Who Do Start-up Firms Imitate? A Study of New Market Entries in the CLEC Industry

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Abstract

Institutional theory contends firms imitate other firms with ideal traits, whereas the strategic groups literature on imitation suggests firms imitate similar firms. We address this debate by studying 1067 market entries by founder managed start-ups in the US Competitive Local Exchange Carrier (CLEC) industry from 1996-2004. In support of the strategic groups literature, start-ups imitate entry decisions of and gravitate toward markets that are densely populated by other start-ups. While start-ups avoid markets already densely populated by corporate ventures, they imitate the market entries of corporate ventures. Our discussion of these and other findings provides insights for start-ups navigating new industries.

Who Do Start-up Firms Imitate? A Study of New Market Entries in the Competitive Local Exchange Carrier Industry

Entry into new markets (e.g., geographies where the firm has no operating history) is a fundamental aspect of entrepreneurship (Sharma and Chrisman 1999). In 2010 alone, 110 million entrepreneurs around the globe founded new businesses (Kelley, Bosma, and Amorós 2011), and each of these start-ups included entry into at least one new market. When making new market entry decisions, entrepreneurs must weigh the potential merits of alternative economies and geographies, assess the competition, prepare appropriate products, and consider resource constraints as well as the timing of the proposed entry or entries (Lévesque and Shepherd 2004).

Uncertainty and risk are inherent in new market entry decisions, particularly for start-ups participating in a new industry. New industries are the result of changes in government regulations (e.g., deregulation, tax incentives), scientific breakthroughs, or the development of new technologies (Sine, Haveman, and Tolbert 2005). Due to this newness, businesses operating in these industries commonly lack relevant experience which might otherwise improve their odds of survival (Baum and Ingram 1998; West and Noel 2009). Such firms face substantial uncertainty insofar as new industries can evolve quickly and often lack established business models that are known to reliably generate profits. This uncertainty complicates new market entries by start-up firms in new industries.

Given this uncertainty and their importance to the growth of the economy, the antecedents of new market entries warrant attention. The institutional theory (DiMaggio and Powell 1983) and strategic groups literatures (Schendel and Hofer 1979; Thomas and Venkatraman 1988) offer insights into such entries. They both support the idea that imitation of other firms can help a firm to address the bounded rationality of its own managers, facilitate

complex decisions, prompt strategic actions (e.g., new market entries), and enhance its legitimacy, which can facilitate access to resources that drive performance (Meyer and Rowan 1977; Peteraf and Shanley 1997). These perspectives differ, however, on which firms are worthy of imitation. Institutional theory emphasizes imitation of actions that are enacted by firms with ideal traits (e.g., large, prestigious firms) (Haveman, 1993), whereas the strategic groups literature reasons that firms model themselves after similar firms (e.g., those they resemble) when considering their competitive strategies (Porac, Thomas, Wilson, Paton, and Kanfer 1995).

In this paper, we contribute to this debate by examining the new market entries of founder managed start-up firms in the Competitive Local Exchange Carrier (CLEC) industry. In order to distinguish between new market entrants with different "origins" (i.e., different managerial and ownership support), we differentiate between "corporate ventures" (i.e., firms launched as the result of venturing by established corporations and run by professional managers) and "start-ups" (i.e., founder managed firms launched by independent entrepreneurs without equity from established corporations). In a sample of 1067 market entries by 81 start-up firms, we find that entries by others and market density are both significantly associated with entries by start-ups. We find that start-ups follow other start-ups, but largely avoid imitating corporate ventures. These results contribute to prior research, which finds that small firms are more likely to imitate established firms rather than other small firms (Haunschild and Miner 1997). Our results extend predictions rooted in institutional theory and offer support for the strategic groups view of imitation. They prompt relevant insights into the decision-making of start-up firms.

The Drivers of Imitation in Organizations

Numerous foundational research studies have enabled scholars to consider imitation (of resources, practices, and strategies) within and across organizations (e.g., Dimaggio and Powell 1983; Hannan and Freeman 1977; Levinthal and March 1993; Pfeffer and Salancik 1978). Scholars observe that imitation influences organizations' choice of market positions (Greve 1998), use of technological innovations (Abrahamson 1991), product strategies (Brouthers, O'Donnell, and Hadjimarcou 2005), organizational structures (Feng and Wang 2010), charitable giving (Galaskiewicz and Wasserman 1989), and compensation (Sanders and Tuschke 2007). Of great interest here are findings that reveal imitation drives the opening of branches in market niches (Greve 2000), choice of market locations (Baum and Haveman 1997), international market entry (Fernhaber and Li 2010), and rates of market entry (Haveman 1993).

