From the Editors

**Charting New Directions in Entrepreneurship Research**

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Refereed Articles

**What's in It for Me? Reciprocal Exchanges between Underwriters and Venture Capitalists**

Douglas Miller, *Virginia Commonwealth University*; Tera L. Galloway, *Illinois State University*; Dustin Smith, *Webster University*

**The Impact of Immigrant Entrepreneurs’ Social Capital Related Motivations**


**The Differing Impact of Household Income on Firm Emergence by Heterogeneous Start-up Configuration**

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New England Journal of Entrepreneurship

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The New England Journal of Entrepreneurship (NEJE) is a double-blind peer-reviewed journal that aims to foster dialogue and innovation in studies of entrepreneurship and small and family-owned business management. The Journal welcomes original work across a broad spectrum of issues and topics related to the study and practice of entrepreneurship. The Journal encourages submission of a wide range of perspectives and is particularly interested in those that challenge conventional wisdom concerning all aspects of entrepreneurship and small and family-owned businesses and their role in society. In doing so, the Journal promotes an ethos that is explicitly theory-driven and supported, global in scope and vision, open, reflective and reflexive, imaginative and critical, interdisciplinary and multidisciplinary, and that facilitates exchange among academic scholars, as well as between academic scholars and practitioners.

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Accompanying each manuscript, as separate files, should be (a) an abstract of the article (200 words maximum) and six keywords; (b) a biographical sketch of the author(s); and (c) a title page with manuscript title and the order of authors as well as the primary author’s name, mailing address, preferred email, phone and fax numbers. Maps, photos, and similar graphics are welcome, but authors are responsible for providing separate camera-ready files, either as tiffs, jpegs, or PDFs. Sizes of images, tables, and figures must conform to the physical dimensions of the Journal page. Width is 45p (7.5") and depth is 57p (9.5"). In addition:

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- The abstract must be 200 words or less and should precede keywords (maximum six).
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- There is nothing in your file that identifies the authors.
- Any hypotheses are explicitly identified as such.
- Constructs and variables are identified in words, not abbreviations.
- Any prior publication of the data featured in the manuscript is explicitly acknowledged either in the manuscript or in the transmittal letter to the editor. Any forthcoming or "in press" articles that use the data should be forwarded to the editor.
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Contact Information
Questions about the Journal should be directed to Dr. Grace Guo (chun-guog@sacredheart.edu)
Grace Guo, Ph.D., Editor
John F. Welch College of Business,
Sacred Heart University, Martire W313
5151 Park Avenue, Fairfield, CT 06825-1000
Phone: 203-416-3462 Fax: 203-365-7538; chun-guog@sacredheart.edu

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It would be safe to say that Lowell Wood is not a familiar name for most people. And yet, according to a recent Bloomberg article, Wood now has 1,085 utility patents to his name, one more than Thomas Edison and more than any other American. Wood also has 3,000 other inventions awaiting patent approval, so the likelihood is that by the time he is finally done, Wood will end up with the most utility patents in the world.

At first glance, it may seem that Wood is a highly intelligent man. But if Wood is to be taken at his word, his ability to think through problems and come up with solutions stems from his intense reading of academic journals. For about five decades, Wood has been an avid reader of research articles published in journals. To quote Wood, “It’s just terribly difficult to pull myself away from them. There will be these articles that I absolutely have to read before I can turn loose of this thing” (Vance, 2015: 59). There is no exaggeration in saying that Wood finds scientific articles published in research journals to be deeply thought provoking and a treasure trove of new ideas.

We hope you find this special issue of the New England Journal of Entrepreneurship intellectually stimulating in a similar vein. Like all peer-reviewed journal articles, the papers published here were subjected to rigorous peer review and editorial oversight. This screening was in addition to the fact that authors could submit papers to the special issue only if the paper had previously been presented at an Eastern Academy of Management (EAM) conference (either in the United States or internationally). Thus, each of the articles in this special issue has been through at least two independent peer-review processes, one at an EAM conference and another at NEJE. This rigorous two-tier procedure resulted in a selection of quality articles that we hope you will enjoy. These articles also represent the leading edge of knowledge in entrepreneurship research.

There are a total of five articles in this special issue. Over the past couple of decades, entrepreneurship research has made considerable advances so that it has become a highly dynamic and vital field. The entrepreneurship division of the Academy of Management increased its membership by more than 200 percent, and with close to 3,000 members, it now ranks as among the largest in the academy. While entrepreneurship is certainly a young area of research, it has also “become an increasingly popular field of inquiry in the past quarter of century with a growing community of scholars from a broad spectrum of disciplines entering the field” (Neergaard & Ulhøi, 2007: 1). With this growth, the field has gradually become more theory driven and the methodological approaches in the field have matured considerably. As Bygrave (2007) noted, it is almost impossible today to get an atheoretical (i.e., one lacking in theory) entrepreneurship paper published in a good journal.

The articles presented in this issue reflect many of the advancements in the field of entrepreneurship. These articles include qualitative papers and quantitative studies. They include single-author works and papers with multiple authors (as many as five). As we explain below, the articles deploy a wide range of conceptual frameworks, contributing to different topic areas of interest to entrepreneurship scholars. Both theoretical and empirical articles are represented here. Three common elements of this eclectic collection of articles are worth mentioning: (1) they have all been previously presented at an EAM conference (hence, the NEJE–EAM special issue), (2) they are theoretically grounded, and (3) they have undergone blind review by multiple experts in the topic area. When taken together, these three elements ensure that the articles of this special issue are rigorous and create new knowledge.

The first article in this issue, “What’s in It for Me? Reciprocal Exchanges between Underwriters and Venture Capitalists,” is authored by Douglas Miller, Tera Galloway, and Dustin Smith. It is widely accepted that Venture Capitalists (VCs) have played an important role in the American economy over the last few years, identifying and supporting such success stories as Apple, Amazon, Google, and Facebook, to name a few. Miller and colleagues are concerned with prevalence of underpricing in venture-backed IPOs. They examined the interaction between VCs and underwriters and analyzed how such interactions impact the value of IPO. These researchers use agency theory to develop their predictions, which were then tested using a random sample of IPO firms in the 1997–2007 time period. The results revealed that while venture capital’s influence on IPOs does not last long, underwriters benefit long term from the reciprocal exchanges with VCs. The authors also highlight the role of trust and power in the IPO process.

The second article, “The Impact of Immigrant Entrepreneurs’ Social Capital Related Motivations,” is written by Claudia Gomez, Yasanthi Perera, Judith Weisinger, David Tobey, and Taylor Zinmeister-Teeters. Ever since the publication of the 1996 best-seller The Millionaire Next Door, the connection between immigrants and entrepreneurship has been salient in public imagination and research enterprise. Gomez and colleagues use the social capital literature to
ground their predictions. Specifically, the authors argue that immigrant entrepreneurs’ motivation impacts their use of social networks, which eventually influences business success. Notably, this article is conceptual in nature, so that the authors develop propositions on how social capital shapes business decisions.

One of the most vexing issues in entrepreneurship research relates to the association between household income and new venture start-ups. On the one hand, there are businesses, such as Amazon, that would probably not have gotten off the ground without substantial investment from the promoters’ families. On the other hand, there are other firms, such as Apple, whose founders’ families made no financial contributions. The challenge is to go beyond anecdotes such as these to look at the issue in a scientific way. Enrique Nuñez takes the challenge head on, asking, “Does household income impact firm emergence, and if so, is emergence impacted differently based on start-up configuration?” For data, Nuñez leans on the Panel Study of Entrepreneurial Dynamics (PSED), a multi-year American dataset purported to be “the most comprehensive assessment of firm creation process” yet conducted anywhere in the world (Reynolds, 2010: 1). The results revealed that household income influences start-up activities and such impact is stronger for family firms compared to solo firms. Also, the study suggested that household income predicts the growth rates for both family and solo firms.

Natalya Totskaya brings an international flavor to this special issue with her study of bridging and bonding social capital in Russia. Social capital is a growing topic within the management literature, and is the topic of investigation in the article titled “Relational Ties in Emerging Markets: What Is Their Contribution to SME Growth?” Using data collected from small- and medium-sized Russian enterprises, Totskaya delves into how firm-internal (bonding) and firm-external (bridging) relational ties impact organizational growth and geographic expansion. The summary of literature on bridging and bonding social capital presented in this article as well as the scales (English and Russian) provided should facilitate future research on this topic.

The final article in the special issue, entitled “Entrepreneurial Behavior during Industry Emergence: An Unconventional Study of Discovery and Creation in the Early PC Industry,” is authored by Alka Gupta, Christoph Streb, Vishal Gupta, and Erik Markin. The story of how the personal computer (PC) industry came to be is now part of Silicon Valley legend. The PC industry is arguably the most important industry to have emerged in the last hundred years, laying the foundation for scores of new industries and transforming many existing industries. Gupta and colleagues use discovery and creation logic to cast new light on how the PC industry came to be, delving into the inter-relationships and overlaps between discovery and creation. Their data is unique, as they rely on a qualitative study of a popular film that chronicled the formative years of the industry.

The idea for this special issue first emerged in a discussion with Editor-in-Chief Grace Guo. We very much appreciate Grace entrusting us with this responsibility. Her stewardship throughout the long process was instrumental in bringing together a diverse and highly competent group of contributors. We then reached out to the Eastern Academy of Management as well as the Eastern Academy of Management–International about the idea of a special issue, which was received warmly by their decision-makers. The call for papers went out to all Eastern members. We are grateful to all EAM and EAM-I reviewers as well as NEJE reviewers who helped us identify good articles and then facilitated their journey toward publication. A heartfelt thanks to all who submitted to this special issue, helped us with the review process, and facilitated our access to entrepreneurship papers at the Eastern conferences. We could not have done this without your support!

The contributions that finally made it to the special issue cover a wide spectrum and the editorial process provided us with an invaluable opportunity to gain new insights into entrepreneurial phenomena. They speak to the different gaps in the entrepreneurship research literature through a variety of research designs and methods. They also offer constructive suggestions for future research.

We believe this issue will help readers become more familiar with the topics discussed and encourage them to look deeper and further into these topical areas. We are hopeful that these articles will stimulate new ideas and new conversations, so that academic inquiry about entrepreneurship is propelled forward in productive ways.

References


About the Authors

VISHAL K. GUPTA (vgupta@bus.olemiss.edu) is Associate Professor in the School of Business Administration at the University of Mississippi. He received his PhD in strategic management (with emphasis in entrepreneurship) from the University of Missouri. His research interests include entrepreneurial orientation and corporate entrepreneurship.

GOLSHAN JavadIAN (golshan.javadian@morgan.edu) is an Assistant Professor of Management at Morgan State University. She has a PhD in Business Administration from Morgan State University. Her research interests include women entrepreneurship and psychology of entrepreneurship.
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What’s in It for Me? Reciprocal Exchanges between Underwriters and Venture Capitalists

Douglas R. Miller
Tera L. Galloway
Dustin Smith

In this article, we examine the impact of repeat interactions between VCs and underwriters. Past research has suggested that such interactions build trust and may contribute to more equitable treatment of issuing firms. We adopt an alternative perspective and suggest that these repeat interactions are characterized by reciprocal exchanges facilitated by opportunistic behavior from the VC. Our analysis demonstrates that VCs and underwriters interact in order to appropriate greater value from the IPO. This article provides a more complete understanding of repeat interactions between the VC and the underwriter by identifying characteristics of the relationship that have an impact on the value of the IPO.

Keywords: repeat interactions, IPO, reciprocal exchanges, VC

Venture backing provides important resources for entrepreneurs as they progress through the stages of new venture startup (Jindra & Leshchinskii, 2015). In addition to financing, VC firms provide managerial expertise and guidance that has been shown to enhance start-up success (Jindra & Leshchinskii, 2015). Highly reputable VCs have been shown to be more successful in leading firms to an initial public offering (IPO) (Nahata, 2008). It is no surprise, then, that VC firms have a large presence in the IPO market. Nearly 40 percent of IPOs were venture backed over the time period 1994–2007. Despite the obvious benefits associated with venture backing, evidence has shown that venture-backed IPOs experience greater underpricing than non-venture backed IPOs (Lee & Wahal, 2004). Underpricing refers to the difference between the price at which shares are sold pre-IPO and the price at which the shares trade once issued to the market.

We adopt an agency perspective to explain the presence of reciprocal exchanges between underwriters and VCs. We suggest that top VCs establish reciprocal exchanges with underwriters as a way to gain more immediate access to investment gains through shorter lockup periods. VCs maintain portfolio firms that are growing toward a potential IPO. In order to appropriate the most value from an IPO event, VCs seek to issue shares at a high price with minimal underpricing. Such an approach benefits both the entrepreneur and the VC: the entrepreneur because less money is left on the table, and the VC because they receive a higher return from their investment.

Top venture capitalists act, in a way, as gatekeepers of an underwriter’s involvement in future IPOs. The influence that venture capital firms have on portfolio firms heavily impacts which underwriters are invited to participate. Following this logic, if an IPO is substantially underpriced, VCs are positioned to punish the underwriter by excluding them from future business with their IPO firms (Bradley, Kim, & Krigman, 2015). Despite this position to enact retributive justice, examinations show that VC firms do not actually punish underwriters for high underpricing. In fact, evidence shows that underwriters that engage in underpricing actually gain more access to IPO firms not less (Ritter & Welch, 2002). We attempt to explain why such relationships persist and to examine the possible implications for the entrepreneur.

Previous research has provided several explanations for underpricing, including, the belief that VCs agree to underpricing as payment for all-star analyst coverage (Bradley et al., 2015, 2011; Liu, Arthurs, Nam, & Mousa, 2013), that underpricing is the result of asymmetric information (Jenkinson & Jones, 2009), that it is a signal of issuing firm quality (Kennedy, Sivakumar, & Vetzal, 2006), a mechanism to intensify price momentum so that VCs can cash out at a higher price (Bradley et al., 2015), or that VC grandstanding encourages greater underpricing (Lee & Wahal, 2004). These positions do not fully explain why top VCs, which are capable of negotiating a successful public offering without relying heavily on underwriters, are willing to accept such high levels of underpricing.

In this article, we focus on repeat exchanges to explain the prevalence of underpricing of IPO firms. We suggest that VCs and underwriters engage in reciprocal exchanges, which present immediate benefits to both the VC and the underwriter, create greater trust, and contribute to the formation of long-term relationships. Additionally, we argue that when there is an established history between the VC and underwriter, and VCs act in their own self-interest the ex-
changes become more costly to the entrepreneurial firm when the proceeds from the IPO increase. Additionally, we suggest that VCs having higher reputations further exacerbate this behavior. This article contributes to agency theory by providing insights on how self-interested intermediaries affect the IPO process. Agency costs associated with IPO have traditionally focused on underwriters and largely ignored self-interest seeking from the VC firm. Our study provides insight into how the most powerful VCs, those with substantial experience and a strong reputation, enhance their returns through increased underpricing and a shortened lockup. Our results make a practical contribution to entrepreneurs pursuing relationships with VC firms and provide a conceptual contribution to the IPO literature by highlighting the role that VCs play in underpricing decisions.

The IPO and Repeat Exchanges

Agency theory research has been used to examine conflicts of interest that occur between investors in mergers and acquisitions (Masulis & Nahata, 2009; Matvos & Ostrovsky, 2008) and, more recently, between parties involved in the analysis of VCs’ portfolio firms approaching IPO (Jenkinson & Jones, 2009). Studies have shown that conflicts of interest do exist, but researchers have struggled to find direct evidence that shows that the IPO valuation and allocations are a result of these conflicts of interest (Reuter, 2006; Ritter & Zhang, 2007). As a result, discussions of agency issues in the IPO process are often focused more on the underwriter and incidences of underpricing than on the venture capital firms involved in moving the portfolio firm toward IPO.

In order to understand the impact that the intermediaries have on firms going through IPO, it is important to understand why firms choose to go through an IPO in the first place. There are a number of explanations to present as possible reasons for such a decision. Many firms choose to go public after recognizing the high-value market opportunities that exist. Successful entrepreneurial firms may reach a point where it is possible to establish a competitive advantage through a favorable market-to-book ratio. When these advantages are recognized, the likelihood of an IPO increases (Pagano & Panetta, 1998). As such, much of the decision making regarding whether to go through with an IPO is based on the market and whether the IPO will create the resources necessary to improve the firm’s competitive position, especially considering the additional competitive pressures that issuing firms face from incumbents in the market (Hsu, Reed, & Rocholl, 2010). Firms that have already established a competitive strategy and have achieved a sustainable performance are more likely to remain privately traded (Hsu et al., 2010).

Following IPO, the issuing firm is recapitalized, leading to a reduced debt-to-equity ratio, which increases the flexibility in the investments that the issuing firm is able to make. This suggests that firms choose to go public in order to gain access to the resources necessary for the IPO firm to respond more effectively to the changes in the market (Hsu et al., 2010). The IPO, by default, serves as a signal of high quality (Stoughton, Wong, & Zechner, 2001) and suggests that the issuing firm maintains greater stores of knowledge capital that present an advantage over competitors (Cockburn & Griliches, 1988).

Venture capitalists provide valuable capabilities to the firm during the IPO process, including the abilities necessary to manage venture growth efficiently, define strategic advantages, and identify high-value opportunities (Ivanov & Masulis, 2008). VCs also maintain necessary ties with other influential intermediaries, including the underwriters that have a consistent presence in the IPO market.

