The legitimating effects of these sources of normative legitimacy are, however, not necessarily additive (Zimmerman and Zeitz 2002). The relationship between legitimacy and resource acquisition is generally characterized by a 'range of acceptability' (Deephouse 1999). Once a venture has reached an audience's 'range of acceptability' (Deephouse 1999), it is considered as legitimate and will derive only marginal benefits from additional sources of legitimacy. The potential benefits of

legitimacy are also bounded because legitimacy does not provide a source of differentiation (Deephouse et al. 2017). Once an audience perceives a venture as sufficiently legitimate, it will turn its attention to other criteria to evaluate and compare those organisations that are perceived as legitimate (Deephouse and Carter 2005). A venture that is perceived as sufficiently legitimate due to many contribution claims will face relatively low pressure to gain legitimacy through distinctiveness. This implies that the legitimating effect of distinctiveness is strongest under the absence of contribution claims and decreases at higher levels of contribution claims. We therefore hypothesize:

H3: *Contribution claims negatively affect the positive relationship between distinctiveness and the judgements about legitimacy of an ICO venture.*

Pertaining to H3, we do not have a formal hypothesis about how audiences “range of acceptability” might be compromised in specific circumstances, we do assume that negative sentiment polarity, which we refer to as “polarized herding”, in the online media’s discursive space, can reduce the “range of acceptability” ultimately diluting the negative influence of contribution claims on the relationship between distinctiveness and legitimacy. Thenceforth, the dilution of “range of acceptability” increases the need to tap into additional signals of legitimacy in order to embrace distinctiveness-legitimacy relationship. This assertion contradicts Deephouse’s (1999) original theory on “range of acceptability” in established organizations with readily available measurable and cost-oriented signals of reducing information asymmetry, as opposed to highly uncertain context of ICOs.

In the early stages of an ICO venture’s life, novelty-seeking audiences rely to a big part on the venture-managed online activity communicated through online media. We anticipate that ventures that engage in consistent online interactions prior to their ICO will improve the reachability of their communication and when combined with positive sentiments, will positively mediate judgements about legitimacy. This leads to our hypothesis about mechanisms that increase the appropriateness of entrepreneurial storytelling and, potentially, indirectly increase the degree of underpricing found in an ICO.

H4: *Online media activity volume and positive sentiment about the distinctiveness and contribution claims prior to ICO positively mediates the judgements about legitimacy of the ICO venture.*

In contrast to volume of online media activity, audiences develop affect-based responses (Haack et al. 2014) such as joy (positive sentiment) or disappointment (negative sentiment) to perceptual inputs arising out of aggregated individual judgements in online media (Bitektine and Haack 2015). The aggregated affect-based responses (either positive or negative) will form the basis for individual judgment formation (Haidt 2001). Therefore, we expect that the volume of online media activity will create sentiment aggregation that further evolves into sentiment polarity. The effect of positive sentiment polarity is generally constructive for legitimacy; however, negative sentiment reduces the value of contributions claims. This leads to the final prediction about the mechanisms that confer legitimacy, which may, in turn, increase the level of underpricing observed in the ICO.

H5: *Online media’s negative sentiment has a negative moderating effect on the relationship between contribution claims and the judgements about legitimacy of an ICO venture.*

Market Category Viability

The viability of a market category tends to increase as a category emerges and grows. Based on the idea that resource-providing audiences seek novelty, a venture operating in a viable market category is more likely to be perceived as an appropriate funding target. Under the absence of more relevant information, resource-providing audiences will perceive members of viable market categories as more novel than unviable ones. Membership in a viable market category will provide an additional source of normative legitimacy for resource-providing audiences. Extending the notion of how resource-providing audiences “range of acceptability” might be compromised in specific circumstances, a venture’s membership in a viable market category will partly substitute the normatively legitimating effect of distinctiveness. Therefore, audience perceptions can increase the pressure on ventures to convey viability through a distinctive entrepreneurial story that also adheres to the hypothesized “zone of viability.” Thus, distinctiveness will provide greater normative legitimacy for viable (as opposed to unviable) market categories. Thus, we hypothesize:

H6: *Perceived market category viability has a positive moderating effect on the relationship between distinctiveness and the judgements about legitimacy of an ICO venture.*

Materials and Method

To investigate proposed hypotheses, we collected a comprehensive sample of ICO self-descriptions, prices, and related social media communication.