One of the prevailing explanations for the prevalence of mimetic tendencies among organizations is provided by institutional theory (Dimaggio and Powell 1983). Institutional theory argues that adopting institutionally accepted norms and behaviors helps organizations to become more efficient decision-makers and assists them in navigating uncertainty (Meyer and Rowan 1977). These benefits prompt companies to imitate other companies in order to gain legitimacy, resources, stability, and ultimately to enhance their survival prospects (Deephouse 1996). Though imitation does not uniformly improve firm performance (Barreto and Baden-Fuller 2006; Greve 2011), it can assist firms facing complex problems.

For example, a start-up firm may find it difficult to make effective new market entry decisions alone. New market entries are complex, involving analysis of alternative market opportunities, assessment of the environment, and consideration of both the timing of the entry and the competition (Levesque and Shepherd 2004). This creates a need for research and analysis, yet most start-ups have limited resources to devote to new market assessment. Thus,

new market entry entails significant uncertainty and risk for start-ups (Haveman 1993).

In order to navigate this uncertainty and reduce the risk of costly failures, a start-up firm seeking to enter new market(s) may benefit by considering the market entries of other companies. For example, when a start-up observes other companies entering a given market, it is more likely to quickly and efficiently evaluate that market as attractive and to consider that it might benefit by entering, provided the benefits of entry don't decrease with imitation (e.g., provided the market is not over-populated) (Greve 2000). Also, from the vantage point of institutional theory (DiMaggio and Powell 1983; Meyer and Rowan 1977), a start-up that engages in imitative market entries is likely to be recognized as a legitimate player in the industry and to obtain access to needed resources (e.g., from investors, customers, suppliers, or other constituents in the new market), thereby enhancing its odds of success.

From an institutional theory perspective organizations are prone to imitate common actions (frequency imitation) and the actions of firms with attractive firm-level traits (trait imitation), particularly when the results of actions being considered are difficult to observe. For example, researchers find firms are prone to imitating the actions of large firms (Haunschild and Miner 1997), since these firms are socially prominent, easily observable, and have often achieved the success that smaller firms are trying to achieve. Empirical tests also reveal firms seek the legitimizing effects of imitating the actions of profitable firms (Haveman 1993), innovative firms (Semadeni and Anderson 2010), and those generating higher returns on equity (Haunschild and Miner 1997). Conversely, scholars find that it is less likely for firms to imitate the actions of small firms, with the notable exception of actions that not only benefited small firms, but appear likely to contribute even greater benefits in large scale operations (Terlaak and King 2007). In general, institutional research largely supports the idea that firms adopt frequent

behaviors, practices, and strategies from others, and those which are enacted by firms with prestigious or "ideal" traits. Notwithstanding the empirical support for institutional theory, one of the limitations of this logic is that even when the actions of large, prestigious, or well-established firms generate positive results, this does not guarantee that smaller, lesser-known firms (e.g., new start-ups) will have the capabilities to successfully replicate such actions.

In contrast to ideal trait imitation, another stream of research argues firms tend to focus more on imitating the actions of "similar" firms. The strategic groups literature, for example, which has deep roots in the field of strategic management (Schendel and Hofer 1979; Thomas and Venkatraman 1988), finds that firms consider the actions of others with similar strategic profiles (e.g., firms of similar size, types of owners, target markets, resources and capabilities) when formulating their own strategies (Porac, Thomas, Wilson, Paton, and Kanfer 1995). Scholars applying this literature to the study of imitation (e.g., Nohria and Garcia-Pont 1991) argue that if a comparable firm is pursuing a course of action, the focal firm is likely to be able to implement and benefit by taking a similar course of action. Scholars espousing this view of imitation find empirical support for the idea that firms emulate the strategies of other firms from their own strategic group (Peng, Tan, and Tong 2004). For example, acquisition behaviors (Baum, Li, and Usher 2000; Yang and Hyland 2006), alliance formations (Garcia-Pont and Nohria 2002), governance (Lee and Pennings 2002), compensation practices (Porac, Wade, and Pollock 1999), foreign market entry strategies (Xia, Tan and Tan 2008), and other actions undertaken by firms are all positively associated with like actions among similar firms.

In sum, there is considerable empirical support for the strategic groups perspective on imitation (e.g., that firms tend to imitate the actions of similar firms) *and* for the institutional perspective on imitation (e.g., that firms imitate actions undertaken by firms with ideal traits).

Both perspectives agree that imitation can be helpful to firms faced with complex and uncertain situations (DiMaggio and Powell 1983; Peteraf and Shanley 1997). However, as reviewed above, they differ considerably when it comes to their observations regarding which firms are likely to be imitated. The purpose of this paper is to begin to address this difference in perspectives. To accomplish this purpose, we develop arguments and test the value of each of these perspectives in the context of start-up firms making market entry decisions into the CLEC industry.