The motivations of all parties involved in the IPO are very similar. The new venture VC and the underwriter want to appropriate the greatest amount of value from the IPO process (He, Cordeiro, & Shaw, 2015). However, the long-term outcomes vary significantly for the parties involved. Repeat exchanges between the VC and the underwriter can create a situation where the bargaining power shifts to favor the VC and underwriter to the detriment of the entrepreneur. Despite the belief that the development of relationships can resolve these issues, a number of studies have shown a connection between misaligned incentives of equity underwriters and excessive IPO underpricing (Baron, 1982; Ljungqvist & Wilhelm, 2003; Loughran & Ritter, 2004; Loughran & Ritter, 2002; Nimalendran, Ritter, & Zhang, 2007; Reuter, 2006). Questions remain concerning this high level of underpricing and efforts have been made to explain why this underpricing would be accepted by the issuing firm and the VC firm that is backing the IPO.

We suggest that promised access to greater wealth incentivizes the VC firm to accept greater underpricing. Such agreements would suggest that reciprocal relationships between the VC and the underwriter indicate that agency costs may actually increase when partnering with VCs and underwriters that have an established long-term, trusted relationship. This perspective proposes that the lack of immediate trust between parties may actually benefit
the issuing firm because it will allow the market to assign firm value more accurately. Additionally, when repeat exchanges are a characteristic of the market, it is unlikely that breaches of conduct will occur from the beginning of the relationship because the loss of social capital would be too great (Molm, Schaefer, & Collett, 2007).

**Hypothesis Development**

The repeat interactions that occur between VCs and underwriters creates an environment that may increase agency costs to the entrepreneur. VCs have power in the selection of underwriters for their portfolio firms and, as a result, have the potential to create repeat relationships with underwriters that maximize their wealth appropriation. This relationship is further complicated by underwriters that are motivated to keep a strong relationship with venture capital firms and, as a result, have the potential to create repeat relationships with underwriters that maximize their wealth appropriation. This relationship is further complicated by underwriters that are motivated to keep a strong relationship with venture capitalists in order to improve the likelihood that they will be selected to act as underwriters on future ventures that the VC firm has invested in. This motivation to build and keep strong ties means that investments banks reciprocate the benefits provided by the venture capital firm (Bradley et al., 2015). The establishment of long-term relationships between underwriters and venture capital firms can serve as an additional method for affecting the IPO process. This happens through two main channels.

First, relationships tend to reduce the information asymmetries through access to potentially private information that allows underwriters to better assess the quality of the VC’s portfolio firms as well as gain a better understanding of the influence that the VC has in the decision making of portfolio firms. For instance, according to Baum and Silverman (2004), a VC’s involvement in the IPO can act as a signal of quality when unambiguous measures of performance from other sources do not exist. Underwriters that have developed a lasting relationship with these VCs are in a more advantageous position to receive these signals and to capitalize on the information that is presented. This is especially true when the information provided by the VC is relevant for the evaluation of other firms in the VC’s portfolio and is difficult for outsiders to gain access to.

Second, long-term relationships may impact the prevalence of agency issues in the transaction. VCs and underwriters have a long-term presence in the IPO market and must maintain relationships in order to gain access to new deals that can produce future revenue. The long-term nature of the relationship and the need to maintain strong moral capital would suggest that VCs would be more incentivized to provide accurate information to underwriters and underwriters would be more inclined to provide a fair appraisal of the offering.

Due to the lockup restriction imposed on VCs, wealth lost through underpricing is of less concern to the VC than the value of the stock when the lockup period expires. As a result, VCs are most interested in decreasing the lockup period so that they can benefit from investments more quickly. We propose that VCs agree to greater underpricing in exchange for the immediate reciprocation of a shortened lockup. Specifically, VC firms are desirous to capitalize on their investment more quickly and can only do so when the lockup expires (Bradley et al., 2015; 2011). We propose that the exchange central to the reciprocal exchanges agreement is the VC firm’s acceptance of greater underpricing in exchange for a shorter lockup period.

**Hypothesis 1:** Greater underpricing will negatively impact the length of the lockup period.

An underwriter has an incentive to please its institutional investors by underpricing more so that they will be loyal for future deals. Institutional investors can buy at the offer price and then flip the shares for a profit at the end of the first trading day. In this situation, the institutional investors are rewarded for their loyalty and the pre-IPO investors receive much less capital from the offering (Arthurs, Hoskisson, Busenitz, & Johnson, 2008). Gains are most pronounced when investors are involved in a large offering that produces considerable financial benefit. As a result, underwriters are very interested in gaining access to high-value IPOs in order to maintain strong relationships with institutional investors. In order to gain access to a sizeable offering, underwriters will reciprocate by agreeing to a shorter lockup period. As a result, we argue that VCs will receive a shorter lockup when providing underwriters access to high-value IPOs. This is proposed in the following hypothesis:

**Hypothesis 2:** The size of the offering will be negatively related to the lockup period.

**VC Reputation**

A characteristic of the relationship between the VC and underwriter that has been largely ignored is the influence that VCs have in their portfolio firm’s choice of underwriter (Ince, 2011). We propose that repeat interactions occur as a result of the VC’s influence and underwriters that desire access to a specific VC’s portfolio firms must offer incentives to the VC in the short term, not just in the rent generated after market.

Underwriters benefit from relationships with top venture capitalists because of the influence that
venture capitalists have on portfolio firms. The most active, reputable VCs, akin to top underwriters, have market power and underwriters maintain a strong relationship with these VCs by agreeing to shorter lockups. Importantly, these relationships are not defined by a single “deal” but persist over time. This long-term relationship means that incentives may actually occur at a future IPO rather than the current IPO. As a result, underwriters are motivated to maintain long-term relationships with highly reputable VCs in order to continue being selected as the portfolio firm’s underwriter. We argue that more reputable VCs will be consistently presented with a shorter lockup period as a result of their influential position over portfolio firms.

**Hypothesis 3:** The reputation of the VC firm will be negatively related to the length of the lockup period.

**Methodology**

**Sample**

To test these hypotheses, we collected a random sample of firms that went through an IPO between 1997 and 2007. We used the Securities Data Corporation (SDC) Platinum Database to identify these firms and gather supporting data. The SDC collects data from publicly available sources including newspaper and wire sources, SEC filings, trade publications, and firm prospectuses. Additionally, we used COMPUSTAT and CRSP to gather financial information. The final sample consisted of 236 U.S. IPO firms in the 31 different industries.

**Measures**

**Dependent variables.** Benefits to the venture capital firm are measured using the agreed upon lockup period. *Lockup* is defined as the agreement between current shareholders and the underwriter that prevents current shareholders from selling their shares of stock for a designated period of time following the IPO (Arthurs, Busenitz, Hoskisson, & Johnson, 2009). A single IPO firm may have different lockup period agreements with its underwriter, meaning that some shareholders face different restrictions from other shareholders. To accommodate for these differences in the lockup agreement, lockup period was calculated as a weighted average of the number of days covered by the restricted selling period (Arthurs et al., 2009). The formula is as follows:

\[
\text{Lockup period} = \frac{(\text{Lockup period} \times \text{Shares in lockup}) + (\text{Lockup period} \times \text{Shares in lockup})}{(\text{Shares in lockup} + \text{Shares in lockup})}
\]

Constructing the variable in this fashion means that when, for example, there are four VCs in the syndicate and each has a different lockup, the lockup is calculated according to the impact that the lockup has. A VC with greater ownership and a shorter lockup would weigh the formula differently from a VC with less ownership and a shorter lockup. This approach is more appropriate for understanding the impact that lockup periods have on the firm and whether these lockup periods are a result of reciprocal agreements.

**Independent variables.** *Underpricing* is calculated as the price on the first day of trading minus the offer price divided by the offer price (Logue, Rogalski, Seward, & Foster-Johnson, 2002). Underpricing is the most prevalent measure of short-term IPO performance as it takes both the offer price and the stock price into account, while combining “the diverse perspectives of nearly every stakeholder group associated with the IPO context” (Certo et al., 2009, pp. 1363). *Size of Offering* is calculated as the number of shares issued during the initial public offering (Kennedy et al., 2006; Nam, Park, & Arthurs, 2014). *VC Reputation* was calculated using data available on Tim Pollock’s personal website (www.timothypollock.com/ vc_reputation.htm).

**Control variables.** Following similar research, we include several control variables in order to account for alternative explanations (Certo, 2003). *Firm Age* and *Firm Size* were controlled using years since founding and the total employees of the firm at the time of the IPO (Carter & Manaster, 1990; Park & Patel, 2015). *Risk* was calculated as the total number of risk factors listed in the prospectus (Beaty & Zajac, 1994; Park & Patel, 2015). To control for the effect of previous lockup agreements between the underwriter and the VC, the average lockup was calculated by averaging the lockup length of each previous IPO that the underwriter and VC had worked together. *Total History* refers to the reciprocal relationship between the VC and the underwriter and was calculated by examining the VC firm’s involvement in previous IPOs. Research suggests that reciprocal relationships can exist regardless of whether the VC in question is the “lead” investor. Therefore, the relationship was counted if the VC firm and underwriter were involved in an IPO together, regardless of what level of involvement the VC firm had. *Underwriter Reputation* was coded using data available on Jay Ritter’s personal website at the University of Florida. This data is based on the methodology employed by Carter et al. (Carter & Manaster, 1990; Carter, Dark, & Singh, 1998) and subsequently compiled and updated by Jay Ritter.
Table 1. Means, Standard Deviations, and Correlations

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>S.D.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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</thead>
<tbody>
<tr>
<td>1. Lockup Days</td>
<td>215.49</td>
<td>135.26</td>
<td>1</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Firm Age</td>
<td>48.92</td>
<td>225.24</td>
<td>-.015</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Risk Factors</td>
<td>28.64</td>
<td>7.85</td>
<td>-.168**</td>
<td>.003</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>4. Firm Size</td>
<td>928.3</td>
<td>2186.64</td>
<td>-.103</td>
<td>-.15</td>
<td>-.18</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Average Lockup</td>
<td>192.52</td>
<td>70.8</td>
<td>.051</td>
<td>-.014</td>
<td>-.01</td>
<td>.005</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Underpricing</td>
<td>.84</td>
<td>1.46</td>
<td>-.127*</td>
<td>.055</td>
<td>.12</td>
<td>-.044</td>
<td>-.036</td>
<td>1</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>7. Size of Offering</td>
<td>42.22</td>
<td>33.66</td>
<td>-.323**</td>
<td>-.042</td>
<td>-.07</td>
<td>.592**</td>
<td>-.080</td>
<td>.042</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Total History</td>
<td>10.93</td>
<td>3.36</td>
<td>-.173**</td>
<td>-.047</td>
<td>.01</td>
<td>-.037</td>
<td>-.020</td>
<td>.192**</td>
<td>.014</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. VC Reputation</td>
<td>.25</td>
<td>19.647</td>
<td>-.037</td>
<td>.007</td>
<td>-.03</td>
<td>-.035</td>
<td>-.068</td>
<td>.104**</td>
<td>.002</td>
<td>.081</td>
<td>1</td>
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<tr>
<td>10. UW Reputation</td>
<td>7.04</td>
<td>.233</td>
<td>-.555**</td>
<td>.086</td>
<td>.04</td>
<td>.138*</td>
<td>-.054</td>
<td>.180**</td>
<td>.419**</td>
<td>.309**</td>
<td>-.033</td>
<td>1</td>
</tr>
</tbody>
</table>

Notes: N = 236; * p<.05; **p<.01

Results

Table 1 presents the means, standard deviations and correlations of the key variables in the analysis. OLS regression analysis was used to test the hypotheses presented in the article. The presence of multicollinearity was examined by conducting a variance inflation factor analysis (Belsley, Kuh, & Welsch, 2005; Neter, Wasserman, & Kutner, 1985). This examination yielded no variables with scores higher than 10 (the highest score was 3.999), indicating that there are no problems of multicollinearity. Additionally, reports showed that skewness and kurtosis were within acceptable ranges.

Table 2 presents the results of the regression analysis. For simplification, we include only the key variables in our analysis. Model 1 shows the baseline results of regressing lockup on the control variables. Model 2 to Model 4 represent the full models testing Hypothesis 1 to Hypothesis 3.

Using Model 2 to examine Hypothesis 1, we found that the length of the lockup period is shorter when the IPO firms face greater underpricing, supporting Hypothesis 1. This indicates support for the belief that reciprocal exchanges exist between venture capitalists and underwriters. Hypothesis 2 suggests that the size of the offering will be negatively related to lockup. Overall, offering size had a significant negative effect on lockup period, providing support for Hypothesis 2. Hypothesis 3 was also supported, indicating that highly reputable VCs will be able to gain access to a shorter lockup period. This suggests that the value of the VC firm’s portfolio firms has an impact on the behaviors and decisions that underwriters make.

Table 2. Results of Regression Analysis Predicting Lockup

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
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<tr>
<td>Control Variables</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Firm Age</td>
<td>-.015</td>
<td>.008</td>
<td>.022</td>
<td>.031</td>
</tr>
<tr>
<td>Risk Factors</td>
<td>-.172**</td>
<td>-.169**</td>
<td>-.074</td>
<td>-.078</td>
</tr>
<tr>
<td>Firm Size</td>
<td>-.109</td>
<td>-.115</td>
<td>-.103</td>
<td>.097</td>
</tr>
<tr>
<td>Average Lockup</td>
<td>.050</td>
<td>.046</td>
<td>.017</td>
<td>.020</td>
</tr>
<tr>
<td>UW Reputation</td>
<td>-.101</td>
<td>-.98</td>
<td>-.110</td>
<td>.133*</td>
</tr>
<tr>
<td>Total History</td>
<td>-1.023*</td>
<td>-.953*</td>
<td>-1.027*</td>
<td>-1.056</td>
</tr>
<tr>
<td>Independent Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underpricing</td>
<td>-.127*</td>
<td>-1.04†</td>
<td>.082</td>
<td></td>
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<tr>
<td>Size of Offering</td>
<td>-.361**</td>
<td>-.356**</td>
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<tr>
<td>VC Reputation</td>
<td>-.489**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>.043</td>
<td>.059</td>
<td>.133</td>
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<tr>
<td>Adjusted R²</td>
<td>.026</td>
<td>.039</td>
<td>.110</td>
<td>.130</td>
</tr>
<tr>
<td>F-Statistics</td>
<td>2.596*</td>
<td>2.884*</td>
<td>5.862*</td>
<td>5.374**</td>
</tr>
<tr>
<td>Change R²</td>
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<td>.016</td>
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<tr>
<td>F-Statistics for Change</td>
<td>2.596*</td>
<td>3.906*</td>
<td>19.583**</td>
<td>1.289</td>
</tr>
</tbody>
</table>

Notes:
†  p<.10
*  p<.05
** p<.01
Discussion and Conclusion
Taken together, the results provide strong evidence that reciprocal exchanges are part of the interactions between VCs and underwriters. However, the long-term relationships that develop between underwriters and VCs appear to have exchanges that benefit the underwriter more than the VC. The results suggest that while VCs maintain access to their portfolio firms and that even highly reputable underwriters will offer incentives in the form of shorter lockups to gain access to the portfolio firms, these incentives change once the relationship has been established.

Our inquiry provides a contribution to the literature on information asymmetry as it relates to underpricing and also provides an understanding of the reciprocal exchanges between underwriters and VCs that impact the valuation of issuing firms. By examining the relationship history between the underwriter and the VC, we offer clear evidence to suggest that the establishment of trust may not provide the anticipated benefits to the issuing firm. Given the mediated nature of the IPO market, knowing the characteristics and background of the influential parties can be useful when seeking to maximize the long-term wealth of pre-IPO investors.

Overall, the results suggest that the VC’s influence over portfolio firms creates a position of power that may not be long lasting. The establishment of reciprocal exchanges occurs as a result of the self-serving desires of the underwriter and the VC, but reputable underwriters are able to reclaim the power once the relationship has been established. It may be that underwriters that gain access to portfolio firms through the influence of the VC are able to present different incentives other than a shorter lockup period. Regardless of the long-term benefits, the exchanges characterized by immediate reciprocation end after reputable underwriters develop a relationship with the VC.

These results provide an interesting perspective on the power dynamics of the parties involved in the IPO process. These reciprocal exchanges indicate that IPOs exist in a double-mediated market and future exchanges are heavily influenced by the self-serving desires of the underwriter and VC. It is also interesting to note that these findings describe a more subtle approach to market manipulation than has been recognized in the past. For example, in the late 1990s underwriters engaged in more overt tactics of market manipulation and were punished. In that situation, underwriters gave VCs buy-in to attractive IPOs as reciprocal exchanges for future IP-Os (Smith, Grimes, Zuckerman, & Scannell, 2002). They also engaged in laddering activities wherein they required their institutional investors to purchase additional shares in the aftermarket to drive up the price of the shares in the focal IPO (after the shares were offered at a low price to start with) (Choi & Pritchard, 2004; Smith & Craig, 2004). Though these types of tactics have been resolved, it seems that underwriters and VCs are still behaving opportunistically but are simply doing a better job of covering their actions.

Limitations of this study point to several possible future research directions. First, the referenced time frame does not include many years that are characterized by high volatility. This suggests that our findings may have somewhat limited generalizability during incidents of economic turmoil. It would be interesting to further theorize and provide empirical evidence on whether agency costs increase during greater economic uncertainty. Second, we did not examine the impact that shorter lockup agreements have on the investment syndicate. Future work could determine whether VC syndicates receive equal benefits from these reciprocal exchanges or if the benefits are closely tied to ownership and relationship history. This level of nuance wasn’t achieved in this study and would be an interesting extension for future research.

Finally, future research could examine precisely when the power dynamics of the relationship between the VC and the underwriter begin to change. By identifying the ideal relationship history, we would be better able to determine when the benefits from working with a trusted partner are eroded by opportunistic behavior. Future works such as these would be beneficial for understanding the nuanced exchanges among parties in the IPO process and would substantively contribute to both the entrepreneurship and new venture financing literature.

References


About the Authors

**DOUGLAS R. MILLER** (millerdr@uncw.edu) is an Assistant Professor of Management at Virginia Commonwealth University. His research areas include firm innovation and new venture founder commitment. His work has been published in the *Journal of Product Innovation Management* and *Strategic Management Journal*. He earned a PhD from Washington State University.