Data and Sample

ICObench (icobench.com) and coinmarketcap (coinmarketcap.com) were used to compile the ICO sample on March 20 2021. An independent sample of 306 ICOs was selected at random to ensure economic feasibility of the manual data collection. Among them, 13 did not register five day trading data necessary for underpricing calculations, primarily because they were not yet listed on a public exchange. An additional 11 ICOs were excluded due to a lack of additional data needed to perform the analyses, such as information obtained from twitter or discussion forums. In order to ensure that unregulated ICOs meet a minimum standard of quality, we excluded those that raised less than \$1 million (i.e., 3) and those that raised less than 50% of their funding target (i.e., 7). We collected information regarding 272 ICOs from a variety of sources: we used Coinmarketcap (coinmarketcap.com) to obtain coin prices. Twitter tweets were manually collected from each ICO's official Twitter accounts (twitter.com), totaling 3,188 distinct tweets. Forum activity was retrieved from Bitcointalk (bitcointalk.org) and selected subreddits on Reddit (reddit.com). A total of 59,584 threads were crawled. The control variables were collected from ICODrops (icodrops.com), project websites, and white papers.

On ICObench, entrepreneurial ventures are organized by multiple representative categories. Each representative category indicates the degree of relatedness of the venture's product or service. For example, a "decentralized affiliate marketing" venture has four representative categories – marketing, business services, platform, and smart contract – with marketing and business service attributing to highest relatedness. Multiple representative categories likely provide audiences with a more meaningful cognitive anchor for comprehending a proposed venture and evaluating its novelty. We thus consider ICObench's representative categories as market categories.

Data Analysis Procedure

To test the hypotheses, we conducted a series of OLS regressions using Python packages such as Pandas, NumPy, StatsModels, and Matplotlib. Furthermore, we specified our regression models with robust standard errors to account for potential heteroscedasticity (White 1980). Variance inflation factors were used to determine multicollinearity. The mean VIF values of the models range between 1.3 and 2.7 (the maximum individual VIF is 6.69). As only VIF values greater than 10 indicate problems with multicollinearity (Stock and Watson 2012), we conclude that our models do not exhibit these problems.

Measures

Dependent Variable

ICO Underpricing is our dependent variable and serves as a proxy for legitimacy as direct measure of legitimacy is impossible (Lundmark et al. 2017; Zimmerman and Zeitz 2002). We follow Chanson et al.'s (2018) approach and select 5 day interval between listing price and current price to calculate underpricing. With this approach, we can capture extreme volatility usually observable in the first few days following a coin's listing. High volatility is usually associated with uncertainties about the value of the venture. In comparison to IPOs, several external variables relate to the high volatility associated with ICOs. For example, exchanges cannot handle high traffic during initial listing, user access is often granted in phases to avoid system collapse, and exact start of the public trading is often not announced. The issuance price (also referred to as offer price) is the price at which buyers purchase the coins during the ICO. We calculate prices in Ether, the cryptocurrency that serves as the basic currency for ICOs, for two reasons. First, vast majority of ICOs use Ether, and, second, Ether is frequently accepted as a currency by ICOs. As a result, we define underpricing as the following percent shift in price: $(5th\ day\ closing\ price - ICO\ issue\ price) / (ICO\ issue\ price) \times 100$.

Independent Variables

Distinctiveness represents the degree to which the content of an entrepreneurial story deviates from the content of the market category's prototypical entrepreneurial story. We used Latent Dirichlet Allocation (LDA) (Blei et al. 2003), the most popular and commonly applied topic modeling technique (Hannigan et al. 2019), to identify common topics from the text of self-descriptions and online media. Subsequently, we represent crowdfunding narratives as a probabilistic representation of topics. Such a representation allows quantifying multi-dimensional constructs like distinctiveness (Haans 2019) or novelty in a reliable and context-authentic manner (Hannigan et al. 2019). We followed assumptions of previous research (e.g., Haans 2019; Shahid 2020) to specify the number of topics to 50 to balance the tradeoff between topic variation and ease of interpretation.