Predictors of Market Entry by Start-up Firms

Market entry is costly on at least two fronts. First, start-ups must gather information, weigh the array of available market alternatives, and make sound decisions as to where and when to enter (Ruiz-Ortega and Garcia-Villaverde 2010; West and Noel 2009). Second, they must rally the resources required to enter their chosen market(s), set up their operations, advertise their presence, promote their products, and establish distribution channels. Compounding these demands, there can also be a great deal of uncertainty surrounding the actual preferences of customers, the appropriate product mix and pricing schedules, and the marketing strategies which will be effective in the new market (Folta and O'Brien 2004). While factors such as these pose challenges for many firms pioneering new industries, they are particularly acute for start-ups given limited managerial capacity and other resource constraints (Bhidé 1992).

Start-ups seeking to manage the uncertainty and complexity associated with new market entry are likely to seek examples from other firms (Haveman 1993). From an institutional perspective, imitation of market entry decisions is desirable because it increases the efficiency of decision-making and strengthens the legitimacy of new market entry decisions, which facilitates efforts to garner support from environmental constituents (DiMaggio and Powell 1983; Meyer and Rowan 1977). Insofar as it seems unlikely for several firms to reach the same erroneous

conclusions about the merits of a market, a start-up that enters a densely populated market or follows several other firms into a market tends to be making an acceptable or legitimate choice since the market is demonstrably attractive to so many others[i]. Thus, we propose:

Hypothesis 1a (H1a). Market density of all firms will increase the likelihood of entry into a new market by start-up firms.

Hypothesis 1b (H1b). Market entry of all firms will increase the likelihood of entry into a new market by start-up firms.

Though testing these hypotheses may help us to determine whether start-up firms engage in imitation, they offer little detail on the specific types of firms start-ups emulate in making new market entries in new industries. During the emergence of a new industry, both start-ups and corporate ventures form and can be observed entering new markets. Corporate ventures typically enjoy the backing of large, well-funded corporations seeking to explore new opportunities, renew their strategies, invest in promising new firms, or diversify their operations by "spinning-off" a new firm (Benson and Ziedonis 2009; Zahra 1996). Many such corporations possess close ties to banks, strong reputations, and access to high caliber professionals and managers (Dalziel 2005). Owing to their considerable resources, these established corporations can endow the newly formed corporate venture with substantial benefits which may not be enjoyed by start-up firms founded by individual entrepreneurs (Keil 2000).

Despite such benefits, the logic of institutional theory is that firms seek legitimacy by imitating other firms they perceive to be "legitimate" (DiMaggio and Powell 1983: 152) such as "higher status organizations" that possess observable traits like "large size and success" (Haunschild and Miner 1997: 475); in contrast they are less likely to imitate peer and lesser-known firms (Haveman 1993). While corporate ventures entering a new industry may have

easier access to some resources than start-ups, they are still new firms and must establish their reputations (Fombrun and Shanley 1990). Like others, they have no guarantee of success. They must create ties in the new industry, overcome the "liability of newness" (Stinchcombe 1965), manage their resources effectively, and learn to obtain and create value for customers and shareholders (Sirmon, Hitt, and Ireland 2007). Research also suggests that in some cases connection to corporate parents (e.g., corporations that suffer from bureaucracy, exert rigid control, and have conservative cultures) may even dampen their likelihood of success (Covin and Slevin 1988). In sum, despite the benefits corporate ventures have, they may not yet possess the ideal traits (e.g., success, size, prestige) needed to make them sought-after role models in their own right. Thus, start-ups may not be particularly attracted toward markets that are densely populated by, or into which many corporate ventures are entering.

Owing to start-up firms' relatively limited resources (Bhidé 1992) they also seem unlikely to be able to afford entry into the same number of markets entered by corporate ventures. Accordingly, they may not be able to reap the same synergies which are available to firms that operate in many markets (Greve 1998). Even if start-ups are able to match some of the market entries made by corporate ventures, thereafter they must also sustain and grow a presence in the new market(s) by competing against those same corporate ventures, who have the backing of at least one if not multiple established corporations. Given firms are known to consider their competitors when evaluating new market entries (Gimeno, Hoskisson, Beal, and Wan 2005), it seems unlikely that start-up firms would consciously seek out opportunities to battle competitors with ready access to extensive resources. In view of the above, we predict:

Hypothesis 2a (H2a): Market density of corporate ventures will decrease the likelihood of entry into a new market by start-up firms.