**TERA L. GALLOWAY** (lgallo@ilstu.edu) is an Assistant Professor in Strategic Management at Illinois State University. Since earning her PhD from Washington State University, she has published in several outlets including *Entrepreneurship Theory & Practice* and presented at national and international conferences. Her research interests include alliances, advice networks, coopetition, and legitimacy repair.

**DUSTIN B. SMITH** (millerdr@uncw.edu) is an Assistant Professor of Management and Corporate Responsibility at Webster University. His work focuses on social issues in management including reputation repair and recovery, stakeholder reactions to social initiatives, and antecedents to corporate social performance. Dr. Smith received his PhD from Washington State University.
The Impact of Immigrant Entrepreneurs’ Social Capital Related Motivations

Claudia Gomez
B. Yasanthi Perera
Judith Y. Weisinger
David H. Tobey
Taylor Zinsmeister-Teeters

The immigrant entrepreneurship literature indicates that immigrant entrepreneurs reap numerous benefits from their co-ethnic communities’ social capital. These benefits, however, often come at a price because scholars note the potential for this community social capital to impose limitations on the entrepreneurs. While the literature largely focuses on the benefits of social capital, there is no research on what motivates the immigrant entrepreneurs to engage with their co-ethnic community in terms of contributing to, and utilizing, their co-ethnic communities’ social capital, and the consequences these may have on their enterprises. Addressing this gap in the literature is important in the development of successful immigrant enterprises. Thus, based on a model posited by Portes and Sensenbrenner (1993), we suggest that immigrant entrepreneurs’ motivations will influence their use of, and contributions to, co-ethnic community social capital, impacting, in turn, business success. We contribute to both the immigrant entrepreneurship and social capital research through exploring how entrepreneurs’ motives, with respect to their co-ethnic communities’ social capital, influence business success.

Keywords: social capital, immigrant entrepreneurship, immigrant entrepreneurs, motivations, co-ethnic, ethnic entrepreneurship

Introduction
Extensive research indicates that immigrant entrepreneurs are important contributors to their host-country economies (Min & Bozorgmehr, 2000). In the United States in 2010, more than 40 percent of all Fortune 500 companies were started either by an immigrant or a child of an immigrant. Moreover, at a rate of 620 immigrant-founded businesses per 100,000 businesses, immigrant entrepreneurs start more businesses per month than host-country nationals (American Immigration Council, 2014). As of 2013, immigrant-founded businesses in the United States comprised US $900 billion dollars in market capital, and employed approximately 600,000 people (American Immigration Council, 2014). Additionally, these enterprises have been shown to revitalize economically depressed regions through commercial activity and investments. Taken together, this information indicates that immigrant-founded enterprises are significant contributors to the US economy. It is therefore not surprising that scholars have studied immigrant entrepreneurs and their businesses for more than 30 years.

The immigrant entrepreneurship literature, which provides ample information on the role of immigrant-founded businesses in the economies of their host countries, consists of two primary research streams. The first focuses on the reasons behind the high levels of self-employment among immigrants (Bozorgmehr, 2000; Light & Bonacich, 1991; Rajman & Tienda, 2000), and the second examines the factors that impact the economic success of immigrants (Chrysostome, 2010; Hammarstedt, 2004; Li, 2004; Teixeira, 1998). According to this literature, immigrants face numerous challenges and disadvantages when acclimatizing to their host country including obstacles that impede their entry into the host country job market (Aldrich & Waldinger, 1990; Chrysostome, 2010; Perera, Gomez, Weisinger, & Tobey, 2013). These obstacles include the lack of financial resources, limited knowledge of the language, inadequate education or qualifications that are unrecognized in the host country, and little to no relevant professional experience (Barrett, Jones, & McEvoy, 1996). Immigrants, scholars contend, engage in higher levels of entrepreneurial activity because these constraints impede their successful entry into the host country job market. As a part of this discourse, researchers also emphasize the role of social capital in explaining the prevalence and success of immigrant-founded enterprises.

Social capital is a very important element in the business creation process and in the overall success of immigrant founded enterprises. The social networks and relationship ties within co-ethnic communities provide immigrant entrepreneurs with benefits that enhance their ability to successfully start and maintain small businesses (Chrysostome, 2010; Kalnis & Chung, 2006; Ndofor & Priem, 2011). While the extant literature emphasizes the benefits of co-ethnic community social capital for immigrant-founded enterprise development, the literature also suggests, albeit to a much limited extent, that this social capital can also
impose demands on immigrant entrepreneurs. The entrepreneurs’ level of embeddedness as well as the norms and expectations developed within co-ethnic communities are posited as factors that can be detrimental to business success as they may restrict innovation or constrain entrepreneurial drive (Light, Bhachu, & Karageorgis, 1993; Portes, 1998). To this end, despite the fact that the role of social capital in immigrant entrepreneurship has been studied for more than 30 years, the literature is largely focused on the structural and functional dimensions of immigrant community social capital.

The structural component focuses on the structure of social relations in co-ethnic communities while the functional dimension entails the benefits that immigrants can reap from the co-ethnic community social capital. Thus, scholars have largely neglected to study the experiential realm of social capital, which entails how the immigrant entrepreneurs experience the relationships they have with parties that are both internal and external to their co-ethnic community (Torche & Valenzuela, 2011). Within the scope of this understudied experiential realm, we note that scholars have not examined the immigrant entrepreneurs’ motivations for using their co-ethnic communities’ social capital nor their motivations for contributing to the building and maintaining of co-ethnic community social capital. This oversight is relevant in understanding immigrant entrepreneurship because, as community norms and expectations likely impact the activity of those businesses embedded in the community, entrepreneurs’ motivations for abiding by these norms and expectations likely impact their business decisions and therefore businesses performance. This knowledge could be of value, particularly for organizations that provide support for start-ups and ethnic communities, to assist immigrant enterprises in finding the right balance between pursuing business-focused and community-focused strategies for their businesses. Thus, this theoretical article, framed by the research question, "How do immigrant entrepreneurs’ motivations for utilizing and contributing to their co-ethnic communities’ social capital affect their business decisions?" examines the business founders’ motivations for complying with the norms and expectations of their co-ethnic communities, and the possible effect that these motivations for compliance may have on their business decisions and ultimately on their business success. In doing so, this article contributes to both the immigrant entrepreneurship and social capital literatures. Additionally, a better understanding of the motivations that underlie the exchange of resources between immigrant entrepreneurs and their co-ethnic communities may help elucidate factors that contribute to the success or failure of immigrant-founded businesses. Thus, our analysis contributes to a growing interest in understanding the microfoundations of social and organizational behavior (Barney & Felin, 2013; Helfat & Peteraf, 2015).

In order to address the research question, we based the development of our propositions on Portes’ and Sensenbrenner’s (1993) model of social capital. Relative to other models in the extant literature, this model is unique in that it highlights the role of an individual’s motivation in both the utilization of, and contribution to, community-based social capital. Thus, this model serves as the basis for our exploration of the connection between immigrant entrepreneurs’ motivations that underpin their use of and contribution to their co-ethnic community social capital. In the following section, we discuss various facets of social capital that are relevant to our research.

**Social Capital and Immigrant Entrepreneurship**

**Social Capital as a Source of Benefits and Constraints**

Social capital is defined by Portes and Sensenbrenner (1993) as “those expectations for action within a collective that can affect the economic goals and goal-seeking behavior of its members” (pg. 1323). This definition differs from others that are more commonly used in the literature in that it focuses on the social structures that facilitate the individual’s rational pursuits (Portes and Sensenbrenner, 1993). Indeed, in contrast to the assumption that an individual determines a desired economic action, such as the creation of a new business, and utilizes the available social capital to achieve his or her predetermined purpose, Portes and Sensenbrenner’s (1993) definition suggests that the expectations of the collective group of which the individual is a member will influence the economic action pursued by the individual.

While both the individual and collective perspectives of social capital are relevant to the study of entrepreneurship, immigrant entrepreneurs may experience the effects of both forms more strongly relative to host-country entrepreneurs (Perera et al., 2013). Due to the constraints that immigrants experience when arriving in a host country, such as difficulty entering the job market (Aldrich & Waldinger, 1990; Chrysostome, 2010; Perera et al., 2013), language barriers, lack of accepted educational credentials, and limited financial resources (Barrett, Jones, & McEvoy, 1996), immigrant entrepreneurs rely heavily on their co-ethnic community for the resources and support needed to start up a business. The
shared experience of overcoming assimilation challenges leads immigrant communities to develop norms and expectations for its members as well as increased levels of trust and reciprocity (Coleman, 1988). The close ties between individuals of a collective, referenced as bonding social capital (Adler & Kwon, 2002; Burt, 1992; Kwon & Adler, 2014; Totskaya, 2013), makes immigrant entrepreneurs privy to their communities’ resources including those that are relevant to the creation of a new business. These resources include access to capital, business opportunities, markets, and low-cost labor (Light, Bhachu, & Karageorgis, 1993; Portes, 1998). Indeed, many empirical studies such as those in New York’s Chinatown (Zhou, 1992), Miami’s Little Havana (Perez, 1992; Portes, 1987; Portes & Stepick, 1993), and Los Angeles’ Koreatown (Light and Bonacich, 1991; Nee, Sanders, & Sernau, 1994) have indicated the value of co-ethnic community social capital in business creation.

However, despite the benefits acquired, immigrant entrepreneurs embedded within their co-ethnic communities may face obligations and social norms within immigrant groups that may limit their efforts to access distant networks and build new relationships. The connections that individuals of one collective may form with those of another, referenced as bridging social capital (Adler & Kwon, 2002; Burt, 1992; Totskaya, 2013), are important in that they allow individuals to access various resources including information. Thus, immigrant entrepreneurs, embedded in communities with norms that counter the creating of connections to those beyond their co-ethnic community, may have limited access to new ideas from “outside” their immigrant network (Light, Bhachu, & Karageorgis, 1993), thus limiting their ability to develop their businesses beyond their communities or consumer segments. Therefore, although the social capital available through a co-ethnic community can be advantageous in the start-up phase of immigrant enterprises, it may eventually limit the ability of entrepreneurs to adapt and expand their businesses into new markets.

In sum, while immigrant entrepreneurs may benefit from the collective elements of social capital derived from their co-ethnic communities, it may also impose expectations that may constrain these individuals’ actions. While this community-based social capital provides access to resources, the norms and obligations may curtail entrepreneurs’ desire to form connections outside of the co-ethnic community which, in turn, may restrict opportunities for business growth and expansion to new markets. However, other factors besides co-ethnic community-derived resources are important in the success of immigrant-founded businesses. These include entrepreneurs’ motivations, their beliefs on to what extent they should contribute to their co-ethnic community social capital, as well their actual contributions.

**Balancing Community Commitments and Self-interest**

As noted in the previous section, the benefits extended and the constraints imposed by co-ethnic communities on immigrant entrepreneurs are moderated by the entrepreneurs’ motivations and perceptions of the role they play in maintaining the social capital of their co-ethnic community. To this end, Fukuyama (1986) discussed how individuals who are highly embedded in their communities have to balance their self-interests with those of their groups. Beugelsdijk & Smulders (2003), in turn, found that participants’ degree of materialism affected whether or not they were willing to reach beyond their networks to form weak ties with those of other groups. Materialistic individuals engaged in socializing that led to direct benefits but those that were less materialistic tended to become embedded in social structures that did not yield direct advantages (Beugelsdijk & Smulders, 2003). Thus, despite being well embedded in a co-community with strong norms, based upon their differing motivations, it is conceivable that immigrant entrepreneurs may either expand beyond their communities and form weak ties for strategic purposes or choose to remain with the co-ethnic community and support community social capital.

Consistent with this idea, Fernandez and Nichols (2002) found that individuals could simultaneously maintain bonding ties within their co-ethnic communities while developing bridging ties with other groups. However, due to various issues such as segregation by ethnicity and social status in neighborhoods, there must be more systematic opportunities for individuals of different ethnic groups to form bridging ties. It is possible that entrepreneurs who take advantage of community and government organizations that foster entrepreneurship may be better able to establish weak ties beyond the immigrant community. However, their willingness to participate in such programs may be influenced by the degree to which such external resources are considered acceptable by the norms of the community.

**Motivations and Social Capital**

As indicated above, the success or failure of immigrant-founded enterprises and the role of social capital in such outcomes is not solely dependent on whether the entrepreneurs have developed bonding ties with their ethnic community members and abide...
by the community norms of reciprocity and values. Similarly, nor is it dependent on the entrepreneurs’ taking unfair advantage of their community’s social capital. Indeed, how social capital is used, and the impact that this may have on the business as well as the community is also determined by the way in which the entrepreneur experiences social relations in the co-ethnic community as these experiences motivates the individual’s decisions to use and contribute to the ethnic community’s social capital in the business creation process (Torche & Valenzuela, 2011). Individuals’ motivations will influence their expectations for exchange of resources based on social interactions (Portes & Sensenbrenner, 1993; Shoji, Haskins, Rangel, & Sorensen, 2014). We contend that these motivations will influence the business decisions undertaken by immigrant entrepreneurs that will ultimately affect business growth and success. In the following section, we discuss the immigrant entrepreneurs’ motivations for exchanging resources with their co-ethnic communities and the implications of this exchange for business development.

Immigrant Entrepreneurs’ Motivations for Resource Exchange

Social capital is only available when individuals or members of a community are willing to make community resources, often at a lower or indirect cost, available to others (Etzioni, 2001; Kwon & Adler, 2014; Torche & Valenzuela, 2011). This motivation to share resources results from personal or collective efforts to develop social relations that are available in the short and long term to the members of such communities (Labrianidis & Sykas, 2013). In their landmark work, Portes and Sensenbrenner (1993) posit two underlying motivations for individuals to make collective social capital benefits available to others: principled motivation and instrumental motivation.

The term principled motivation refers to one’s motivation to act due to a sense that it is the right thing to do (Torche & Valenzuela, 2011). Also known as altruistic motivation, principled motivation, leads to behaviors that benefit others, are voluntary, are intentionally performed, are perceived as the reward itself, and are performed without the expectation of any kind of external compensation or reward (e.g., Bar-Tal, 1986; Krebs, 1970; Leeds, 1963; Torche & Valenzuela, 2011). Principled motivation is guided by values learned through socialization or through the sense of belonging to a group. Thus, it can lead to group-oriented supportive behaviors as principled motivations are grounded in the internalization of values and norms of behavior that are shared by groups or communities. In contrast, instrumental motivations are those that motivate people to act because doing so would lead to tangible outcomes or rewards (Barbuto & Scholl, 1998). This type of motivation is grounded on self-interest and is supported by the norm of reciprocity (Torche & Valenzuela, 2011). Reciprocity is defined as social interaction in which a gift is given, received, and returned (Mauss, 1967). Thus, individuals make their resources available to others based on the assumption that they will be reciprocated in some form in the future. The knowledge that repayment will occur is based on the level of knowledge of one another, and the development of trust between the giver and the recipient (Torche & Valenzuela, 2011). Reciprocity exchanges differ from purely economic exchanges in that the repayment time and form is not pre-determined and may indeed assume a different form from what was initially offered. As in the case of principled motivations, instrumental motivations can also influence the creation of social capital for ethnic communities.

Both principled and instrumental motivations are relevant for immigrant entrepreneurs since these individuals often experience a strong sense of community, created as result of shared experiences and challenges. Thus, this may lead to the perception that potential entrepreneurs can best access the resources necessary for business creation from fellow immigrants. The prominence of social capital within immigrant communities may be explained by fact that the immigrants are foreigners in the host country. It also suggests that these communities experience various sources of social capital that are unique to these groups (Portes & Sensenbrenner, 1993). In the following section, we discuss the various sources of social capital, its relationship with principled and instrumental motivations, and its impact on immigrant-founded businesses.

Social capital: Motivation and Impact on Immigrant Businesses

According to Kwon & Adler (2014, p. 415), the literature points at “…norms, values, trust and community membership as the key sources of motivation for social capital.” Portes (1998) suggests that four sources of social capital exist: value introjection, reciprocity exchanges, bounded solidarity, and enforceable trust. Bounded solidarity and enforceable trust are relevant for groups that have limited access to other communities or where community members have limited opportunities to exit a community. Under such circumstances, the community has the ability to enforce consequences upon those who do not comply with expected norms of behavior. Portes & Sensenbrenner (1993) argue that principled and instrumental motivations lead to different sources of social capital. These sources of social cap-
ional, whether bounded solidarity or enforceable trust, may lead to positive and negative consequences for immigrant-founded businesses.

Social Capital and Its Positive Effects on Immigrant-Founded Businesses

Principled motivations influence the creation of social capital for certain groups that share unique situations or conditions because the sense of a shared reality creates a feeling of solidarity (Portes & Sensenbrenner, 1993). This source of social capital is called bounded solidarity. Bounded solidarity as a source of social capital is available to members of a group that are affected by shared events that occur at a specific time and place. It is distinct from other sources of social capital in that though the level of enforceability is not significant, the individuals within the group behave a certain way due to perceived moral obligations (Portes & Sensenbrenner, 1993). The group members’ actions are underpinned by principled motivations as a sense of membership and shared hardship motivates individuals to support each other and share resources for the benefit of the group without any expectations of return (Levanon, 2014). Thus, a sense of community is generated in situations in which shared experiences and challenges are present. In other words, what binds these immigrant groups together are difficulties within the host country that most members of the group face or have faced at some point. However, these struggles also create a community with a shared identity that seeks to support and take care of itself. Added to the shared hardships, the similarities in culture, language, and ethnic pride create a togetherness that would not have otherwise existed (McGrath, 2010; Portes & Sensenbrenner, 1993). As a result, these strong bonds within ethnic communities can lead to the creation of social capital that stems from bounded solidarity. Such situations where the immigrant group members are highly embedded facilitate and support the creation of ethnic businesses, especially those that provide goods and services to their ethnic community.