Each word's size represents its probabilistic weight and proxies its relative importance in our sample. We subsequently followed DiMaggio (2015) procedure to validate our topic models. The topic model allows us to quantify the degree to which the content of an entrepreneurial story deviates from the content of the prototypical entrepreneurial story in the venture's market category. For example, distinctiveness of a venture in the "banking" market category would indicate the degree to which the content of a venture's narrative differs from the average content of all "banking" ventures (i.e., the prototypical entrepreneurial story of "banking" ventures). We follow the approach of Haans (2019) and calculate distinctiveness as: $\sum_{T=1}^{100} abs(\vartheta_{T,i} - \vartheta_{T,M}^-)$. Where, $\vartheta_{T,i}$ means venture i weight for topic T and $\vartheta_{T,M}^-$ means market category M 's average weight for topic T . A given venture's distinctiveness is thus calculated as the sum of absolute deviations between venture i 's topic weights and the respective market category's average topic weight over 50 topics. Distinctiveness would be 0 if a given narrative would use the same topic proportions as the average narrative in the respective market category.

We used computer-aided text analysis (CATA) to measure the number of **contribution claims** in each crowdfunding narrative. We chose CATA because it provides a structured, systematic, and easily replicable approach for measuring theoretically derived constructs in large amounts of text documents (Short et al. 2010). We followed the multi-step CATA dictionary development process suggested by Short et al. (2010) to systematically develop and validate our instrument. Following common practice in CATA research on new ventures (Moss et al. 2011, 2018), we started with a deductive, theory-based approach to identify words that are synonymous or similar to the our construct of interest (e.g., environment). To identify these words, it is common practice to start with Synonymous Finder (Hofstede 2011). We further used the open-source word search engine relatedwords.org, which draws on a large database of pre-computed word vectors of frequently co-occurring words in online texts, to identify words with highly similar usage in written texts. We then extended the wordlists through an inductive approach, in which we investigated the 800 most frequently occurring words in our sample of crowdfunding narratives. Our final dictionary consists of 97 words. We used the software package DICTION 7.2.1 to execute the dictionary.

To validate our instrument, we manually compared it with the coding results. On average, the manual coding resulted in a higher absolute number of contribution claims (3.77 versus 2.63) but was highly correlated with our CATA-based measure ($r=0.68$, $p < 0.001$). We thus conclude that our measure provides a reliable proxy for contribution claims.

The volume of **Online media activity** represents a firm's strategic engagement with its audiences through different online media, such as the firm's official Twitter account, Bitcointalk, Reddit, and Medium. **ICO Tweets** constitute all tweets (including retweets, i.e. sharing or retweeting someone else's tweet) posted within 30 days prior to the ICO. In order to avoid biases, such as reverse causality, the 30-day period does not include the ICO itself. We gather data by reviewing a firm's Twitter feed and analyzing the number of tweets sent over a 30-day period prior to the ICO. The number of **Followers** is calculated based on how many followers a venture has on its official Twitter account the day before the ICO, measured in thousands of followers. Hoffman and Fodor (2010) regard this variable as a measure of popularity, since people follow a venture in order to gather information on which to make investment decisions. In order to determine how frequently a company was mentioned on selected online discussion platforms in the 30 days prior to its ICO, we calculate the (logarithmic) cumulative number of **Threads**. Mention implies recognition, attribution, and addressivity. Given the cognitive effort required to mention a company on a discussion forum, a company that is frequently discussed might have greater influence. For analysis of Twitter conversations for **Sentiment polarity**, we collected 1,433 tweets from 198 authors using 134 distinct hashtags, with each hashtag often referring to a specific topic. In order to identify **Positive and Negative**

judgments about ventures (Haack et al. 2014), the sentiment of each tweet was analyzed using a machine-learning technique based on a supervised classification model (Crammer et al. 2006). In the first step, to create the training set for the mathematical model, we manually coded 318 tweets (10% of the data set of re-tweets) for a unique sentiment value: negative sentiment (-1), neutral sentiment (0), and positive sentiment (+1) towards the venture (coding reliability: K alpha = .81, p = .026). After that, we employed a Passive-Aggressive (PA) classifier (Crammer et al. 2006) coupled pairwise using the majority voting technique (Hastie and Tibshirani 1998). We sought to create a measure for **Market category viability** that could reflect intra-category and inter-category optimality in terms of the degree to which a market category falls within the “zone of viability”. We operationalized market category viability through the volume of online media **Coverage** in Bitcointalk (bitcointalk.org), subreddits from Reddit (reddit.com), and Medium (medium.com) forums. Online media coverage is commonly considered as a good indicator to determine future prospects of a category as category-experts assess and critique vital aspects text increases audiences’ familiarity about the viability of a category. Therefore, online media represents a critical source by which the general audiences’ learns about new and evolving market categories. We followed previous category research (e.g., Navis and Glynn 2010) and focused on category-specific articles, comments, and opinion on the online media.