Hypothesis 2b (H2b): Market entry of corporate ventures will decrease the likelihood of entry into a new market by start-up firms.

While this logic supports the view that start-ups entering markets in new industries are unlikely to follow corporate ventures, it offers little insight into which firms they do imitate. To address this question, we turn to strategic groups reasoning, which suggests that, faced with uncertainty, firms identify with and imitate the actions of other firms with similar profiles to their own (e.g., firms of similar size, types of owners, target markets, resources and capabilities, and strategic tactics) (Peng, Tan, and Tong 2004; Thomas and Venkatraman 1988).

Start-up firms within the same industry often have similar strategic profiles. They tend to have few assets and human resources (e.g., small numbers of employees). They have similar owners including founders, angel investors, and venture capitalists. They have limited resources (Bradley, Wiklund, and Shepherd 2011) and are run by individuals, whose work in the start-up goes beyond merely earning a living and shapes their personal identity as "entrepreneurs" (Farmer, Yao, and Kung-Mcintyre 2009). In their struggle to survive, they commonly employ similar strategic tactics including bootstrapping and guerilla marketing (Winborg and Landstrom 2001). These and other similarities among start-ups make them likely peers.

From a strategic groups perspective, when firms are similar in attributes and context, they rely upon each other as a reference group in navigating complex and uncertain decisions (Peng, Tan, and Tong 2004). Firms in the same group have been found to pattern their actions after one another, even when faced with the prospect of competing (Porac, Thomas, Wilson, Paton, and Kanfer 1995). The strategic groups reasoning is that if many similar firms have chosen or are choosing a given pursuit, that pursuit is more likely to be valid and has the potential to produce

positive outcomes for others in the same group (Pereira-Moliner, Claver-Cortés, and Molina-Azorín 2011; Xia, Tan, and Tan 2008).

In light of this reasoning, we propose that markets that are densely populated by or into which many start-ups are entering will be more attractive to a start-up weighing alternative market options. We predict a significant association between such markets and subsequent entries by start-up firms. Formally stated,

Hypothesis 3a (H3a). Market density of start-up firms will increase the likelihood of entry into a market by other start-up firms.

Hypothesis 3b (H3b). Market entry by start-up firms will increase the likelihood of entry into a market by other start-up firms.

Context for Testing Predictions

Having discussed predictors of market entry by start-up firms, we now turn our attention to outlining an appropriate context in which our hypotheses might be tested. When studying an imitation phenomenon like geographic market entry, it is important to choose a context in which the market actions of competitors are frequent and extremely visible, so that firms have many actions to consider and can choose to imitate almost any firm in the population (Greve 2000). It is also important for uncertainty and complexity to exist as they are likely to promote mimetic action (Folta and O'Brien 2004). For these reasons, new industries often make suitable contexts for studying imitation. New industries can result from scientific advancements, technological innovations, or changes in government regulations.

Guided by these observations, we selected the Competitive Local Exchange Carrier (CLEC) industry as the context for this study. Owing to space constraints we provide a succinct

overview of the emergence of the industry, but more comprehensive discussions are available in the literature (e.g., Greenstein and Mazzeo 2006; McDermott 2002).

Emergence of the CLEC Industry

In the early 1990's, American states began lifting legal barriers to telecommunications competition and subsequently (federal) Congress passed the 1996 Telecommunications Act, which deregulated local and long distance phone competition giving rise to the CLEC industry. Firms in this new industry could compete for the first time in providing local telephone service anywhere in the country. The passage of this national legislation, investor interest, and technological advancements resulted in the rapid expansion of the CLEC industry, which grew to 212 firms in its first two years alone (Federal Communications Commission 2004).

Both start-up firms and corporate ventures flocked to the industry. All of them were drawn by the allure of newly-opened markets but, given the prior monopoly of the Baby Bells, these new firms generally lacked in-depth knowledge of the telecommunications industry and had little direct experience operating telephone networks (McDermott 2002). Unlike the start-up firms, however, corporate ventures entering the CLEC industry were founded by established corporations with proven records of success and significant resources. Many of these established corporations (e.g., cable providers, electric utilities) possessed relevant experience (e.g., identifying and building loyalty in geographic markets, providing client services and billing operations, investing effectively in infrastructure) that could enhance a new corporate venture's odds of success in the new industry.

Despite such advantages, both corporate ventures as well as start-up firms entering the CLEC industry faced significant uncertainty. They had to grapple with complex market entry choices that involved comparing hundreds of newly-opened markets and a rapidly changing

11

competitive landscape. The costs of entry were substantial and firms struggled with the use of new technologies such as fiber optics and digital switching. There was no one established business model that predictably generated profits. Nonetheless, the promise of untapped markets led to a frenzy of market entries. These market entries were highly visible as they were recorded nightly in the nationwide database used to route telephone calls, the LERG tables. This setting of uncertainty and complexity combined with the frequency and visibility of market entries made the emergence of the CLEC industry well-suited to our study.