The ethnic group to which the immigrant entrepreneur belongs can provide a market for these goods, reliable labor at low cost, as well as potential start-up capital (Portes & Sensenbrenner, 1993). If immigrant entrepreneurs recruit employees through the co-ethnic community, they are not only likely to maintain low labor costs through offering other benefits such as training, apprenticeship, experience, and even assistance in starting their own business (Bian, 1997; Lee, 1992; Ooka, 2001), but they can also ensure a right job for the person fit by acquiring information about the prospective employees from others within the ethnic community (Ooka, 2001). All these forms of support are often necessary for the success of a new business venture, especially in a new environment that may be unfamiliar and perhaps somewhat hostile. By engaging in exchanges with their co-ethnic community and benefitting through the community-based social capital, entrepreneurs access resources that allow them to be successful in the business world. These successes are not just beneficial to the entrepreneur, but to the entire co-ethnic community because a successful business owner gives back to the community through financial resources, goods, services, jobs, and other resources (McGrath, 2010; Portes, 1998). When immigrant entrepreneurs experience bounded solidarity with their co-ethnic community, they are more likely to make their business resources available to other community members therefore contributing to the maintenance of the collective social capital of their community. Such immigrant entrepreneurs have the principled motivation to “give back” to their community without any expectation of return or benefit to themselves or their business.

Proposition 1: Business founders with principled motivations will benefit from their co-ethnic community social capital and will also extend benefits to their co-ethnic community due to the presence of bounded solidarity.

Enforceable trust is a source of social capital that is derived from instrumental motivations (Portes & Sensenbrenner, 1993). Enforceable trust, as the name suggests, is built on the assumption that giver and receiver are trustworthy. This assumption of trust is based on a system in which group members share norms and values that regulate granting and receiving trust. Thus, trust emerges when communities have norms and values that create the expectation that members will meet the behaviors expected by the group (Fukuyama, 1986; Levanon, 2014). In contrast to reciprocity exchanges, enforceable trust as a source of social capital emerges as a result of a sense of community built out of a shared reality. However, this source of social capital is underpinned by an awareness of the possible consequences of non-compliance with the norms and expectations established by the community. In other words, resources are shared due to the anticipation of rewards or punishments. As such, the defining factor of enforceable trust is the ability of the community to create sanctions within the group itself such that people are willing to adhere to group norms and expectations in anticipation of benefits associated with being in good standing within the group (McGrath, 2010; Portes & Sensenbrenner, 1993).
In this situation, individuals expect to be reciprocated in some form for the resources they make available to others, however this expectation of reciprocation is not based on knowledge of the receiver or the development of trust between the parties involved but on the fact that both individuals are members of a social structure that oversees their actions (Portes & Sensenbrenner, 1993; Torche & Valenzuela, 2011). This source of social capital is also distinct from reciprocity exchanges in that the expectation of a return is not necessarily from the receiver but from the community itself in the form of increase in status or approval. Thus, in an informal capacity, the community regulates the exchanges, ensures that reciprocation will occur, and that any debts will be repaid to and by the collective in some form (Portes & Sensenbrenner, 1993).

As with bounded solidarity, enforceable trust bestows many benefits to the immigrant entrepreneur. The inherent trust among these groups (due to enforceability) alleviates the necessity of formal contracts, thus creating more malleability within economic transactions. Group membership may give individuals special access to the economic resources of others within the group. Therefore, a positive effect of enforceable trust is that group members can unconditionally expect that punishments will occur in response to deviance from accepted group norms and values. If a community member violates the group norms, he or she will most likely face public consequences in terms of reduced or eliminated group benefits, and even be ostracized from the group. While such consequences do not appear to be positive, being aware of the consequences as well as of their severity, encourages individuals to engage in behaviors that are consistent with group expectations (Portes & Sensenbrenner, 1993).

Unlike bounded solidarity, immigrant entrepreneurs with instrumental motivations are likely to engage in resource exchange with other community members or the community as a whole if such exchanges will benefit themselves and their business in some way. If an immigrant entrepreneur with instrumental motivation sees a co-ethnic community member in possession of, or with access to, something he or she finds of use, then the entrepreneur will seek to exchange resources in order to access this commodity. However, if it is not in the entrepreneur’s best interest to engage in an exchange, he or she will choose not to do so because the individual does not feel a sense of obligation toward the co-ethnic group members and the community.

The most typical example of enforceable trust is the character loans. In such cases, bankers would grant loans to recently arrived immigrants who often have nothing to offer as proof of reliability to lend-ers. However, co-ethnic community bankers may grant loans to these immigrants not because they knew the borrowers personally or because the borrowers had the means to prove their reliability but because the bankers trust that they would repay due to the consequences they might face from the community if they were to renege on their loan commitments. Character loans are therefore supported by the ability of the community to sanction, largely in form of exclusion from the community, those who do not pay, rather than from a sense of loyalty (Portes & Sensenbrenner, 1993).

Thus, an immigrant entrepreneur with instrumental motivation to engage in the exchange of resources with the community will primarily focus on developing a successful business as opposed to benefiting his or her co-ethnic community. Accordingly, an entrepreneur may choose to withhold benefits from his or her co-community. Indeed, if an immigrant entrepreneur can develop a more successful business by targeting markets and other constituen-cies outside of the ethnic community, he or she will choose to garner resources from the dominant market instead of from the co-ethnic community. This weakens the power of the co-ethnic community and lessens the amount of available resources for use within the group (Portes & Sensenbrenner, 1993).

**Proposition 2: Business founders with instrumental motivations will exchange resources with, and within, their co-ethnic community because this exchange will benefit their business and advance them economically through enforceable trust.**

**Social Capital and Its Negative Effects on Immigrant-Founded Businesses**

Portes & Sensenbrenner (1993) identified three negative effects of social capital: downward leveling norms, excessive claims on group members, and restrictions on individual freedoms and access to opportunities. Downward leveling norms emerge when the shared experiences of hardships and challenges associated with integrating into the dominant culture of the host country dominate the overall narrative of the co-ethnic community. As a result, the sense of solidarity developed is based on an opposition to the mainstream culture. Under such conditions, immigrant entrepreneurs that experience success beyond the co-ethnic community are perceived as being contrary to the self-definition of the co-ethnic community as being “outsiders.” These immigrant entrepreneurs are thus perceived as weakening group cohesion because, according to the collective narrative, success should not be possible outside of the co-ethnic community. This may pressure individuals to remain within their co-ethnic groups and in the same situation as everyone
Excessive claims on group members may appear in ethnic communities due to the heightened sense of community that allows for less diligent community members to seek and enforce demands on immigrant entrepreneurs. Successful immigrant entrepreneurs are frequently plagued by co-ethnics seeking employment or loans. The basis for this pressure is the belief that one must contribute to the good of the group. Thus, a successful group member is expected to provide capital (e.g., social, financial) to fellow group members. This results in added complications for the successful immigrant entrepreneur even to the point where any financial gain made may be dispersed (Portes, 1998; Portes & Sensenbrenner, 1993).

Restrictions on freedoms and access to opportunities (outside contacts) refer to the constraints that an ethnic community may impose on members with respect to their ability to act independently and be receptive to the mainstream culture. Granovetter (1985) noted that interpersonal connections that extend beyond rationality influence the behavior of both firms and individuals. Thus, the behaviors of individuals who are embedded within their networks may be influenced by the expectations of others within their network thereby constraining individual action. As a consequence, the immigrant entrepreneur may not develop social ties or bonds with members of the dominant market and will be unlikely to cater to ‘outsiders’ (Perera et al., 2013; Portes, 1998). This may also mean that the immigrant entrepreneur is unlikely to expand beyond his or her co-ethnic community and will also miss new ideas and innovative techniques that are prevalent outside of their closed network (Perera et al., 2013). This leads to the potential loss of revenue, loyal patrons, and resources (Li, 2004; Portes, 1998). Indeed, societies with strong social capital exhibit a powerful norm of selflessness that simultaneously allows for developing strong communities with limitations on actions that benefit the individual self over the community (Coleman, 1988). Therefore, growth into new markets might be limited by norms and obligations present within the entrepreneurs’ co-ethnic community.

While the extant research on the negative effects of social capital has focused on immigrant community norms, values and expectations, entrepreneurs’ motivations, which influence how they perceive their role within their co-ethnic community, may mediate the negative effects of co-ethnic community social capital by determining to what extent these individuals are willing to accept these negative effects as a consequence. For example, as noted earlier, highly embedded individuals have to balance their self-interests with the group’s interests (Fukuyama, 1986). The stronger the social control of the community, the greater the restriction on the individual entrepreneur’s personal freedom (Portes, 1998). Thus, it is conceivable that immigrant entrepreneurs who are driven by instrumental motivations and who have opportunistic world-views may choose to expand their businesses beyond their immigrant communities thereby limiting the communities’ ability to enforce negative effects. By contrast individuals with principled motivations are likely to be more embedded within their co-ethnic communities thereby limiting their ability to resist the negative effect that the social capital of their co-ethnic community may impose on them.

**Proposition 3:** Business founders with instrumental motivations are less likely to suffer the negative effects of social capital as they will seek other sources for advancement when exchanges with their co-ethnic communities do not provide the sought-after benefits.

**Proposition 4:** Business founders with principled motivations are more likely to suffer the negative effects of social capital due to abiding by the demands imposed by the co-ethnic community.

In sum, we propose that co-ethnic social capital allows immigrant entrepreneurs to enjoy various benefits while simultaneously imposing certain costs. The entrepreneur, as a member of the co-ethnic community, is influenced by the community’s norms and expectations. However, there is also a give and take between the entrepreneur and the community with respect to social capital. This exchange is influenced by the entrepreneur’s motivations—whether principled or instrumental. To what extent is the entrepreneur willing to “pay” or absorb the cost of access to co-ethnic community social capital? What benefits stem from his or her business, and to what extent will the entrepreneur make these benefits available to other co-ethnic community members? These decisions are influenced by the entrepreneur’s motivations, which ultimately also influence the entrepreneur’s decisions about his or her business. The bottom line is that the entrepreneur’s motivations moderate decisions to use and to contribute to the co-ethnic community’s social capital as well as the decisions pertaining to how best to develop and expand the business. Figures 1 and 2 illustrate the previously stated propositions as well as the moderating role that entrepreneurs’ motivations may play on the creation and sustenance of an ethnic community’s social capital.
Conclusion
The extant immigrant entrepreneurship research has consistently regarded social capital to be highly beneficial to immigrant entrepreneurs and their businesses. Although limited in empirical evidence, scholars have also acknowledged the limiting effects of social capital on immigrant enterprises.

While the research has focused on how the resources, norms, and expectations of the immigrant communities in which entrepreneurs are embedded impact both the co-ethnic community and the immigrant businesses, to date no research has studied this phenomenon from the entrepreneurs’ perspective. Little research has focused on how the immigrant entrepreneurs experience social relationships within their co-ethnic communities and how they respond to such social interactions. In response to this gap in the literature, we posit that the immigrant entrepreneur’s
motivations play an important role in determining how these individuals use their co-ethnic communities’ social capital, how they contribute to the maintenance of community social capital, and the positive and negative outcomes the co-ethnic communities’ social capital on the immigrant-founded business.

We based the development of our propositions on the model developed by Portes and Sensenbrenner (1993) that explains the sources and types of social capital that exist in immigrant communities. We argued that founders with principled motivations are likely to consider the good of their co-ethnic community and abide by their norms and expectations when making business decisions. As a result, these businesses may enjoy long-term success within the ethnic community but may experience the negative outcomes and effects of social capital more so than the businesses of founders with instrumental motivations. In contrast, founders with instrumental motivations will make decisions that consider the good of their businesses over the good of their co-ethnic community. These entrepreneurs may choose to deviate from the norms and expectations of their co-ethnic communities if compliance does not benefit the businesses. As a result, while these businesses may enjoy the benefits of the co-ethnic community’s social capital, they will not experience the negative outcomes and effects of social capital to the same degree as the businesses of founders with principled motivations. The formerly mentioned entrepreneurs may break away from the community, and the associated demands and expectations, when the costs of co-ethnic community social capital outweigh the benefits.

This article contributes to the immigrant entrepreneurship literature by examining entrepreneurs’ motivations for capitalizing on, and contributing to, co-ethnic community social capital, and the influence of these motivations on business success. The article also contributes more broadly to the social capital and entrepreneurship by examining a variable that is often not considered in the relationship between these two areas: individual’s motivations. Specifically, we argue that the immigrant entrepreneurs’ motivations, whether instrumental or principled, play an important role on several fronts. First, it partially determines how immigrant entrepreneurs use the social capital extended by their co-ethnic communities to explore opportunities to develop their business; second, it plays a role in how immigrant entrepreneurs exploit their business opportunities to contribute to the maintenance of the co-ethnic community social capital; third, it influences whether the co-ethnic community social capital has a positive or negative effect on the immigrant entrepreneur’s businesses. Thus, besides expanding our understanding of immigrant-founded enterprises in general, this article posits various connections between the extent to which immigrant entrepreneurs utilize and contribute to the co-ethnic community social capital, their motivations for doing so, and the effect that these factors have on the businesses owned by these individuals.

Limitations and Implications for Research and Practice

While this article offers theoretically developed propositions, empirical work is necessary in order to evaluate these propositions and to empirically determine the role that the immigrant entrepreneurs’ motivations play both in business success and in the ability of the co-ethnic communities to provide support and resources to other members. Understanding the immigrant entrepreneurs’ motivations may inform organizations that support these individuals in better serving their needs. Being aware of the entrepreneurs’ motivations behind the use of co-ethnic community social capital allows the support organizations to provide proper tools and resources needed in order for the immigrant to succeed. For example, if an immigrant entrepreneur has principled motivations, providing the individual with resources and networks outside of the co-ethnic community can greatly benefit the entrepreneur and the business. Conversely, immigrant entrepreneurs with instrumental motivations may require less support from organizations to expand to new markets since they have a greater motivation to break out from their co-ethnic community and build networks outside it to support such efforts. However, organizations focused on serving ethnic communities should be encouraged to develop and maintain connections with this type of immigrant entrepreneurs and be able to make the business case for contributing to their co-ethnic community.

Understanding that immigrant entrepreneurs may have different motivations to use and contribute to their ethnic communities’ social capital should encourage support organizations to provide information and resources as they relate to business planning and decision making so that both, principled and instrumentally motivated immigrant entrepreneurs, can develop business strategies that benefit both their business and contribute to the maintenance of the ethnic communities’ social capital. The latter is especially important because co-ethnic community social capital is crucial in supporting other immigrants that may be engaged in the process of creating new businesses.
References


**About the Authors**

**CLAUDIA GOMEZ** (cgomez5@kent.edu) is Assistant Professor of Management at Kent State University Stark Campus. Her research interests are in entrepreneurship and small business, particularly the role of social capital in entrepreneurship and early stages of business. Professor Gomez teaches management courses in leadership, organizations behavior, and human resources.

**B. YASANTHI PERERA** (bperera@brocku.ca) is Assistant Professor of Business Ethics at Brock University. She studies consumption and disposition patterns, sustainability, and social entrepreneurship. Professor Perera has published in the *Journal of Consumer Behaviour*, and *Journal of Marketing Theory and Practice* among others. Her teaching areas include business ethics and organizational behavior.

**JUDITH Y. WEISINGER** (jweisinger@mills.edu) is Associate Professor of Business at the Lorry I. Lokey School of Business & Public Policy at Mills College. She researches culture, diversity and inclusion, and social capital in organizations. She has published in *Human Resource Management, Journal of Management Inquiry, Irish Journal of Management* among others. She teaches leadership and ethics, organizational behavior, and human resources management.
DAVID H. TOBEY (dhtobey@vivoworks.com) is an independent researcher and adjunct professor. He is also the managing director of Dogs-to-Stars Enterprises, a firm incubator of paradigm-shifting entrepreneurial opportunities. He is a serial entrepreneur with executive management, venture, and IPO financing experience.

TAYLOR ZINSMEISTER-TEETERS (taylorzt@gwu.edu) is a Master's student in forensic psychology at George Washington University. She plans to obtain a PhD in the same field. Her interests are on serial killers and terrorists and why they commit heinous acts. She is also interested in different treatments for individuals with PTSD.
The Differing Impact of Household Income on Firm Emergence by Heterogeneous Start-up Configuration

Enrique Nuñez

Using the Panel Study of Entrepreneurial Dynamics II dataset, we examine the role that household income plays in the emergence of consumer-oriented start-ups by individual (solo), family-based (family), and non-family based start-ups (team). In particular, we address the research question: Does household income impact firm emergence, and if so, is emergence impacted differently based on start-up configuration?

Our results indicate that household income does have a significant impact on average firm emergence, as well as on emergence growth rates for solo and family firms, playing an especially significant role for family firms. Furthermore, we found that household income is not a significant predictor of start-up activity completion for teams. Results from our study reinforce the extant literature on the benefits of starting a firm with teams, and suggests that these enterprise types may provide a more stable platform on which to launch a start-up. Implications of these findings and opportunities for future research are offered.

Keywords: start-up process, entrepreneurship, teams, family business, financial resources

During the start-up period, individual and household financial resources can be a key factor in a new entrepreneurial venture’s resource base and is commonly a source of start-up capital (e.g., Evans & Jovanovic, 1989; Kim, Aldrich, & Keister, 2004). Beyond the immediate family, research suggests that one of the most meaningful sources of start-up capital for launching the venture are funds borrowed from family and friends (Van Osnabrugge & Robinson, 2000). Still, the impact of financial resources in general and household income in particular, on firm emergence remains unclear. Entrepreneurs employ a variety of techniques to minimize capital requirements in launching a firm (e.g., Winborg, 2009), the use of which may help to explain why most start-ups are founded with small amounts of capital (Bhide, 2000). Other studies have demonstrated that financial resources may be substituted to some extent with education in launching a firm (Demiralp & Francis, 2013). Consequently, situational factors impact the degree to which personal financial resources aid prospective entrepreneurs in the earliest stages of firm development.