As the meaning of market categories partly depends on their basic category (e.g., art, technology), we included only articles that mentioned the label of the basic category (including word stems like tech*) at least once in the article. This decision helped us to prevent false positives for market categories with relatively ambiguous category labels like coin (basic category: cryptocurrency). While our study’s observation period is 2008 to 2020, we collected and counted all text available on the forum websites. We choose the cumulative text (rather than the text published in a given period) to account for the path-dependent nature of category viability and to reduce the measure’s sensitivity to short-term fluctuations in online media’s attention. We logged the variable to reduce skewness. Our resulting measure of category coverage therefore represents the logged cumulative volume of text about a given market category in the online media up until the month in which a given venture’s ICO campaign has ended.

Our search revealed a total of 3,899 articles, out of which 1,564 appeared in Bitcointalk, 1,448 in Reddit, and 887 in Medium. Within our study’s observation period, 22.1 articles were published per category-month. The patterns in category viability differ widely between and within market categories. Some market categories received relatively consistent coverage over the observation period (e.g., platform), while the coverage of others increased substantially during our observation period (e.g., business).

Table 1 provides descriptive statistics for the sample. Each venture attracted, on average, 18.032 million US-dollars in funding (median=\$10.76). Table 2 presents our main analysis, in which we ran ordinary least squares (OLS) regression models for the dependent variable ICO underpricing.

Control Variables

To respect potentially confounding effects beyond those hypothesized above, we added nine project level controls, six creator-level control, and three platform-level control variables in our models.

Venture age indicates the age of a company, measured as the date of its founding minus the date of its ICO. The age of a company’s founding may affect underpricing, as older companies have had more time to establish legitimacy (Lundmark et al. 2017). The **Raised amount** represents the total amount raised during the ICO, expressed in thousands of Ether. The ICO of a company that generates a significant amount of money compared to its competitors is logically expected to attract greater attention and be deemed more “desirable and appropriate.”. Based on the sum of funds raised divided by the number of coins available for sale, the implied value of the venture can be calculated. The variable is also expressed in thousands of Ether. A higher **Valuation** may be regarded as more desirable than its competitors, conferring legitimacy within the cryptocurrency community.

Oversubscribed is a dummy variable that indicates whether or not the ICO has reached its maximum cap, and is set to 1 if this is the case. In the event of oversubscription, excess demand may occur, so it is logical to expect that increased underpricing will occur once the coin begins trading. **ICO duration** represents the number of days that the ICO lasted. If an ICO’s duration is long or short, it may indicate that demand has changed over time. **Min cap** refers to the amount of money that investors must contribute in order to participate in the ICO, expressed in Ether. **Max cap** is a dummy variable that returns 1 if the firm

has set a maximum investment limit for its ICO. There are several factors that suggest that imposing a maximum investment would alter demand, thereby affecting underpricing.