Methods

Sample

To study market entries by start-up firms in the CLEC industry we obtained data from New Paradigm Research Group (NPRG) annual reports. We used NPRG reports because of their comprehensive coverage of the US CLEC industry, which includes all firms that called themselves CLECs during the study's timeframe, and because of their established record of prior usage in research (e.g., Greenstein and Mazzeo 2006). Data were available on 245 firms involved in the CLEC industry between 1996 and 2004, of which 101 were start-ups. Given that government regulations can influence market entries, we focused on market entries that occurred after the Telecommunications Act of 1996, thereby ensuring a uniform regulatory environment. After aggregating subsidiary firms to avoid double counting, and removing firms that did not enter any new markets or were missing data, we were able to conduct our analysis on 81 of the 101 start-up firms listed in the reports (80 percent of the population). Thus, there were 81 start-up firms across eight years and across 269 potential markets. Because firms could only enter a market once and some firms began operations after the study's eight year period began, our

analyses consisted of a total of 59,746 potential entry events by start-up firms within which we observed 1067 market entries[ii].

Measurement of Variables

Hundreds of new CLECs were formed during the study period (1996-2004). We collected information about these firms in the year they entered our sample using sources including Lexis Nexis, web searches, company documents, and direct phone contact with the firms. This allowed us to distinguish between start-ups (e.g., founder managed firms launched by independent entrepreneurs without investment by established corporations) and corporate ventures (e.g., firms launched by hired professionals with investments from established corporations). Chi-squared tests (p<0.0001) also substantiated these groups as distinct on important dimensions such as revenues and number of employees.

Dependent Variables. The US Census Bureau outlines metropolitan service areas which both practitioners and researchers use to define geographic markets in the CLEC industry. In keeping with extant CLEC industry research (e.g., Greenstein and Mazzeo 2006), an *Entry* into a new market by a start-up firm was counted each time a start-up firm provided services in a metropolitan service area it had not previously served. In order to offer these services, a start-up could purchase a new switch or lease one from another firm. Insofar as purchasing requires a greater commitment to entry, we ran our models measuring all entries (i.e., both purchases and leases) and entries that involved purchases only. The results of both approaches were virtually identical and confirmed the robustness of our findings.

Independent Variables. In order to test H2a, and H3a, we generated two measures of *Market Density* using a count of the number of the competitors of each origin (i.e., corporate ventures and start-up firms, respectively) in each focal market. To test H1a, we summed these

measures, thereby generating a measure of market density for all firms in the sample. Similarly, to test H2b, and H3b, we generated two measures of *Market Entry* using a count of the number of markets entered by corporate ventures, and by start-up firms. We summed these measures to create a measure of market entries by all firms, used to test H1b. Consistent with recommendations in prior imitation research (e.g., Haunschild 1993), we anticipated that our independent variables captured for year 't-1' would have an influence upon market entries in the subsequent year ('t'), for each year of the 8 year study period. Lagging outcome measures in this way provides a more robust test of the presence of imitation (Barreto and Baden-Fuller 2006).

Control Variables. In tests of imitative action, it is important to statistically control for possible market- and firm-level sources of variance. In our models, we control for the potential size of each market in terms of potential customers. To do so, we derived data on *total employment* (i.e., number of full and part-time employees), *population density* (i.e., total residents), *business establishments* (i.e., count of physical locations at which services are rendered or business operations are performed), and *payroll* (i.e., annual total compensation to all employees including salaries, wages, commissions, bonuses, etc.) from the annual US Survey of Country Level Business Patterns data provided by the Census Bureau. Individually, each of these variables seemed to be an important indicator of a market's potential size. Unfortunately, they were highly correlated and when entered together caused problematic multicollinearity. To address this issue, we combined these four measures using factor analysis. Our *Market Size* measure is the shared factor of total employment, business establishments, population density, and payroll for each market. The single factor had an Eigenvalue of 2.99 (the next lowest factor to emerge had an eigenvalue of 0.02) and no variable cross-loaded higher than 0.2. Though this method allowed us to parsimoniously consider the variance in our dependent variable accounted

for by the four control variables, we also ran separate models using each of the individual controls. These models produced very similar results, confirming the robustness of our approach.