In this article, we build on the existing research by investigating whether household income benefits the completion of start-up activities differently for heterogeneous start-up configurations. In particular, we ask the following question: Does household income impact firm emergence, and if so, is emergence impacted differently based on start-up configuration? To answer this question, we develop a series of hypotheses and construct a multi-level longitudinal model to describe the impact of household income on firm emergence over time. The answer to our research question is of principal interest to practitioners, policy makers, and researchers alike. For nascent entrepreneurs, our study offers insight into the types of start-up configurations that are most abetted by personal resources as they travel on their entrepreneurial journeys. From a policy perspective, an improved understanding of the impact of household income on the process through which firms emerge would help policy makers to better develop constructive regulatory approaches toward entrepreneurship, which has long been acknowledged as a significant contributor to innovation, job creation, and economic growth. For entrepreneurship researchers, our study helps to contribute to an increasing scholarly interest in research that lies at the juncture of literature that explores antecedents to firm emergence and that which examines the influence of heterogeneous start-up configurations.

We begin by developing a theoretical framework for our propositions and establishing a foundation for the importance of access to financial resources to launching a firm. As we proceed, we present literature that reaffirms the necessity of resources, but argues that financial requirements can be abridged. We end this presentation by offering theoretical support for our central proposition; that is, household income will have a varying impact on firm emergence, based on start-up configuration, and pose four hypotheses. The section entitled Methodology begins with an explanation of the sampling procedure utilized in this study, and moves onto a discussion of the case selection process. We then review the means by which we manipulated the Panel Study of Entrepreneurial Dynamics II (PSED II) subsample to accommodate our examination of the impact of household income on
firm emergence. We utilize the Katz and Gartner (1988) model as the theoretical framework for classifying the start-up activities nascent entrepreneurs initiated and completed. As we are interested in the speed with which heterogeneous firms can complete a variety of start-up activities, our approach stresses the accomplishment of an array of start-up activities, and may better indicate the robustness of a new firm than any one measure (Carter, Gartner, & Reynolds, 2004). Subsection Data Manipulations offers more details on our use of the Katz and Gartner model. This section concludes with a discussion on the analytical techniques performed in the study. The section entitled Results offers a detailed explanation of our outcomes, and in the section entitled Discussion, we evaluate and interpret these results with respect to the original research question. In this section, we also consider the study’s limitations and opportunities for future research.

Theoretical Framework and Hypotheses Development

All prospective company founders commence their entrepreneurial journey with an initial resource base that becomes the underpinning for starting the business (Brush, Greene, & Hart, 2001). During the start-up process, the founder’s experience, education, professional network, and crucially, access to financing, all help to transform an initial idea into a commercial enterprise. The literature has long noted the significance of access to capital to launching a firm; and once started, to the start-up’s growth, performance, and ultimate survival. For example, research indicates that financial capital invested during the start-up period significantly impacts performance (e.g., Lee, Lee, & Pennings, 2001). A study that sought to forecast the impact of human and financial resources invested at start-up on firms’ failure, survival, or growth found that the amount of initial capital influenced both the survival and growth of new ventures (Cooper, Gimeno-Gascon, & Woo, 1994). Research that evaluated how differences in founder characteristics influenced the start-up’s survival found that survival is positively related to the amount of financial capital invested (Boden & Nucci, 2000).

As shown in Figure 1, which illustrates the mean number of start-up activities completed by household income, our own preliminary results appear to reflect these findings. The graph makes clear that firms whose founders have dissimilar household incomes complete start-up activities at different rates, with those with higher incomes generally completing more activities. When viewed strictly from the perspective of household income, we observe that across income scales, firms whose founders have higher household incomes are able to complete a

![Figure 1. Average Firm Emergence by Household Income](https://digitalcommons.sacredheart.edu/neje/vol18/iss2/7)
greater number of start-up activities initially, although household income’s impact on individual firm’s emergence growth trajectory revealed temporal variation over the study period, as demonstrated by the precipitous drop in the growth in completion of start-up activities for two groups ($30,000–$49,000 and $100,000–$149,000) between the second and third observation periods. Nevertheless, as we will demonstrate, the influence of household income on firm emergence is more nuanced when viewed through the spectrum of a more finely grained analysis.

Income can also become a meaningful impetus for start-up growth when the intention is to replace employment income. Cressy (1996) found that firms run by founders with higher pre-start-up incomes grow faster than other start-ups. He reasoned that the objective of the higher income founders was to generate sufficient income to restore their previous employment salary, and consequently represented a meaningful incentive for growth. Another study investigating the transition to entrepreneurship among British workers who had received windfall gains found that wealthier individuals were more likely to become entrepreneurs (Georgellis, Sessions, & Tsitsianis, 2005). Founders may also productively leverage personal assets to secure external financing. A study that investigated credit rationing found that entrepreneurs who utilized personal capital for their start-ups were more likely to receive credit, and that earning capacity lessened the probability of being completely denied credit by a financial institution (Blumberg & Letterie, 2008).

Others have suggested that nascent entrepreneurs may face liquidity constraints in starting a new firm, as founders must accrue an asset base before launching a business (Evans & Leighton, 1989). Lacking the ability to borrow capital to grow the start-up to an efficient scale, the literature indicates that wealthier founders should enjoy superior prospects than their humbler counterparts. A study that utilized the PSED II dataset and investigated the start-up funding sources of more than 1,200 nascent entrepreneurs seems to confirm this perspective, finding that 57 percent of start-up financing came directly from founders’ personal contributions, and that those with higher levels of net worth were considerably more likely to obtain external funding (Gartner, Frid, & Alexander, 2012). Yet, the impact of personal financial resources on firm emergence may be more nuanced. When examined more closely, the importance of ready access to bountiful capital appears more complex than the previously noted research may suggest. In the following sections, we will demonstrate that the need for financial resources during the start-up period may be reduced, and that family firms offer unique characteristics that allow these types of enterprises to respond to challenges in ways that are not available to other start-up configurations, while teams’ professional networks allow them to overcome business formation obstacles.

**Resources Are Necessary, but Requirements Can Be Abridged**

Nascent entrepreneurs frequently employ a variety of techniques, collectively known as “bootstrapping,” to improve cash flow while minimizing a venture’s capital requirements and as previously noted, often make use of personal resources as an alternative to outside debt and equity financing (Winborg & Landstrom, 2001). The use of bootstrapping practices may help to explain why most firms are funded with negligible amounts of capital. According to Bhide, 30 percent of the more than 800,000 businesses started each year required less than $5,000, and a slightly larger percentage needed more than $50,000 (Bhide, 2000). Moreover, for at least some entrepreneurs, bootstrapping appears to be a savvy financial strategy that can lead to firm growth, rather than being used as a tactic of last resort. An investigation into the role of external financing in influencing new technology-based firms’ size found that bank debt-financed firms are not larger than firms created through founders’ personal savings (Colombo & Grilli, 2005).

In contrast to the previously noted research, another investigation indicates that wealth does not substantially impact the ability of prospective entrepreneurs with at least average levels of education and experience to launch a firm (Demiralp & Francis, 2013). Moreover, for all but the most affluent, wealth is not a significant indicator of starting a business, as the initial capital investments required to launch a firm are marginal and many small businesses obtain debt-financing. Research suggests that while founders with generous access to capital may be more likely to become involved in start-up activities, the “affluence effects” only impact the likelihood of starting a firm for the top 5 percent of the wealth distribution (Hurst & Lusardi, 2004). Others have observed a positive relationship between a founder’s prior wealth and start-up size and profitability in the first three wealth quartiles, and have taken note that profitability drops markedly for very wealthy founders (Hvide & Moen, 2010). Therefore, as others have noted, capital may not be a barrier to starting a firm.

Notwithstanding the literature regarding the role that access to generous amounts of capital plays in the start-up, growth, and survival of a firm, an issue remains: do greater personal financial resources facilitate the completion of start-up activities differently for diverse types of founders? This issue is
substantive, as the composition of the start-up team (or in the case of the solo entrepreneur, no team at all) is a direct determinant of the venture’s starting resource base. Moreover, the literature suggests that the dynamics at play within different start-up configurations may play a role in firm emergence, and studies have observed significant variability in firm emergence for heterogeneous enterprise types, but have not empirically tested the underlying causal variables (Nuñez, 2015). Consequently, our research question considers the varying role that financial resources, in this case, household income plays in firm emergence for different types of enterprises: Does household income impact firm emergence, and if so, is emergence impacted differently based on start-up configuration?

**The Differing Impact of Financial Constraints on Heterogeneous Start-up Configurations**

**Family Firms’ Mutually Shared Personal and Professional Values.** The dynamics of family firms allow these types of enterprises to respond to challenges in ways that are not available to other types of firms. Researchers have coined the term “financial intermingling” and have noted the flexibility with which family firms may utilize resources. That is, if a problem requiring resources occurred with the family or the associated business, assets from the unaffected area may be utilized in response (Stafford, Duncan, Danes, & Winter, 1999). An investigation that compared financial intermingling behaviors of couples who share a personal relationship and a venture found that business property was often used to secure loans to meet family needs, while family assets and household income were used for business needs. Thus, family dynamics enabled financial intermingling and allowed the parties to take a longer-term view of success, which ultimately led to increased business profits (Muske, Fitzgerald, Haynes, Black, Chin, MacClure, & Mashburn, 2009).

Another manner with which to confront the challenges presented during the start-up period is by maintaining a flexible approach to work and family demands. Family firms present team members additional flexibility that may not be available to their non-family counterparts in the form of malleable allocation of responsibilities, adaptable childcare arrangements, and amenable work schedules, thus, facilitating the creation of the types of accommodating work roles and structures (Poza & Messer, 2001), which helps to reduce the conflict between personal and professional roles (Pleck, Staines, & Lang, 1980). Such flexibility may be particularly important for female entrepreneurs starting families, as having young children strongly influences women’s decision to become self-employed (Boden, 1996; Carr, 1996), and starting a business may offer the opportunity for an enhanced professional and personal equilibrium (Powell & Greenhaus, 2010). In another study investigating the decision to launch a business under financial constraints where individuals must divide their time between business ventures and wage employment found that part-time entrepreneurs are not affected by financial constraints (Petrova, 2012). Thus the role of household income within family firms is complex, allowing for malleable work arrangements that may to some extent mitigate financial constraints.

Although not fully manifested during the firm’s start-up period, families may also cultivate an intangible resource that is inaccessible to non-family firms in the form of the “interaction between the family, its individual members, and the business,” which may help to establish the firm’s continuity across generations (Habbershon & Williams, 1999). This intangible resource, coined “familiness,” coupled with the greater levels of trust, altruism, a feeling of stewardship, mutually shared personal and professional values, and understandings may be a source of competitive advantage over non-family firms (Barney & Hansen, 1994; Cabrera-Suarez, De Saatz Perez, Garcia-Almeida, 2001; Davis, Allen, & Hayes, 2010; Habbershon, Williams, & MacMillan, 2003; Pearson, Carr, & Shaw, 2008). Familiness may enable firms to extend limited financial resources during a firm’s start-up period by leveraging personal assets. A recent study noted that while more than 20 percent of nascent entrepreneurs employed family members, nearly a quarter reported depending on at least one unpaid family member (Global Entrepreneurship Monitor, 2012). Other research indicates that family involvement plays a role in assisting new ventures to attain debt financing by leveraging existing family social capital, finding that transgenerational succession intention improves relationships between entrepreneurs and lenders, while family governance helps the venture acquire third-party financing guarantees (Chua, Chrisman, Kellermanns, & Wu, 2011).

**The Strength of Teams’ Diverse Network**

Even among start-up entities with a plurality of founders, non-family teams provide an advantage in the form of the strength and diversity of their professional networks, which founders can tap for help and support with overcoming the challenges encountered during the start-up period. Here again, teams have an advantage as information procured through the heterogeneous network of relationships that is more likely found among non-family firm members provides greater access to different types of knowledge. In contrast, family firms are apt to share common networks and thus, information reaped through family relationships is liable to be...
homogeneous and may be of limited value to nascent entrepreneurs (Granovetter, 1974). Access to heterogeneous sources and types of information to aid in the development of experience is not consequential to nascent entrepreneurs as founders generate additional financing options as they become more aware of opportunities over time. A study examining the motives for using bootstrapping in 120 Swedish start-ups observed that as founders gained experience, they learned more about advantages of bootstrapping, and subsequently changed their actions from emphasizing cost reduction to risk reduction (Winborg, 2009). The type of bootstrapping method employed may also impact performance outcomes. A study examining small businesses’ use of different bootstrapping methods found that firms associated with “private owner-financed” bootstrapping methods rely on resources provided by the founder and family. Firms employing these methods were typically new, fast-growing, and marginally profitable and were found to frequently require additional financing. In contrast, firms utilizing “joint-utilization” bootstrapping methods did not demonstrate a great need for additional financing, and many already have long-term finance from banks. These bootstrapping methods require a large network with which to share assets and coordinate purchases, and thus are more likely utilized by teams. Furthermore, the founders of these firms experience no great difficulties in obtaining additional finance, if necessary (Winborg & Landstrom, 2001).

Larger networks are prone to attract more investors, both formal and informal, yet these types of investors may self-select into groups, which results in shaping the financing mechanisms available to the entrepreneur. A study of the factors influencing the likelihood of attaining external start-up financing across 27 countries found that institutional investors rely on the experience of entrepreneurs in managing start-ups and the quality of investor protection, while informal investors tend to be attracted to the types of products being developed and are more likely to have a social relationship with the entrepreneur (Nofsinger & Wang, 2011). Thus, teams whose founding entrepreneurs often look to their networks for potential recruits, which may offer a larger pool of talent than found within families (Iacobucci & Rosa, 2010; Mosakowski, 1998), would likely attract institutional investors. As team member selection practices within family firms may be influenced by nepotism (Howorth, Rose, Hamilton, & Westhead, 2010), family firms are more likely to attract informal external financing, where social relationships hold sway.

A large, well-developed professional network and the material and emotional resources available through it may also provide a signal to outsiders of the venture’s commercial viability. Research indicates that “social capital,” resources resulting from embeddedness in networks of this type, helps to enhance firm performance by enabling entrepreneurs to draw upon their networks for financing (Batjargal, 2003), knowledge (Birley, 1985), competitiveness (McEvily & Zaheer, 1999), and legitimacy (Stuart, Hoang, & Hybels, 1999). A study of Korean technology start-ups examining the effect of internal capabilities and external networks on firm performance found that partnership-based relationships, such as those with venture capital firms, can have a positive impact on performance by magnifying the effect of capabilities and financial resources, and may act as an indicator to other parties to become involved with the new firm (Lee et al., 2001).

Solo Entrepreneurs’ Idiosyncratic Strengths
The characteristic strengths of individual entrepreneurs, such as creativity, foresight, intuition, and alertness (e.g., Mosakowski, 1998), may not provide benefits with regard to alleviating capital constraints endemic during the firm emergence process. A study examining how the characteristics of a start-up’s assets and founder attributes relate to a new venture’s initial financial structure found that solo start-ups are more likely to be financed with the founder’s personal resources, and those of family and friends (Sanyal & Mann, 2010). Without the larger resource base associated with a plurality of founding members, solo entrepreneurs will likely rely on a personal stock of intangible assets such as expertise and skills that impose financial constraints. With fewer assets to pledge as collateral and to liquidate in cases of default, firms that rely on intangible assets may need to utilize informal means of attaining start-up capital financing, such as personal resources and loans from friends and family (Cassar, 2004).

Even distinctive solo strengths, such as firm ownership and management control, may prove to be drawbacks when financing the start-up. Lacking access to a network of superior expertise and skills than is available to an individual founder (Vesper, 1990), solo entrepreneurs may be at an additional disadvantage with regard to the long-term development of their ventures, as the number of founders within a start-up has been found to contribute to growth (Cooper, Gimeno-Gascon, & Woo, 1994). This is a particularly troublesome issue, as financial capital at the time of firm establishment is among the most significant predictors of growth for start-
ups founded by individual entrepreneurs (Korunka, Kessler, Frank, & Lueger, 2011). Absent the ready-made professional network that comes with a plurality of founding team members, solo entrepreneurs can choose to develop an outside network of advisors, or to resign themselves to utilizing their existing network. Yet, solo entrepreneurs have limited time to dedicate to developing network relationships, and doing so may be counterproductive, as an increase in the strength of a founder’s network of relationships is negatively associated with the accomplishment of founding activities (Kreiser, Patel, & Fiet, 2013).

Choosing to forego the development of a robust external network may mean abandoning the opportunity to acquire the heterogeneous sources and types of information that are most necessary to help grow the firm. Moreover, research demonstrates that “joint-utilization” bootstrapping methods are more important during start-up than during later stages of the firm’s life cycle (Ebben & Johnson, 2006). Deprived of a large network with which to share assets and coordinate purchases, solo entrepreneurs are unlikely to employ such methods.

Devoid of the convenient professional network that is more likely to be found within firms with a plurality of founding members, solo entrepreneurs may instead have to rely on limited information and resources to help grow their firms, which include restricted financing alternatives. Chief among the financing alternatives utilized by the solo entrepreneur will be personal resources. In contrast to team-based start-ups, firm emergence within family firms is also likely to be impaired by a lack of a well-developed professional network. Family firms are more likely to have homogeneous networks that generate information of limited value to developing additional financing options. They are also more likely to attract informal external financing, thus further limiting their ability to draw upon their networks for more sophisticated financing options. Therefore, we propose that individual and household financial resources will have a meaningful impact on firm emergence for both solo entrepreneurs and family firms.