Variable	Mean	Median	Min	Max	Std
ICO underpricing	133.46	55.18	-88.41	2433.00	276.36
Distinctiveness	0.91	0.42	0.34	1.89	0.23
Contribution claims	4.31	2.47	0.00	53.00	3.34
Category coverage*	9.69	3.46	0.00	22.00	4.46
Length**	0.00	6.61	-4.00	11.00	1.62
Tweets	64.76	44.31	0.00	276.00	59.90
Followers	14.63	5.34	0.00	77.00	16.23
Threads	8.81	7.35	22.00	32.00	3.34
Venture age	22.21	13.01	0.00	148.00	23.25
Rating	2.66	1.14	0.200	5.00	0.743
Team	7.44	18.00	1.00	50.00	6.368
Advisors	2.65	4.00	0.00	20.00	3.51
Insider	0.246	0.34	0.00	0.991	0.251
Projects-backed	2.06	7.66	0.00	654.00	13.19
Creator-projects	1.06	1.02	0.00	96.00	1.97
U-Token	0.57	0.31	0.00	1.00	0.41
S-Token	0.08	0.14	0.00	1.00	0.27
C-Token	0.164	0.110	0.00	1.00	0.368
Raised amount	18.032	10.760	0.50	218.00	26.703
Oversubscribed	0.84	1.00	0.00	1.00	0.44
Bonus	0.339	0.148	0.00	1.00	0.467
ICO duration	16.33	8.00	1.00	88.00	19.48
Valuation	289.46	131.44	6.00	9734.00	1456.63
Min cap	0.22	0.00	0.00	2.65	0.45
Max cap	0.22	0.00	0.00	1.45	0.41
Table 1. Descriptive Statistics for the Sample					

*After logarithmic transformation, **After orthogonalization.

We also included **Length** as a control variable that represents the logged number of words in narratives, because the length of a narrative may indicate a campaign's quality (Calic and Mosakowski 2016). We used the modified Gram-Schmidt method (Golub and Loan, 1991) to orthogonalize length in order to prevent multicollinearity problems. In order to address asymmetric information, we provide control for the overall **Rating** of the ICO. The minimum grade of rating is 0, which indicates a low-quality ICO, and a maximum grade of five indicates a high-quality ICO. The size of the **Team** is controlled by the number of team members reported prior to the ICO. A successful project is likely to be positively correlated with the size of the project team. We control the number of **Advisors** since it may have a positive effect on performance. In order to control for heterogeneity at the creator-level, we use two variables, **Projects-backed** and **Creator-projects**. Projects-backed controls the number of projects backed by the ICO creator, while creator-projects controls the projects launched by the same creator in the past. Creator projects are responsible for the differences in ICO project experiences. To reduce the skew from highly active creators, we apply a log-transform. The ICO team (also called insiders) keeps certain number of tokens from the total supply of the ICO tokens so we represent it with the variable **Insider**. Audiences may choose from three

types of tokens: security tokens, utility tokens, and currency tokens. We use dummy variables **U-Token** and **S-Token** to indicate whether the proposed token type in the ICO is a utility token or a security token, respectively. Currency token (**C-Token**) is used as a constant. Binary variables such as **Bonus** take the value of 1 if an early investor bonus was offered and 0 otherwise. The variable **GitHub** is a dummy variable that takes the value 1 if a GitHub repository already existed prior to the ICO, and 0 otherwise.

Results

Table 2 presents our main analysis, in which we ran ordinary least squares (OLS) regression models for the dependent variable of ICO underpricing.