In addition to considering the size of a market, it is also important to control for its growth (i.e., the change in market size). We attempted to measure market growth as year-to-year changes in total employment, number of business establishments, population density, and payroll). This approach yielded problematic multicollinearity. Accordingly, we used factor analysis. Our *Market Growth* measure is the shared variance between growth in total employment, business establishments, population density, and payroll for each market for each year. The single factor had an Eigenvalue of 1.22 (the next lowest factor to emerge was not positive) and no variable cross-loaded higher than 0.3 onto a second factor. Here again, we also ran separate models with each of the component variables and got similar results.

The attractiveness of a market is related not only to its size and growth (in terms of potential customers), but also to its geographic size, because it can be harder and more costly to service a more expansive market. Thus, we included the log of the total square miles of each market as a control variable in our models (*Log(Market Geographic Size)*) .

We controlled for competitive conditions in each market using two measures captured in year 't-1' for each year of the study. The first was the average size difference of incumbents and the second was the squared term of this same variable, which we included since competition in a market is likely to vary if relatively smaller or relatively larger competitors have occupied it (Gimeno, Hoskisson, Beal, and Wan 2005). To arrive at these measures we started by capturing *Firm Size*, which we also used as a control. Since many start-up firms would not disclose data about their size (e.g., assets, sales) we used the total number of markets in which a start-up firm was operating in the prior year as an indicator of firm size. We also ran models using the revenue

data that were provided (by 73 firms). Both approaches produced highly similar results. To arrive at a measure of firm size relative to incumbents, we counted the markets in which each incumbent competed and subtracted the markets in which the focal start-up competed. We then averaged these values to derive A*verage Size Difference with Market Incumbents.* We squared this variable to create *Squared Size Difference with Market Incumbents.*

In addition to the aforementioned variables, geographic proximity to a firm's other markets may also be associated with market entry and so we control for *Distance to Focal Firm's Markets.* Following precedent (e.g., Ragozzino and Reuer 2011), we averaged the great circle distance (which accounts for the curvature of the earth) between the focal market and all other markets in which the firm operated. We also control for *Distance to Other Start-up Firms,* measured as the average great circle distance between the focal market and all other markets in which competing start-ups existed. As some of start-ups in our sample existed prior to the study period and entered our sample as they diversified into the CLEC industry, we controlled for *Firm Age*, calculated as the number of years since a start-up firm was founded.

Model

Consistent with prior research (Folta and O'Brien 2004), we employed a logit model in STATA 11 to describe entry into new markets. Standard errors were clustered around each firm to adjust for potential correlation across observations. Model 1 is a control model, while Models 2 and 3 test our hypotheses. All models have variation inflation factors (VIFs) <10 indicating multicollinearity was not an issue. All models include fixed effects for each year, with 1996 as the base year. The year coefficients have been suppressed in the tables, for brevity.

Results

Table I displays the correlations and means for the sample. The average start-up entered roughly eight new markets during the period of the study. As anticipated the means for *Market Size* and *Market Growth* were close to zero as these were factor scores. Based on data from the US Census County Business Pattern Data, the average market had total employment of about 198,038 (S.D.= 475,467) across 12,494 (S.D.=29154) business establishments. Average payroll growth was 1.4 percent per year, while average business establishment growth was 1.02 percent per year. It was not surprising to see a significant correlation between *Market Density* and *Market Entry* and some other variables, particularly given the size of our sample (n=59,746).

**** Place Table I about here ****

Table II contains our models. Model 2 contains the tests of H1a and H1b. The findings support both hypotheses as *Market Density of all firms* (p<0.001) and *Market Entry of all firms* (p<0.01) were both positively associated with *Entry* by start-ups into that same market. Model 3 reports findings related to H2a, H2b, H3a and H3b. Our prediction (H2a) that the *Market Density of corporate ventures* in a market would be negatively associated with *Entry* by start-ups was supported (p<0.001). Contrary to our prediction, *Market Entry by corporate ventures* was positively associated with *Entry* by start-ups (p<0.05). Thus H2b was not supported. Conversely, we received full support for H3a (p<0.001) and partial support for H3b (p<0.1), implying that both *Market Density of start-up firms* and *Market Entry of start-up firms* were associated with *Entry* by other start-up firms. As discussed below, these findings lend support to both institutional theory and strategic groups logic.

**** Place Table II about here ****

Discussion

17

In this study we began by developing arguments rooted in institutional theory suggesting that start-up firms selecting markets in a new industry would be challenged by uncertainty and resort to imitation in order to legitimize their decisions. Consistent with this prediction, we received support for our hypotheses (H1a, H1b) that start-ups tend to be influenced by the entries and presence (i.e., density) of other firms generally. However, we also found support for the idea that start-ups are discriminating in their selection of role models.