Hypothesis 1: Household income will be a significant predictor in solo entrepreneurs’ firm emergence, as well as in family firms’ emergence.

Correspondingly, we purport that personal resources in the form of household income will influence firm emergence growth rates for these enterprise types. We define firm emergence growth rate as the change in the completion of start-up activities for firms over the study period.

Hypothesis 2: Household income will be a significant predictor in family and solo firm emergence growth rates.

We offer that household income will play an exceptionally significant role in firm emergence within family firms. The greater reliance on financial intermingling among family firms is likely to cause household income to be of great consequence in launching these types of enterprises. Moreover, because of the greater levels of trust, altruism, mutually shared personal and professional values, and understandings found with families, as well as the unique aforementioned dynamics within family firms associated with managing the venture’s starting resource base, we propose:

Hypothesis 3: Household income will have a more significant impact on family firms’ emergence than on other enterprise types.

Teams have access to a larger pool of talent than is available to other enterprise types, and thus are able to draw upon their networks for help with financing, expertise, and legitimacy. As a result, we propose that teams’ greater access to experienced personnel, as well as the availability of a wider array of desirable financing options than is available to other start-up configurations will negate the need for a reliance on household income.

Hypothesis 4: Household income will not be a significant indicator in teams’ firm emergence.

Methodology

Sampling Procedure

Our decisions concerning the research methods utilized in this study were guided by our need to better understand the impact of household income on the business formation process. Consequently, our sample of nascent entrepreneurs is drawn from Waves A through C of the PSED II dataset, a longitudinal database of US-based individuals in various stages of starting a business, which identified and tracked over 5 years, a sample of business owners who were in the process of starting a business. PSED II is a rich dataset that includes data on a wealth of characteristics of nascent entrepreneurs and their firms, as well as the activities founders undertake in starting a business. PSED II is a particularly useful dataset for analysis of team issues (Davidsson & Gordan, 2012), as those that are examined in this study. Data collection for the data utilized in this study began in September 2005 and was completed in May 2008.
PSED II data employs post-sampling stratification weights. Weights are based on demographic characteristics such as age, gender, and household income, as well as geographic dispersion, that were derived from the Census Bureau Population Study, and must be applied to any analyses completed with PSED data in order to generate unbiased statistical conclusions that are generalizable to the entire US population (Curtin & Reynolds, 2004). Accordingly, weights for our study sample were re-centered to prevent a bias estimate of standard errors, and the new weights were used in the analyses.

Selection of Cases for Analysis
To control for industry variability, only start-ups involved in consumer-oriented industries were included in the analysis. We chose to examine consumer-oriented industries for a number of reasons. In the PSED II database, more than half of survey respondents identified their firms as selling to consumers. We limited our analysis to consumer-oriented firms as industry context is widely recognized as being significant, and restricting the industry context allows researchers to avoid some of the issues regarding the varying effects associated from analyzing widely disparate industries (Dess, Ireland, & Hitt, 1990). Industry profitability has been found to be a significant predictor of firm profitability; offering more predictive value than market share, debt/equity ratio, firm capital intensity (Beard & Dess, 1979; Beard & Dess, 1981), general economic factors, and changes in leadership (Lieberson & O’Connor, 1972). Therefore, as an accepted industry classification utilized by economists, as well as others examining industries collectively, we reasoned that our choice to focus on firms that sell products and services directly to the consumers (versus business-to-business) was a rational, theoretically sound decision. Perhaps more significant however, was the focus of our research. In this study, we were primarily interested in examining the impact of household income on start-up activity momentum, that is, the number of start-up activities completed, how that number changes over the study period, and if that change differs by enterprise type. While firms from diverse industries may differ on which start-up activities are completed, our research centered on the number of start-up activities completed by enterprise type.

To ensure that our analysis focused on firms engaged in the start-up phase of firm development, we filtered out cases where respondents indicated that their firm had positive cash flow for the past 6 months and where the firm’s revenue covered expenses including salaries. We also only included start-ups that initiated their start-up efforts at a comparatively equivalent time, limiting our analysis to firms that had initiated their first and last start-up activities within a 2-year time frame. As noted, individuals with considerable access to start-up capital are more likely to become entrepreneurs than those with less access. Therefore, to limit outliers, firms whose founders indicated initial household incomes greater than $150,000 were omitted from the analysis.

Enterprise type classifications in this study were determined based on ownership as identified by the survey respondent, which was established by two sets of questions. We classify solo entrepreneurs as respondents indicating that they alone own the start-up. We define a family business as a firm that is controlled by individuals who are related by blood or marriage, and are guided by the following definition:

…a business governed and/or managed with the intention to shape and pursue the vision of the business held by a dominant coalition controlled by members of the same family or a small number of families in a manner that is potentially sustainable across generations of the family or families (Chua, Chrisman, & Sharma, 1999).

We classify an “entrepreneurial team” as a firm started by a plurality of founders that are unrelated. In this study, teams are identified, and subsequently categorized, as being unrelated by blood or marriage so as to differentiate them from a family business. As such, we are guided by the following definition:

Two or more individuals who jointly establish a business in which they have an equity (financial) interest. These individuals are present during the prestart-up phase of the firm, before it actually begins making its goods or services available to the market (Kamm, Shuman, Seeger, & Nurick, 1990, p. 7).

A second set of questions probing the relationship of up to 10 owners was used to refine the enterprise type. Respondents were also asked to define their relationships of other owners (if any) in terms of: spouses, partners sharing a household, relatives, friends or acquaintances, strangers before joining the new business team, or as some other type of relationship. Respondents indicating founding relationships of “partner, friend, acquaintance, stranger, or other” were classified as teams, while those indicating relationships of “spouse” or “relative” were classified as a family business. Instances where the enterprise contained both team and family members were classified as a family business.
To establish enterprise type within our study, we created a 3-category variable: solo (1), family (2), team (3). When queried about firm ownership, survey respondents indicating “self only” were categorized as solo; those responding “self and spouse” were categorized as family; and “self and other” as a team. A second sequence of questions inquiring about firm owner relationships was also applied to determine enterprise type, with survey respondents specifying partner, friend, acquaintance, or stranger being categorized as a team. We took into account that the response item “partners sharing a household” may be interpreted two ways. If the item was understood by the respondent to indicate a romantic relationship, this response may indeed be construed to be family. Another interpretation of the response would be as business associates. As the data did not allow for a more detailed taxonomy of founders’ relationships, nor did it account for non-traditional family arrangements, we chose to classify these instances as teams. In addition, if the respondent indicated that the start-up is not owned by a person (e.g., it is owned by another firm), the case was excluded from analysis.

Data Manipulations

Our dependent variable, firm emergence, is calculated as a continuous emergence score that registers the number of founding activities conducted (i.e., how far a firm has “emerged”) at each measurement point over the study period. Start-up activities associated with the venture creation process are classified in this study according to the Katz and Gartner model (1988), which suggests that firm emergence can be identified by four properties: intentionality, resources, boundary, and exchange. The literature offers evidence that start-up activities may be, at least to some degree, self-reinforcing. A study that empirically tested the effect of these four Katz and Gartner properties on the likelihood of continued organizing found that all were necessary for firm survival in the near-term (Brush, Manolova, & Edelman, 2008). Using data from the PSED II, another study that examined the role of intentionality in new venture development found that marketing and business planning activities only create value when coupled with other activities, such as information acquisition with potential customers (Hopp, 2012). Lastly, an emphasis on the contribution of any one individual activity may also be of limited value, as activities may change over time (Jacobides & Winter, 2007) or decisions concerning start-up activities may result in changes to the vision of the firm (Lichtenstein, Dooley, & Lumpkin, 2006).

To calculate a firm emergence score, we first create and assign values to wave-specific activities, based on PSED II survey questions asking respondents about start-up activities over the study period. All wave-specific activity variables included in the analysis are operationalized as dummy variables, and then coded such that firms were given points for having completed an activity, and penalized if there was an indication that an activity should be completed, but had not yet been achieved. The sum of these wave-specific activities is then loaded onto an activity score by wave. Each activity score represents the number of firm-founding activities completed by an individual start-up during one data collection period. Lastly, we compute firm emergence scores by adding the current wave-specific activity score to the previous wave-specific firm emergence score. Thus, each firm emergence score represents how far an individual start-up has progressed overall, in completing firm-founding activities.

Analytical Techniques Performed

The longitudinal model developed and analyzed in this study utilized the MIXED procedure in SAS version 9. This SAS routine allows users to fit linear-mixed models with continuous outcomes, thereby enabling statistical inferences for fixed-effects and covariance parameters to be drawn. In this study, we develop a multi-level longitudinal model to describe the impact of household income on firm emergence over time (Heck, Thomas, & Tabata, 2014; Singer & Willet, 2003). At Level 1, each firm’s successive measurements over time are defined by an individual growth trajectory and random error. The subscript (i) describes individual firms and (t) refers to occasions of measurement. We assume the observed status Yi,t at time t for individual firm i is a function of firms’ systematic growth trajectory plus random error. The following is the Level 1 model used in this study:

\[ Y_{i,t} = \pi_{0i} + \pi_{1i}a_{1i} + \pi_{2i}a_{2i}^2 + \varepsilon_{ti} \]

where \(a_{0i}\) represents the linear, and \(a_{2i}^2\) the quadratic time-varying variables of interest. As we have coded the first repeated measure as 0, the intercept parameter (\(\pi_{0i}\)) indicates the firm’s emergence at the beginning of the study. \(\pi_{1i}\) and \(\pi_{2i}\) describe the linear and quadratic growth rates, respectively; and represent the predicted change in individual firm’s estimated emergence activity over the study period. The linear component (\(\pi_{1i}\)) describes the rate of change per unit of time and represents the growth rate in estimated emergence activity for each firm in the study. The quadratic component (\(\pi_{2i}\)) indicates the “change” in the rate of change in estimated emerg-
genc emergence activity. The intercept ($\pi_{0i}$) and slope coefficients ($\pi_{1i}$ and $\pi_{2i}$) represent the model’s fixed effects. $\varepsilon_{ri}$ represents variation in estimating the projected emergence activity within individual firms. For Level 2, we formulate the following equations:

$$\begin{align*}
Eq. 2a & \quad \pi_{0i} = \beta_{00} + \beta_{10}ZHHIncTotal + u_{0i} \\
Eq. 2b & \quad \pi_{1i} = \beta_{10} + \beta_{11}ZHHIncTotal + u_{1i}
\end{align*}$$

where $u_{0i}$ and $u_{1i}$ represent variation associated with estimating the intercept and slope parameters between individual firms. Our time-varying covariate household income ($ZHHIncTotal$) allows us to account for temporal variation that may increase (or decrease) the value of firm emergence predicted by the individual firm’s growth trajectory. As untransformed polynomial components may be highly correlated (Heck et al., 2014), we transform the coded polynomial components so that they are orthogonal (OrbitTime and OrthQuad). In order to examine the related hypothesis regarding the Level 2 impact of household income on Level 1 firm emergence growth rates, we create a cross-level interaction term ($ZHHIncTotal*OrbitTime$). The quadratic component is specified as fixed at Level 2 ($\pi_{2i} = \beta_{20}$). Substituting equation 1 with Equations 2a, 2b, and our fixed quadratic component and cross-level interaction term, we obtain the equation for examining the fixed and random components used in this study:

$$\begin{align*}
Eq. 3 & \quad Y_{iit} = \beta_{00} + \beta_{0i}ZHHIncTotal + \beta_{10}OrbitTime + \beta_{11}ZHHIncTotal + \beta_{20}OrthQuad + u_{0i}OrbitTime + u_{1i}ZHHIncTotal + \varepsilon_{ri}
\end{align*}$$

### Results

Table 1 presents the firm emergence means for each enterprise type by measurement occasion. We note that $n$ and the resultant means in this table present marginally different results than estimates in subsequent tables. As a general rule, SAS handles missing data by excluding omitted values. As such, observations with missing values are excluded from consideration when calculating means. However, when examining growth patterns, we use PROC MIXED with a Restricted Maximum Likelihood solution, which manages incomplete data when computing estimates. Note that the average firm emergence for the end of the first measurement period (i.e., Time 0) and for the last period (i.e., Time 2), indicates a considerable change over time for each of the enterprise types. Family firms have the highest average emergence overall, while solo firms exhibit the lowest average emergence.

| Table 1. Firm Emergence Means by Measurement Occasion |
|-----------------|------------|--------------|---------------|--------|---------|---------|
| Enterprise | Time | $n$ | $\bar{x}$ | $\Delta$ | Std. | Min | Max |
| Solo | 0 | 283 | 2.45 | 2.25 | -1.50 | 8.65 |
| | 1 | 174 | 3.94 | 1.49 | 2.81 | -2.20 | 10.15 |
| | 2 | 130 | 4.82 | .88 | 2.69 | -2.00 | 10.35 |
| Total | | 587 | 3.37 | | 2.69 | -2.20 | 10.35 |
| Family | 0 | 151 | 3.13 | 2.41 | -1.40 | 9.50 |
| | 1 | 85 | 4.86 | 1.73 | 2.83 | -2.50 | 10.30 |
| | 2 | 50 | 5.99 | 1.13 | 2.64 | -1.50 | 10.90 |
| Total | | 286 | 4.14 | | 2.81 | -2.50 | 10.90 |
| Team | 0 | 96 | 2.65 | 2.34 | -1.50 | 8.25 |
| | 1 | 51 | 3.97 | 1.32 | 3.59 | -2.80 | 9.25 |
| | 2 | 34 | 5.16 | 1.19 | 3.77 | -1.90 | 10.25 |
| Total | | 181 | 3.47 | | 3.17 | -2.80 | 10.25 |
Our research question asks: Does household income impact firm emergence, and if so, is emergence impacted differently based on start-up configuration? For solo and family firms, the coefficients for household income ($\beta_{01} = .18$ and $.54$, respectively) are related to firm emergence ($p < .001$). Therefore, we support Hypothesis 1. Solo firms with an interval (z-score) increase in household income can therefore expect an estimated firm emergence of 3.72, while family firms a firm emergence of 4.73. We also note that household income is a much stronger predictor of growth for family firms than for other enterprise types, thus supporting Hypothesis 3. As household income is not a significant predictor ($p > .05$) in firm emergence for teams, we also support Hypothesis 4.

As part of our research, we are also attentive to the differences in firm emergence growth rates related to household income by start-up configuration. Across enterprise types, the average linear growth rate increases significantly over time ($p < .001$). Regarding variables that help explain the variability in firm emergence between individual firms, Table 2 demonstrates that the linear interaction term is only significant for solo firms ($\beta_{11} = .12, p < .05$) and family firms ($\beta_{11} = .16, p < .001$). Thus, we support Hypothesis 2. We also observe that the quadratic polynomial is significant ($p < .001$) for solo firms ($\beta_{20} = -0.08$), as well as for family firms ($\beta_{20} = -0.14$), indicating that firm emergence slows slightly over time for these two types of enterprises.

In Table 3, we note that the variation in the size of the within-individual growth parameter across individual firms is significant ($p < .001$) across enterprise types: Solo (Wald $Z = 5.46$), family (Wald $Z = 4.35$), and teams (Wald $Z = 3.58$). Consequently, we infer that emergence growth varies significantly across the population of individual firms across enterprise types. With the addition of household income, we see that there is still significant ($p < .001$) residual variance across enterprise type intercepts (Wald $Z = 10.75, 7.50,$ and 6.18, respectively), as well as in slopes (Wald $Z = 5.40, 4.35, 3.58, p < .001$,

**Table 2. Estimates of Fixed Effects**

<table>
<thead>
<tr>
<th>Enterprise</th>
<th>Effect</th>
<th>Estimate</th>
<th>Std. Error</th>
<th>df</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solo (n = 295)</td>
<td>Intercept</td>
<td>3.5430***</td>
<td>0.1537</td>
<td>294</td>
<td>23.05</td>
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<td></td>
<td>ZHHIncTotal</td>
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<td>0.05810</td>
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<td></td>
<td>OrthTime</td>
<td>.9974***</td>
<td>0.07521</td>
<td>180</td>
<td>13.26</td>
</tr>
<tr>
<td></td>
<td>OrthQuad</td>
<td>-0.08404***</td>
<td>0.02298</td>
<td>108</td>
<td>-3.66</td>
</tr>
<tr>
<td></td>
<td>ZHHIncTotal*OrthTime</td>
<td>0.1202**</td>
<td>0.05962</td>
<td>108</td>
<td>2.02</td>
</tr>
<tr>
<td>Family (n = 156)</td>
<td>Intercept</td>
<td>4.1857***</td>
<td>0.2272</td>
<td>155</td>
<td>18.43</td>
</tr>
<tr>
<td></td>
<td>ZHHIncTotal</td>
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<td>0.1571</td>
<td>36</td>
<td>3.45</td>
</tr>
<tr>
<td></td>
<td>OrthTime</td>
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<td>0.1391</td>
<td>90</td>
<td>7.35</td>
</tr>
<tr>
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<td>0.03598</td>
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<td>-3.86</td>
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<tr>
<td></td>
<td>ZHHIncTotal*OrthTime</td>
<td>0.1629***</td>
<td>0.1476</td>
<td>36</td>
<td>1.10</td>
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<tr>
<td>Team (n = 101)</td>
<td>Intercept</td>
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<td>0.3307</td>
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<td>10.86</td>
</tr>
<tr>
<td></td>
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<td>0.1795</td>
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<td>0.03</td>
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<tr>
<td></td>
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<td></td>
<td>ZHHIncTotal*OrthTime</td>
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<td>24</td>
<td>-1.50</td>
</tr>
</tbody>
</table>

Dependent Variable: Firm Emergence. ***$p < .001$, **$p < .05$
The differing impact of household income on firm emergence by heterogeneous start-up configuration

respectively) left to be explained. The covariances between the intercepts and slopes (Wald $Z = 5.25, 2.87, 3.51$, respectively) were positive and also significant for solo and team firms ($p < .001$), as well as for family firms ($p < .05$).