	Model 1		Model 2		Model 3		Model 4		Model 5	
	β	ρ	β	ρ	β	ρ	β	ρ	β	ρ
Distinctiveness	0.67***	0.000	0.89***	0.000	0.39*	0.000	0.12	0.000	-0.24	0.221
Contribution claims	0.08***	0.000	0.16***	0.000	0.08**	0.001	0.22***	0.0003	0.04***	0.000
Category coverage	-0.06***	0.000	-0.06***	0.000	0.11**	0.000	0.017	0.000	-0.14***	0.000
Length	0.21***	0.000	0.21***	0.000	0.06	0.000	0.055	0.000	0.21***	0.000
Tweets	0.57*	0.000	0.35*	0.100	-0.001*	0.002	0.0161*	0.000	0.34*	0.000
Followers	0.66	0.002	0.336	0.000	0.026*	0.012	0.034**	0.000	0.045	0.010
Threads	0.056*	0.013	0.564	0.000	0.079***	0.027	0.003	0.000	0.004	0.100
Venture age	0.14***	0.000	0.14***	0.000	-0.007	0.0071	0.654	0.000	0.14***	0.000
Rating	0.544	0.000	0.636	0.000	0.064**	0.000	0.671	0.000	0.356	0.000
Team	0.026	0.000	0.0266	0.000	0.034	0.000	0.034*	0.000	0.036*	0.000
Advisors	0.059	0.000	0.554	0.000	0.055	0.000	0.441**	0.000	0.573**	0.000
Insider	0.600	0.000	0.631	0.000	0.698	0.000	0.573	0.000	0.451	0.000
Projects-backed	0.01***	0.000	0.01***	0.000	0.01***	0.000	0.01**	0.000	0.01**	0.000
Creator-projects	-0.00	0.428	-0.00	0.543	-0.00	0.643	-0.00	0.254	-0.00	0.131
U-Token	0.562	0.000	0.573	0.000	0.324	0.000	0.652	0.000	0.651	0.000
S-Token	0.866	0.000	0.781	0.000	0.799	0.000	0.901	0.000	0.931	0.000
Raised amount	-2.356**	0.000	0.454	0.000	0.001	0.001	0.556	0.000	0.021**	0.034
Oversubscribed	-0.265	0.000	0.665	0.000	1.000***	0.428	0.054*	0.000	-0.045	0.000
Bonus	0.076*	0.000	0.061*	0.000	0.076*	0.000	0.581**	0.000	0.551**	0.000
ICO duration	0.115	0.000	0.432	0.000	0.030**	0.0091	0.1121	0.000	0.001***	0.000
Valuation	0.665**	0.000	0.012	0.000	-0.000	0.000	0.543	0.000	0.565***	0.0173
GitHub	0.255	0.000	0.371	0.000	0.169	0.000	0.191	0.000	0.197	0.000
Min cap	0.432	0.000	0.212	0.000	-0.035	0.138	0.003	0.000	0.021	0.0016
Max cap	0.212*	0.000	0.657	0.000	0.424**	0.237	0.554	0.000	0.542**	0.065
R ²	0.616		0.616		0.617	0.105	0.491	0.0001	0.616	0.0065
P	0.000		0.000		0.000		0.000		0.000	

Table 2. Regression Results

N=272; *p<0.05, ** p<0.01, *** p<0.001

Model 1 tests hypothesis 1 and 2 that states distinctiveness and contribution claims positively affects the judgements about legitimacy of an ICO venture. The hypothesis confirms that distinctiveness has a significant and positive effect on ICO underpricing (p<0.001). Model 2 tests and confirms hypothesis 3 which states that contribution claims negatively affect the positive relationship between distinctiveness and the judgements about legitimacy of an ICO venture. The model confirms that the interaction term has a

significant and negative effect on ICO underpricing ($p < 0.001$). Model 3 tests hypothesis 4 which states that online media activity volume and positive sentiment about the distinctiveness and contribution claims prior to ICO positively mediates the judgements about legitimacy of the ICO venture. Furthermore, it confirms that a venture's online media engagement and followers have a significant impact on underpricing. Model 4 tests hypothesis 5 which states that online media's negative sentiment has a negative moderating effect on the relationship between contribution claims and the judgements about legitimacy of an ICO venture. Finally, model 5 tests hypothesis 6 which states that perceived market category viability has a positive moderating effect on the relationship between distinctiveness and the judgements about legitimacy of an ICO venture. The results show that the interaction between distinctiveness and category coverage has a significantly positive effect on ICO underpricing ($p < 0.001$). This provides strong support for our hypothesis 6.

Robustness Checks

To rule out alternative explanations, we performed a series of robustness checks. First, we ruled-out the alternate hypothesis that the relationship between distinctiveness and underpricing is linear rather than curvilinear. We added squared-term for distinctiveness to model 1 to check for a significant negative effect on underpricing for a u-shaped relationship. We found a statistically insignificant negative effect ($p = 0.119$). Subsequently, we tested the joint hypothesis that the relationship between distinctiveness and underpricing is positive at low values of distinctiveness and negative at high distinctiveness values by running the *utest* command in STATA (Lind and Mehlum 2010). The test results suggest rejecting a curvilinear relationship ($p = 0.229$) and consequently add further support to our Hypothesis 1. We also repeated our checks using funding as the dependent variable following the approach of Calic and Mosakowski (2016). In this, we measure funding as the log amount of dollars pledged to a given ICO. The results of these analyses are significant ($p < 0.001$) and confirm the predicted relationships. These findings suggest that our findings are robust across different forms of entrepreneurial resource acquisition.