For example, while markets that are densely populated by start-up firms are positively associated with start-up entry in those markets, markets with high numbers of corporate ventures are negatively associated with start-up entry (H2a). Though we are careful not to certify causality given the cross-sectional nature of our models, it appears that start-ups may be avoiding corporate ventures, while being attracted into markets by the presence of other start-ups. Thus, our findings contribute support to the strategic groups view of imitation. Building upon its roots in the economics, finance, and marketing literatures, the strategic groups literature is mindful of competitive dynamics within and among strategic groups (Schendel and Hofer 1979; Thomas and Venkatraman 1988). Viewed from this perspective, it is not surprising that the market entry behavior of start-ups suggests they avoid entering markets where corporate ventures are already entrenched, since corporate ventures pose a credible competitive threat.

In light of the above, it is interesting to note that market entries by corporate ventures are found to be positively associated with market entries by start-ups (H2b). This finding contributes to the institutional theory literature on trait imitation. The trait imitation literature (e.g., Haveman 1993) suggests that large, successful firms are more likely to be imitated by others. The fact that market entries by corporate ventures are a significant predictor of entries by start-ups suggests that start-ups are imitating the entry actions of corporate ventures. Yet, since they are new

entities formed through corporate venturing, these corporate ventures are not yet large, established, or successful in their own right. Thus, our research expands institutional logic and suggests that being selected as a role model for mimetic action may not only be about having ideal traits (e.g., size, success), but is also about being connected to others who possess such traits (e.g., an established corporate investor). Consistent with network studies that emphasize the importance of networks in driving imitation (e.g., Galaskiewicz and Burt 1991), our findings suggest that when an established corporation invests in the formation of a new corporate venture, this creates a tie that distinguishes the new corporate venture, such that others (e.g., start-up firms) will imitate its entry behaviors.

Finally, our findings that both market density and entry by start-ups are positively associated with entries by start-ups (H3a, H3b) contribute support to the strategic groups literature on imitation. These findings validate research that suggests firms model their strategies after similar firms (Peng, Tan, and Tong 2004). They confirm that entrepreneurs running start-ups tend to perceive similarities among their firms and act accordingly. Insofar as we found less consistent evidence about start-ups modeling their actions after corporate ventures, our findings also provide support for the cognition literature (e.g., Baron 1998), which suggests that entrepreneurs running start-ups think and act differently than managers running corporate ventures.

While our paper focuses on start-ups that have received limited attention in the imitation literature and addresses debates regarding which firms are selected as models for imitation, it is not without limitations. Though uncertainties in new industries make them ideal for studies of imitation (Sine, Wesley, Haveman, and Tolbert 2005), researchers who want to consider whether start-ups are especially prone to imitating successful firms could also focus on mature industries,

where many successful incumbents exist. Scholars might also employ survey data to capture the cognitive models that distinguish start-ups from corporate ventures in the minds of managers. Though our statistical controls accounted for the possibility that firms were prompted by their recent experience and strategies to enter (large, fast growing, and proximal) markets, survey research might also be useful in exploring the degree to which companies' own strategies prompted them to make entry choices and how these strategies interact with institutional and strategic groups explanations of imitation in market entries (Abrahamson, 1991).

Notwithstanding its limitations, our work provides relevant insights for both academics and practitioners. For start-ups wishing to legitimize their market entry choices, there appears to be a strong precedent for imitating other start-ups. The finding that start-ups tend to avoid markets that have been densely populated by corporate ventures is also actionable. Though start-ups may be able to derive efficiencies or legitimacy from considering the entries of others, it is also important for them to bear in mind the presence of well-funded incumbents.

Conclusion

In this study, we relied upon institutional and strategic groups reasoning to predict the imitative behaviors of start-up firms. Our findings confirmed that start-ups facing the challenge of choosing new markets in a new industry are prone to imitation in general. Specifically, we found start-ups imitate the entry decisions of other start-ups, while avoiding markets that are densely populated by corporate ventures. Our results also revealed that start-ups imitate the entry choices of corporate ventures entering new markets. This finding extends prior trait imitation research by suggesting firms not only imitate ideal corporations, but also pattern their behaviors after firms that are related to such corporations.