Discussion

Our study helps to contribute to an increasing scholarly interest in research that lies at the juncture of literature that explores antecedents to firm emergence and that which examines the differences of heterogeneous start-up configurations. Our research question asks: *Does household income impact firm emergence, and if so, is emergence impacted differently based on start-up configuration?*

To answer this question, we established three objectives for this study. First, we endeavored to draw attention to the significant differences in influence of household income on firm emergence between start-up configurations. Second, we sought to utilize the Katz and Gartner model (1988), which suggests that firm emergence can be identified by four properties. Our intention in using this model was to offer a theoretical rationale for choosing the start-up activities nascent entrepreneurs initiated and completed. Our final objective was to detail those start-up configuration characteristics that are likely to benefit or hinder firm emergence, and propose underlying causal factors for the temporal patterns discovered during our study. The four main properties from our study include:

- Household income can be used to significantly predict the completion of start-up activities (i.e., firm emergence) for solo and family firms (Hypothesis 1).
- Of these two start-up configurations where household income can be used to help forecast firm emergence, income plays a more significant role in emergence among family firms (Hypothesis 3).
- Household income is not useful in helping to estimate emergence for team-based start-ups (Hypothesis 4).
- Household income can be used to project family and solo firm emergence *growth rates* (the change in the completion of start-up activities for firms over the study period—Hypothesis 2).

Results from our study reinforce the extant literature, which cites the benefits of starting a firm with a plurality of founding members, finding that multi-member start-ups complete a greater number of start-up activities over the observation period. The existing literature on the role that household income plays in the growth of a firm offers more nuance, with some researchers arguing for the importance of personal resources in financing start-ups, while others claiming that under particular circumstances wealth does not substantially impact the ability of

<table>
<thead>
<tr>
<th>Enterprise Type</th>
<th>Parameter</th>
<th>Estimate</th>
<th>Std. Error</th>
<th>Wald Z</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solo</td>
<td>Repeated Measures</td>
<td>0.3697***</td>
<td>0.04767</td>
<td>7.76</td>
<td>0.2915</td>
<td>0.4843</td>
</tr>
<tr>
<td>(n = 295)</td>
<td>Intercept + Time UN (1, 1)</td>
<td>6.1724***</td>
<td>0.5740</td>
<td>10.75</td>
<td>5.1855</td>
<td>7.4721</td>
</tr>
<tr>
<td></td>
<td>UN (2, 1)</td>
<td>1.1096***</td>
<td>0.2112</td>
<td>5.25</td>
<td>0.6955</td>
<td>1.5236</td>
</tr>
<tr>
<td></td>
<td>UN (2, 2)</td>
<td>0.6339***</td>
<td>0.1161</td>
<td>5.46</td>
<td>0.4561</td>
<td>0.9409</td>
</tr>
<tr>
<td>Family</td>
<td>Repeated Measures</td>
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<td>4.38</td>
<td>0.2325</td>
<td>0.5759</td>
</tr>
<tr>
<td>(n = 156)</td>
<td>Intercept + Time UN (1, 1)</td>
<td>6.5950***</td>
<td>0.8792</td>
<td>7.50</td>
<td>5.1616</td>
<td>8.7243</td>
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<td></td>
<td>UN (2, 1)</td>
<td>1.0354**</td>
<td>0.3605</td>
<td>2.87</td>
<td>0.3288</td>
<td>1.7419</td>
</tr>
<tr>
<td></td>
<td>UN (2, 2)</td>
<td>1.0369***</td>
<td>0.2381</td>
<td>4.35</td>
<td>0.6922</td>
<td>1.7232</td>
</tr>
<tr>
<td>Team</td>
<td>Repeated Measures</td>
<td>0.3364**</td>
<td>0.1277</td>
<td>2.63</td>
<td>0.1799</td>
<td>0.8405</td>
</tr>
<tr>
<td>(n = 101)</td>
<td>Intercept + Time UN (1, 1)</td>
<td>8.9140***</td>
<td>1.4428</td>
<td>6.18</td>
<td>6.6459</td>
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<td></td>
<td>UN (2, 1)</td>
<td>2.3133***</td>
<td>0.6594</td>
<td>3.51</td>
<td>1.0210</td>
<td>3.6056</td>
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<td></td>
<td>UN (2, 2)</td>
<td>1.7508***</td>
<td>0.4884</td>
<td>3.58</td>
<td>1.0831</td>
<td>3.3023</td>
</tr>
</tbody>
</table>

Dependent Variable: Firm Emergence. ***$p < .001$, **$p < .05$

Table 3. Estimates of Covariance including Time Parameters
prospective entrepreneurs to launch a firm. Our study broadens and extends these two streams of literature to offer additional insights into the firm emergence process by focusing on the impact of household income on firm emergence when viewed through a start-up lens.

To help answer our research question, we have developed a series of suppositions and constructed a multi-level longitudinal model to describe the impact of household income on firm emergence over time. Our first hypothesis, which put forth that household income will have a significant impact on average firm emergence for one-person and family firms, was supported and reflects much of the extant literature noting the importance of personal resources in launching a firm. We proposed that both solo entrepreneurs and family firms are less likely to have well-developed professional networks that would offer a rich set of financing alternatives. As an alternative, these enterprise types are more likely to rely on a restricted array of financing options, namely, personal resources and debt financing from extended family friends. We also found support for Hypothesis 3, which purported that household income would play an especially significant role in the average firm emergence within family firms. Family firms demonstrated the most robust average emergence of the three enterprise types in this study. We believe that this finding offers a meaningful contribution to the literature, as we theorize that family dynamics, which may include high levels of trust, altruism, shared values and understandings, as well as the greater dependence on financial intermingling within family firms would cause household income to be of great consequence in founding a firm. We also found support for Hypothesis 2, which proposed that household income will have a meaningful impact on firm emergence growth rates for both family and solo firms. In other words, a proportion of the differences in firm development that we observe for various start-up configurations can be accounted for by household income. Thus, for these types of enterprises, firms whose founders have higher income levels emerge further over time compared to their counterparts at the household income grand mean.

Furthermore, we found support for Hypothesis 4, which proposed that firms founded by a plurality of unrelated members were more likely to have well-developed professional networks and greater access to a selection of attractive financing options than is available to other start-up configurations, and would therefore rely less on household income. The advantages of start-up teams over solo entrepreneurs are widely documented in the literature, noting that start-ups with a plurality of founding members outperform start-ups founded by individual entrepre-

ners on a host of factors. Yet, the tempo at which a firm emerges is more complex than can be explained by simply having a greater number of founding members. Our study suggests that a plurality of unrelated founders may provide greater advantages in the form of a more stable platform on which to launch a start-up. Our findings indicate that teams appear to emerge in a more consistent manner than other enterprise types. We observe that solo and family firms exhibit a quadratic emergence growth trend, with a pronounced slowing in the rate of change in estimated emergence activity over time. On the other hand, teams exhibited nearly constant growth throughout the study, with no appreciable slowing in growth throughout the study period.

Limitations and Future Research
Although the research methodology and the PSED II data utilized in this study offer a solid foundation on which to examine firm emergence, our study is subject to certain limitations. In this study, our objective was primarily to assess the differing effect of household income on average firm emergence and on emergence growth rates of heterogeneous start-up configurations. We observe that significant residual variance in the average emergence levels, as well as in the rates of emergence growth across all enterprise types, remains unexplained. This suggests that other variables may impact how far and how quickly a firm emerges. For example, in addition to household income, researchers may consider looking more closely at variables that offer a more holistic perspective on personal finances, such as net worth. Net worth may be a more significant personal resource for financing a start-up than household income as assets can be divested or used to secure loans (Kim et al., 2004). As a result, future analyses would benefit by identifying other personal resource-related variables that help explain the remaining residual variance.

We have given careful attention to organization and industry contexts within our study. As a result, only start-ups involved in consumer-oriented industries were included in the analysis to help control for industry variability. Yet, our consideration of service-oriented and product-oriented start-ups in aggregate, as part of the larger consumer-oriented industries category, may obscure issues regarding differing financial needs. As a result, it may be the case that service-oriented and product-oriented start-ups emerge at different rates, because they require different levels of initial financing. Future research should further tease out these distinctions to determine if they impact firm emergence and help to explain a portion of the residual variance that we observe. In excluding firms whose founders indicated initial household incomes
greater than $150,000, we have reduced the richness of our dataset, as one reviewer correctly noted. As a result, we believe that future research should analyze heterogeneous start-up configurations whose founders have outsize initial incomes separately, as research indicates that these founders have a greater likelihood of becoming entrepreneurs. In addition, data limitations have inhibited a full consideration of every factor that may impact firm emergence. In this investigation, we have not measured the difficulty in executing the founders’ business ideas. The founding of businesses based upon radical product innovations or within highly uncertain environments may impose greater demands in terms of time and effort than for firms not confronting such challenging conditions (Nuñez, 2012; Nuñez & Lynn, 2007), and may require the completion of start-up activities not encompassed within the PSED II data.

End Note
1. Our research concerns the complex role that household income plays in firm emergence. We include literature on the impact of personal financial resources (including wealth) on start-up activity to offer a broader context for our specific analysis. We thank reviewers for encouraging us to clarify this point.

References


About the Author

ENRIQUE NUÑEZ (enrique_d_nunez@hotmail.com) is an award-winning teacher, scholar, inventor, and entrepreneur. As an Associate Professor of Management in the Anisfield School of Business at Ramapo College, Dr. Nuñez teaches popular courses in family business, entrepreneurship, strategy, leadership, and managing organizational behavior, and he conducts research on innovation and entrepreneurship.
Relational Ties in Emerging Markets: What Is Their Contribution to SME Growth?

Natalya Totskaya

Prior studies argue that social capital is vital for firm growth. Adding to this line of research, this paper provides more evidence regarding the contribution of bonding and bridging social ties to various aspects of small- and medium-sized enterprise (SME) development. Building on the original data from Russia, this paper investigates the effects of firm-internal and firm-external relational ties on SME performance and geographic expansion. The findings indicate that horizontal bridging ties facilitate specific strategies of SME growth. Thus, this paper supports prior research conducted in the Asian context, and allows for extending the outcomes of bonding and bridging social capital into broader institutional settings. In addition, this study raises the question of relationship between the composition of social capital and distinct organizational characteristics of SMEs. Finally, the paper discusses the implications for future research, and outlines some practical recommendations for SMEs operating in emerging markets.

Keywords: bonding social capital, bridging social capital, SMEs, emerging markets, growth

Social capital research has been of great interest to management scholars for many years. Yet the great number of studies have been conducted in the context of large enterprises and developed economies (Burt, Hogarth, & Michaud, 2000; Florin, Lubatkin, & Schulze, 2003; Stam & Elfring, 2008). Researchers who focused outside of developed economies were mainly interested in studying institutional realities of Asian countries (Gao, Sung, & Zhang, 2012; Park & Luo, 2001; Tung & Chung, 2010; Xu, Huang, & Gao, 2012). This study adds to the body of research on non-Asian emerging markets, providing more insight into the role played by social capital in transition economy of Russia. The main goal is to clarify the relationship between bonding and bridging social capital of SMEs and their growth.

When speaking of growth we intend to address both qualitative and quantitative changes in firm behavior and outcomes following Penrose (1959). Penrose’s broad view of the phenomenon of firm growth (1959) allows for considering SME growth as SME development. Firm-internal, qualitative changes, such as formalization of SME’s activities and practices may be accompanied by quantitative changes, such as an increase in SME output or size (Torrès & Julien, 2005). This multi-dimensional process implies that growth may have various sources and effects, and firms may use a combination of growth options (Davidsson & Wiklund, 2000). Growth may be related to firm or industry life cycles; it may require changes in organizational processes, or call for behavioral adjustments on the part of management and employees. Firm’s growth, in its broad sense, is shaped by the creation and use of various social, hierarchical, and market relations that may be firm-internal or firm-external, and together they comprise firm social capital.

This study builds upon Adler & Kwon’s (2002) approach, and aims to add to our understanding of bonding (firm-internal) and bridging (firm-external) relations. These two facets of social capital will be tested at a firm level, for specific class of firms (SMEs), and in the distinct institutional setting of Russia. Research questions addressed in this study: 1) is there a link between the structure bonding and bridging social capital and SME growth?; and 2) does the nature of SMEs encourage development of specific type of social capital?

To answer these questions, we first review prior literature on the theoretical foundations of social capital research, and the role of social capital in firm behavior. Second, we’ll discuss the proposed relationship between bonding and bridging social capital and SME growth. The following section will present research methodology, analytical procedures, and results of hypotheses testing. And finally, the discussion section will review the main findings, implications, and limitations of this study.

Theoretical Background: Social Capital Perspective and Firm Growth

Theoretical foundations of social capital include individual, collective, and mixed-level perspectives (for review see Payne, Moore, Griffis, & Autry, 2011). As noted by Adler & Kwon (2002), definitions and conceptualizations of social capital vary, and they include external and internal characteristics of actors involved in creation and appropriation of social capital. For instance, Burt (1997; 2000) and Coleman (1988) approach social capital from the network perspectives,
looking at structural holes and network closure, respectively; Nahapiet & Ghoshal (1998) focus on multiple dimensions of social capital; Adler & Kwon (2002) offer a multilevel model of external and internal relations contributing to creation of social capital. In their view, bonding social capital represents “collective actors’ internal characteristics” (Adler & Kwon, 2002, p. 21); and bridging social capital is “a resource located in the external linkages of a focal actor” (Adler & Kwon, 2002, p. 21).

Prior research has recognized the value of organizational social capital as an embedded resource that “comprises both the network and the assets that may be mobilized through that network” (Nahapiet & Ghoshal, 1998, p. 243). The notion of embeddedness (Granovetter, 1992) is widely used in social capital literature, allowing researchers to make a distinction between different types of social capital. Bridging social capital refers to configuration of linkages between actors (Granovetter, 1992; Nahapiet & Ghoshal, 1998). Bonding social capital refers to the type of relations that are developed through the history of interactions (Granovetter, 1992; Uzzi, 1996; 1997).

Numerous studies have looked at the effects of bonding and bridging social capital (see Figure 1). Diverse institutional settings included Asia and Africa (Abban, Omta, Aheto, & Scholten, 2013; Park & Luo, 2001; Sako 1992), North America and Western Europe (Burt, Hogarth, & Michaud, 2000; Uhlmaner, Matser, Berent-Braun, & Flören, 2015), Central and Eastern Europe (Gittins, Lang, & Sass, 2015). Organizations in the focus of social capital research included business groups (Cardoza & Fornes, 2011; Dyer, 1996), SMEs (Gao et al., 2012; Iturrioz, Aragón, & Navariza, 2015), and public sector organizations (Leana & Pil, 2006). Figure 1 presents a summary of findings in social capital research.

Yet the distinction between bonding and bridging social capital at a firm level remains vague. Woolcock (1998) synthesized the effects of these two types of social capital on individual (micro) and societal (macro) levels of analysis, bringing bonding and bridging social capital together in one framework of economic development. His framework highlights both opportunities and limitations of bonding and bridging social capital combinations. Woolcock suggested that the need for internal connections decreases as embeddedness in external networks increases. Thus, for organizations as units of analysis, Woolcock’s ideas may translate into growth strategies that are shaped by firm-internal bonding relations, and by the system of bridging linkages with external environment.

The nature of SMEs places more emphasis on social capital as a valuable resource; and thus social capital can represent a valuable asset in managing SMEs daily activities, and in planning their developmental efforts. It is widely accepted that SMEs are more vulnerable to unfavorable changes in market conditions because of their limited resources, and simplified management systems. A number of studies have demonstrated that smaller firms have less slack resources than larger players (Penrose, 1959; Oviatt & McDougall, 1994; Lu & Beamish, 2001); and that SMEs use networks to establish their operations and compensate for their lack of resources.

<table>
<thead>
<tr>
<th>Bridging Social Capital</th>
<th>Bonding Social Capital</th>
</tr>
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<tbody>
<tr>
<td><strong>Benefits</strong></td>
<td><strong>Costs</strong></td>
</tr>
<tr>
<td>Provides access to resources (Nahapiet &amp; Ghoshal, 1998); helps to overcome strategic and resource disadvantages (Park &amp; Luo, 2001)</td>
<td>Helps firm resources recombination (Assudani, 2009; Galunic &amp; Rodan, 1998) and improves firm survival (Pennings, Lee, &amp; van Witteloostuijn, 1998)</td>
</tr>
<tr>
<td>Facilitates economic transactions (Granovetter, 1973; McMillan &amp; Woodruff, 1999; van Staveren &amp; Knorringa, 2007)</td>
<td>Facilitates actions and transactions, lowers transition costs (Cardoza &amp; Fornes, 2011; Coleman, 1988)</td>
</tr>
<tr>
<td>Facilitates exploratory behavior and innovations (Coviello, 2006; Iturrioz et al., 2015)</td>
<td>Helps entrepreneurs to establish their business (Gittins, Lang, &amp; Sass, 2015; Kreiser, Patel, &amp; Fiet, 2013; Peng, 2004) and internationalize (Ma &amp; Wang 2012)</td>
</tr>
<tr>
<td>Access to new information and opportunities (Burt, 1997; Cardoza &amp; Fornes, 2011; Granovetter, 1973; Peng, 2004; Woolcock, 1998; Zahra et al., 2015)</td>
<td>Fosters reciprocity, coordination, help, and cooperation (Dyer, 1996; Macneil, 1980; Pearson, Carr, &amp; Shaw, 2008; Peng, 2004; Sako, 1992; Uzzi)</td>
</tr>
<tr>
<td>Allows for more cooperation (McMillan &amp; Woodruff, 1999)</td>
<td>Stimulates coherent actions and common vision (McCallum &amp; O’Connell, 2009; Uhlmaner et al., 2002)</td>
</tr>
<tr>
<td>Helps leveraging new knowledge and resources (Park &amp; Luo, 2001; Yli-Renko, Autio, &amp; Tontti, 2002; Zahra et al., 2007)</td>
<td>Helps sharing and transferring knowledge (Gao et al., 2012; Lowik, Rossum, Kraijenhink, &amp; Groen, 2012; Uzzi, 1996; Yli-Renko, Autio, &amp; Tontti, 2002)</td>
</tr>
</tbody>
</table>

**Figure 1. The Effects of Bonding and Bridging Social Capital**
(Gittis, Lang, & Sass, 2015; Julien, 1993; Kreiser, Patel, & Fiet, 2013). Empirical studies suggest that SMEs from emerging markets rely on social networks even more as they try to 1) compensate for their scarce resources and deficient external environments, and 2) gain access to new markets and business opportunities (Chen & Chen, 1998; Gittins, Lang, & Sass, 2015; Tung & Chung, 2010; Zhao & Hsu, 2007).