Conclusion

By examining the implications of ICO underpricing, this research sought to address how entrepreneurial storytelling contributes to organizational legitimacy, which is not directly measurable in practice. Our study was inspired by four gaps in the literature. To begin, there is a lack of understanding about the relationship between entrepreneurial storytelling and organizational legitimacy, especially in early-stage venture financing. Second, although it has been argued that distinctiveness works toward achieving legitimacy inside established organizations, we asserted that new ventures often employ entrepreneurial storytelling as an observable source for reducing information asymmetry. Third, we unpack the dichotomous role of online media in the literature on cultural entrepreneurship, arguing that it acts as a platform for audience engagement but still sets the agenda by venture-managed online activity. This is particularly critical for early-stage new ventures that lack access to conventional funding channels such as initial public offerings. Fourth, notwithstanding the fact that ICO is a critical IS issue, research examining the problem, and therefore the critical inquiry into the processes underlying organizational credibility in this context, is practically absent from IS. As such, we tend to broaden our understanding of how ventures seeking funding from global audiences may achieve legitimacy by unconventional means, especially in the context of initial coin offerings (ICOs). Additionally, we introduce the critical phenomena of initial coin offerings (ICOs) as an IT-based funding method to the IS community and encourage additional research on this topic.

Theoretical and Practical Implications

The theoretical conflict between distinctiveness and categorical similarity has sparked considerable interest in cultural entrepreneurship (Lounsbury et al. 2019; Lounsbury and Glynn 2001, 2019; Martens et al. 2007; Navis and Glynn 2011) and resulted in the preposition that entrepreneurial stories must strike a balance between similarity and distinctiveness to achieve "optimal distinctiveness". This study advances the "optimal distinctiveness" proposition to the ICOs context. One significant contribution is that we isolate the cognitive and normative dimensions of organizational legitimacy as a function of distinctiveness. This enabled us to incorporate normative legitimacy as a critical mediator between distinctiveness and resource acquisition. While research on cultural entrepreneurship draws on multi-dimensional conceptualizations

of organizational legitimacy (Aldrich and Fiol 1994; Suchman 1995), previous discussions of optimal distinctiveness have centered on the cognitively legitimating effect of entrepreneurial stories (Martens et al. 2007; Navis and Glynn 2011). We add to this body of knowledge by emphasizing the normatively legitimating effect of entrepreneurial stories. One implication is that legitimacy might have a detrimental effect on a venture's cognitive legitimacy while also having a beneficial effect on its normative legitimacy. This allowed us to advance our understanding of optimal distinctiveness by demonstrating that, contrary to the previously postulated inverted u-shape, distinctiveness has a strictly positive effect on resource acquisition when the marginal benefits of distinctiveness exceed its marginal liabilities at low, moderate, and high levels of distinctiveness. We emphasize the significance of normative expectations in audiences' decision-making and characterize novelty expectations as a necessary attribute of audiences. In contrast to traditional media's monopolized and firm-side strategic usage to convey legitimacy, we argue for the dichotomous role of online media in conveying or shifting normative legitimacy through dynamicity of cognitive legitimacy. We proposed that ventures can strategically manage audiences perceptions while conveying venture's distinctiveness. Distinctive entrepreneurial stories strengthen impressions of a venture's novelty and ultimately elevate the venture's normative legitimacy in the eyes of these resource-providing audiences. Additionally, we argued that membership in a viable market category can strengthen financial and non-financial audiences' perceptions of novelty, providing an additional source of legitimacy for crowdfunders. By highlighting how market categories affect normative legitimacy judgements, we complement earlier research that has focused on market categories' cognitive legitimizing function (Glynn and Navis 2013; Kennedy et al. 2010; Navis and Glynn 2010).

Limitations and Future Research

Though our analysis is a first step toward examining the impact of entrepreneurial storytelling, the dichotomous nature of online media, and their interactions on organizational authority, our research raises some significant concerns. To begin, our sample consisted of just 272 initial coin offerings. Future studies might wish to include additional data to strengthen our results. Second, organizational legitimacy is not explicitly measurable (Zimmerman and Zeitz 2002), and underpricing may only serve as an established proxy for legitimacy. It will be important to explore the impact of alternative sources of legitimacy in the form of ICOs and to equate their relative importance to that of social media, perhaps by the use of alternative proxies. We believe that our empirical findings are most generalizable to scenarios in which individuals or organizations seeking novelty must choose between a large number of competing organizations, products, or ideas.

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