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Table I
Summary Statistics and Correlations[a]

	Mean	St. Dev.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Entry (Dependent Variable)	0.02	0.13															
2 Market Density (all firms)	3.50	5.44	0.20														
3 Market Density (of start-up firms)	1.97	3.09	0.22	0.96													
4 Market Density (of corporate firms)	1.53	2.58	0.17	0.94	0.83												
5 Market Entry (of all firms)	1.17	2.43	0.23	0.84	0.84	0.78											
6 Entry (of start-up firms)	0.62	1.56	0.24	0.78	0.82	0.65	0.92										
7 Entry (of corporate firms)	0.55	1.15	0.17	0.72	0.65	0.75	0.85	0.59									
8 Distance (to focal firm's other markets)	1047.04	525.76	-0.06	0.04	0.02	0.06	0.03	0.00	0.06								
9 Distance (to other firms with similar origin)	977.54	328.03	0.01	0.05	0.02	0.09	0.06	0.02	0.09	0.60							
10 Squared Size Difference with Market Incumbents	803.38	2037.13	0.01	0.07	0.05	0.08	0.06	0.04	0.07	0.02	0.05						
11 Average Size Difference with Market Incumbents	9.30	23.45	0.00	0.15	0.14	0.14	0.13	0.13	0.11	0.02	0.01	0.86					
12 Log(Market Geographic Size)	10.56	1.22	0.10	0.58	0.50	0.61	0.43	0.34	0.43	0.19	0.29	0.14	0.16				
13 Market Growth	0.01	0.42	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.02	-0.04	-0.08	-0.04	-0.03	-0.03			
14 Market Size	-0.02	0.92	0.05	0.31	0.27	0.32	0.22	0.19	0.21	0.10	0.13	0.00	0.01	0.33	0.00		
15 Firm Age	3.25	2.74	0.04	-0.04	-0.04	-0.04	-0.03	-0.03	-0.02	0.02	0.00	-0.07	-0.19	-0.01	0.01	-0.01	
16 Firms Size	8.90	12.08	0.06	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.04	0.00	-0.11	-0.35	-0.02	0.02	-0.01	0.58

[a] With $n=59,746$ over 81 firms, correlations with an absolute value of 0.01 or more are significant at $p < 0.05$

Table II
Logistic Regression Models of Market Entry[a]

	Model 1	Model 2	Model 3
Market Density (of all firms)		0.06 ***	
		(0.01)	
Market Density (of start-up firms)			0.18 ***
			(0.02)
Market Density (of corporate firms)			-0.12 ***
			(0.03)
Market Entry (of all firms)		0.07 **	
		(0.02)	
Market Entry (of start-up firms)			0.06 †
			(0.03)
Market Entry (of corporate firms)			0.11 *
			(0.04)
Distance to Focal Firm's Markets	0.00 ***	0.00 ***	0.00 ***
	(0.00)	(0.00)	(0.00)
Distance to Other Start-up Firms	0.00 ***	0.00 ***	0.00 ***
	(0.00)	(0.00)	(0.00)
Squared Size Difference with Market Incumbents	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
Average Size Difference with Market Incumbents	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
Log(Market Geographic Size)	0.64 ***	0.22 ***	0.28 ***
	(0.03)	(0.04)	(0.04)
Market Growth	-0.08	-0.07	-0.07
	(0.07)	(0.07)	(0.06)
Market Size	0.02	0.00	0.00
	(0.02)	(0.02)	(0.02)
Firm Age	0.06 ***	0.06 ***	0.06 ***
	(0.01)	(0.01)	(0.02)
Firms Size	0.03 ***	0.03 ***	0.03 ***
	(0.00)	(0.00)	(0.00)
Constant	-10.64 ***	-6.93 ***	-7.60 ***
	(0.33)	(0.39)	(0.38)
Chi-Squared	2547.01 ***	2900.25 ***	2908.44 ***
Log PsuedoLikelihood	-4284.95	-4089.11	-4054.33
LL Ratio Test[b]		391.67 ***	461.25 ***
McFadden's Psuedo R-Squared	0.20	0.24	0.24
N	59746	59746	59746
Firms	81	81	81

† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

[a]   Year indicator variables have been suppressed to save space. Robust standard errors in parentheses. The tables display regression coefficients, not odds ratios.

[b]   The Likelihood Ratio test examines whether the change in the likelihood ratio is significant from Model 1 to Model 2 and from Model 2 to Model 3.

[i] We acknowledge limits to this institutional theory argument, since a market that is over-populated may be inhospitable to additional entrants. However, as this criticism is in keeping with population ecology (Greve 2000; Hannan and Freeman 1977) and seems more relevant in mature industries, we build our arguments related to market density and entry upon the framework of institutional theory.

[ii] Given the size of our sample, we did not employ an outlier trimming procedure in order to be as conservative as possible. In separate analysis, however, we ran our models on a reduced sample where we restricted our models to firms who entered into at least one market during the year in consideration. This was done to aid estimation and reduce the zero-loading in our sample (Folta and O'Brien 2004). These models were consistent with the presented results and are available upon request.