**Theory Development**

**The Value of Social Capital for SMEs in Emerging Markets**

Researchers agree that social capital embedded in relationships is more important in emerging markets where formal institutional frameworks are weak, uncertainty is high, and information is highly fragmented (De Clercq, Danis, & Dakhli, 2009; Peng & Luo, 2000; Xin & Pearce, 1996). It has been argued that extensive networking exemplified in vertical ties can provide emerging markets firms with increased access to complementary resources, technologies, competences, and knowledge (Li, Zhou, & Shao, 2009). In addition, various social ties can improve adaptability to environmental uncertainties (Tallman, Jenkins, Henry, & Pinch, 2004; Peng & Heath, 1996; Xin & Pearce, 1996). Some authors (Park & Luo, 2001; Xu, Huang, & Gao, 2012) stated that the development of institutional ties between firms and government officials was led by environmental uncertainty, and was based on strong interpersonal relations. Hence, in the context of emerging markets, the creation of firm-external, bridging capital is significantly affected by the presence of bonding capital.

In such an environment, strong relational ties that indicate a built-in ascribed trust and sharing of fine-grained information seem to carry higher value to an SME than weak ties (Khanna & Palepu, 1997; Peng & Heath, 1996; Peng & Luo, 2000). Strong ties allow small companies to capitalize on close social relations, without carrying the costs and uncertainties of arm’s-length transactions (Zhao & Hsu, 2007); and mobilize firm-internal capabilities for knowledge sharing, innovation and resource recombination (Galunic & Rodan, 1998). Contracts and agreements that are based on ascribed trust, reciprocity, and other in-group relational attributes allow organizations to carry on various partnerships (Dyer, 1996; MacNeil, 1980; Sako, 1992), and increase their overall market competence (Wu, Sinkovics, Cavusgil, & Roath, 2007).

In emerging markets, external connections built upon strong ties provide a firm with better access to the market (Li et al., 2009), more financial resources (Leuz & Oberholzer-Gee, 2006), government contracts, information, and updates on upcoming changes in regulations (Yiu, Lau, & Bruton, 2007). The latter point implies that vertical external ties may be especially valuable for firms seeking to grow into new domestic and international markets. Prior studies imply that kinship-based bonding relations are indeed reflected in inter-organizational networks, and that the majority of bridging ties are in fact strong ties (Peng, 2004; Zhao & Hsu, 2007). However, these results have not been tested outside of the Asian context. Thus, while the value of bonding capital is well established in prior research, this capital is measured not at a firm level, but rather at a group or network level.

It seems that, at an organizational level the relative value of bonding and bridging social capital remains somewhat open for discussion. With a growing number of studies dealing with relational ties and their effects on firm behavior and outcomes in emerging and transition countries, the distinction between bonding and bridging capital at a firm level remains vague. In emerging markets, in-group ties often cross the boundaries of organizations (Li et al., 2009; Ma & Wang, 2012); and thus measuring bonding capital at a firm level does not capture all the implications of close, bonding ties for firm behavior. In turn, the bridging capital of an emerging market firm heavily reflects strong in-group ties, and not arm’s-length, weak linkages (Kreiser, Patel, & Fiet, 2013; Lowik, Rossum, Kraaijenbrink, & Groen, 2012; Zhao & Hsu, 2007).

There is some evidence, however, that indicates that even when formal institutions are poorly developed, and the external environment is hostile, small firms still need to rely on arm’s-length relations if they are willing to grow beyond local limits, or above a certain size (McMillan & Woodruff, 2002). Similar conclusions were made by Wright, Filtotchev, Hoskisson, & Peng (2005) who named a firm’s “strategic flexibility,” and ability to explore new opportunities as important conditions of survival and successful development in emerging economies. Other researchers indirectly stressed the role of bridging capital by pointing out 1) the benefits of extensive inter-firm networking (Koka & Prescott, 2002; Spicer, Kogut, & McDermott, 2000), and 2) the importance of environmental scanning (May, Stewart, & Sweo, 2000). Taken together, these findings provided suggestions for testing a hypothesis regarding the role of bridging social capital in SME growth that may take a firm beyond its usual comfort zone, and beyond local markets.

**Hypothesis 1.1:** Bridging capital of SMEs operating in emerging markets will be positively associated with an SME’s growth outside its local market.
The extant literature is inconclusive regarding the effects of bonding ties on organizational outcomes. The main focus of researchers has been on the benefits derived from bonding capital such as better firm survival capability (Pennings, Lee, & van Witteloostuijn, 1998) or improved performance (Cooke, Clifton, & Oleaga, 2005; Leana & Pil, 2006). The value of bonding relations manifested itself through positive practices and effective firm processes (Collins & Clark, 2003; Maurer, Bartsch, & Ebers, 2011). For instance, bonding capital increased mutual understanding and coherent actions (Peng, 2004; McCallum & O’Connell, 2009), and stimulated tacit knowledge acquisition (Lowik et al., 2012), knowledge exchange and resources transfer (Pearson et al., 2008; Uzzi, 1996; Yli-Renko, Autio, & Tontti, 2002). In the case of Chinese SMEs bonding capital allowed for capability building (Gao et al., 2012) and contributed to overcoming the internal barriers to growth in a firm (Cardoza & Fornes, 2011). Hence, strong bonding relations are expected to contribute to SME effective functioning that will be reflected in performance.

Hypothesis 1.2: Bonding capital of SMEs operating in emerging markets will be positively associated with SME performance.

Social Relations and the Nature of SMEs

Previous discussion suggested that the environmental conditions of emerging markets might have played an important role in defining SME social capital. However, some specific attributes of SMEs themselves may encourage firms to place more emphasis on creating more bonding or more bridging capital at a firm level. With many studies having been carried out into SMEs, there is still a lack of agreement on the theoretical conceptualization of SMEs. In entrepreneurship research, SMEs are often associated with an individual entrepreneur and his/her behavior (Baker & Nelson, 2005; Lumpkin & Dess, 1996; Wiklund & Shepherd, 2003). In the field of international business studies, SMEs are often seen as innovative, actively internationalizing firms (McDougall, Shane, & Oviatt, 1994; Zahra, Neubaum, & Naldi, 2007). A less known theoretical perspective on the nature of SMEs has been developed in the French literature. This literature deals with the specificity of SMEs in terms of their formal organization and management (D’Amboise & Muldowney, 1988; Curran, 2006; Julien, 1993; 1998; Torrès & Julien, 2005).

The “small business concept,” introduced by the abovementioned authors, fits well with the notion of social capital. It emphasizes the special nature of SMEs through SME management, and hence through internal relations within a firm, as well as the external relations with other actors. In short, there are two major types of SMEs: 1) “traditional” small business; and 2) “anti-small business,” also known as “denatured” small business (Julien, 1993; 1998). Julien has synthesized some important characteristics of “traditional” small businesses into one framework. First, he pointed out that traditional SMEs were engaged in informal, direct, and simple management practices and systems of information collection and exchange. Second, he argued that they preferred direct contact or dialogue when communicating internally and externally. Third, he stated that traditional SMEs used informal networks to stabilize their position in the external environment.

However, behavioral diversity among SMEs puts some of them outside (or on the boundaries) of the traditional small business concept (Messeghem, 2003; Torrès & Julien, 2005). For instance, some SMEs adopt multiple product lines usually associated with large companies and use complex planning systems; they are fast on learning and innovation, and they compete internationally. “Although the anti-small business has the attributes of a large business, it is still small in size. In some ways, the anti-small business is a miniature big business” (Torrès & Julien, 2005, p. 363).

Torrès & Julien (2005) also referred to prior research and identified some environments that can lead to SME denaturing, including: 1) globalization of markets; 2) participation in alliances and business groups; and 3) adoption of modern data and quality management systems. Such factors can cause SMEs to become more explicit in their management procedures, as well as less centralized and less informal. From the growth perspective, denaturing represents changes in the nature of SMEs, and hence exemplifies what Penrose (1959) refers to as “internal changes,” or the qualitative growth of a firm.

Thus, it is reasonable to expect that in emerging markets SMEs will be affected by the denaturing factors listed above; and hence, as a result of qualitative growth, the changes in SMEs’ nature will be reflected in specific features of SME social capital. For instance, some SMEs may face the need to develop more bridging connections to be able to capture more opportunities, maintain complex strategies and keep up higher business standards than their “traditional” counterparts.

Nowadays globalization affects countries in all parts of the world and information management systems have become standard for any business organization of any size. Also, it is well known that business groups dominate emerging and transition economies around the world (Khanna & Palepu, 1997). Hence
factors that can create an SME denaturing environment are as present in emerging countries as in mature ones. For example, SMEs that are members of business groups may lose at least part of their independence and unique identity in terms of their strategy formulation, their management system, and their choice of partners. So they will rely less on the bonding core of their firm, and they will be more open to sharing or delegating some strategic business functions to their business group partners. At the same time, SMEs within business groups need to maintain a wide variety of relationships with other group members, and with external parties that may be geographically and socially distant. As such, they have to develop more bridging ties with other actors; and those ties reflect all kinds of relations, such as: 1) market or social; 2) arm’s length, formal or strong, informal; and 3) short or long-term. On the other hand, SMEs that are willing to compete in larger markets may need to adapt to higher levels of competition, product and management requirements. Hence, they will have to connect to greater business communities, carry out more environmental scanning, and become part of various networks.

Overall, denatured SMEs will pay more attention to creating bridging social capital than traditional SMEs in order to be better positioned in the market, and to capitalize on opportunities that arise from their environment. Denatured SMEs will place less emphasis on bonding capital, as they are more explicit in their organization and activities. Thus, the idiosyncratic nature of bonding ties will not fit well into the more formal and open context of denatured SMEs. In the context of this study, it is expected that denatured SMEs will have more bridging ties to their business environment, and less internal bonding ties than their traditional counterparts.

Hypothesis 2.1: Denatured SMEs will exhibit more bridging capital than traditional SMEs.

Hypothesis 2.2: Denatured SMEs will exhibit less bonding capital than traditional SMEs.

### Research Methodology

#### Sample, Instruments and Procedures

**Sample.** SMEs (up to 500 employees) listed in the Novosibirsk City Chamber of Commerce database were contacted by mail; out of 300 firms contacted 71 firms agreed to participate. While the response rate was relatively low (23.6 percent), it was very similar to response rates reported in prior research conducted in emerging markets that ranged from 18 to 26 percent (Batjargal, 2007; Manolova, Brush, Edelman, & Greene, 2002; Wu, Sinkovics, Cavusgil, & Roath, 2007). This sample represents a mix of manufacturing firms from high- and low-tech industries (20 and 45 percent respectively). Small businesses of 100 employees or less comprise 78 percent of the sample. The age of the firms ranges between 2 and 79 years, with an average age of 12.2 years. Young firms up to 3 years old comprise 18 percent of the sample, and mature firms of 20 years or more represent 11 percent of SMEs in the study. Out of 71 questionnaires collected, 6 had some missing data that could not be verified or replaced through secondary sources of information. As a result, 6 firms were excluded from the subsequent analysis, and 65 firms comprised the working sample (Table 1).

**Instruments and Procedures.** The questionnaire was first back-translated, and then pre-tested for measures reliability with 32 graduate MBA students who had a full-time employment in Russian SMEs. Some scales were modified to meet higher reliability requirements. The CEOs of selected firms were contacted to solicit their participation, and as a result, the questionnaires were filled in either by the CEOs themselves, or by one of the top managers, who were well informed of the firm’s market development and growth. In addition to questionnaires, the data on firm growth, and industry codes was validated through statistical reports collected by the Russian Federal State Statistics Service. Firm age data was verified through an on-line database of the Federal Tax Service of Russia. Information on

<table>
<thead>
<tr>
<th>Table 1. Descriptive Statistics of the Working Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive Statistics</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Size (number of employees)</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Industry dummy (1 = high)</td>
</tr>
</tbody>
</table>
SMEs partnerships (including business group affiliation) was verified via firm web pages, booklets and catalogues.

Statistical techniques such as regression analysis and groups comparison were used to examine the main effects between dependent and independent variables.

**Measures Independent Variables.** Structural and relational dimensions of Bonding Social Capital were assessed using multi-item scales. The structural dimension of bonding social capital was measured by social interactions among SME managers, and operationalized as information sharing (Hyatt and Ruddy, 1997; Leana and Pil, 2006). Each of the six items was assessed using a 5-point Likert scale, from 1 (very untrue) to 5 (very true); reported Cronbach’s alpha = 0.89. All items measuring structural dimension of bonding social capital, and their Russian language translations are listed in Table 2.

Relational dimension of bonding social capital was assessed by a six-item measure of trust (Leana & Pil, 2006). Items were also measured using a 5-point Likert scale; reported Cronbach’s alpha = 0.88 (Table 3).

**Bridging Social Capital.** The structural dimension of bridging social capital was measured by the density of horizontal and vertical ties. Density (i.e., number) of ties was measured as proposed by Boissevain (1974), by verifying if potentially existing ties do actually exist. Drawing upon analysis of external ties of emerging market firms (Cao, Simsek, & Zhang, 2010; Xu et al., 2012; Yiu, Lau, & Bruton, 2007), respondents were asked about eight horizontal and seven vertical ties. Horizontal ties included connections with customers, suppliers, business partners, competitors, professional associations, chambers of commerce, foreign commercial structures, and ethnic associations (diaspora). Vertical ties included connections with banks, financial agencies, govern-

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**Table 2. Scale-based Measure of Information Sharing**

<table>
<thead>
<tr>
<th>Item</th>
<th>Original items (partially reworded)</th>
<th>Items translated into Russian</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Managers engage in open and honest communication with one another.</td>
<td>Руководители общаются между собой честно и открыто.</td>
</tr>
<tr>
<td>2</td>
<td>Managers at this firm have no hidden agendas or issues.</td>
<td>У руководителей нет тайных планов или разногласий.</td>
</tr>
<tr>
<td>3</td>
<td>Managers share and accept constructive criticisms without making it personal.</td>
<td>Руководители высказывают и принимают конструктивную критику, не переходя на личности.</td>
</tr>
<tr>
<td>4</td>
<td>Managers discuss personal issues if they affect job performance.</td>
<td>Руководители обсуждают личные проблемы, если они влияют на результаты работы.</td>
</tr>
<tr>
<td>5</td>
<td>Managers willingly share information with one another.</td>
<td>Руководители охотно делятся информацией друг с другом.</td>
</tr>
<tr>
<td>6</td>
<td>Managers at this firm keep each other informed at all times.</td>
<td>Руководители нашей компании постоянно держат друг друга в курсе событий.</td>
</tr>
</tbody>
</table>

Note: (Hyatt & Ruddy, 1997; Leana & Pil, 2006)

**Table 3. Scale-based Measure of Trust**

<table>
<thead>
<tr>
<th>Item</th>
<th>Original items (partially reworded)</th>
<th>Items translated into Russian</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I can rely on the managers I work with in this firm.</td>
<td>Я могу положиться на руководителей, с которыми работаю.</td>
</tr>
<tr>
<td>2</td>
<td>Managers in this firm are usually considerate of one another’s feelings.</td>
<td>Руководители обычно тактично относятся к чувствам друг друга.</td>
</tr>
<tr>
<td>3</td>
<td>Managers have confidence in one another in this firm.</td>
<td>Руководители доверяют друг другу.</td>
</tr>
<tr>
<td>4</td>
<td>Managers in this firm show a great deal of integrity.</td>
<td>Руководители проявляют большую честность.</td>
</tr>
<tr>
<td>5</td>
<td>There is no “team spirit” among managers in this firm (reversed).</td>
<td>У руководителей нет “духа товарищества”.</td>
</tr>
<tr>
<td>6</td>
<td>Overall, managers at this firm are trustworthy.</td>
<td>В целом, руководители нашей компании заслуживают доверия.</td>
</tr>
</tbody>
</table>

Note: (Leana & Pil, 2006)
ment agencies, and also federal, regional, municipal, and foreign government structures. Relational dimension was assessed by the strength of horizontal and vertical ties. Strength of ties was measured by their reciprocity. On a dichotomous scale, reciprocity was coded as 1 for close relationships and 0 for distant relationships, following Granovetter (1973).

**Dependent Variables.** In studies on SME growth, there are several accepted measures of growth, such as sales, assets, employment, market share, and profit (see Davidsson et al., 2007 for review). In this study SME performance was measured as sales growth and expansion beyond local market—as regional growth.

Sales growth was measured as an average percentage of sales increase for 2 years, following Florin et al. (2003), and Zahra, Ireland, & Hitt (2000). The years 2008 and 2010 were chosen as reference, omitting the sales data reported for 2009, as this was the hardest year of recession for Russian business. Most of the business indicators were significantly lower in 2009 than in 2008 and in preceding years, and eliminating this crisis year from calculations has helped to minimize the negative macroeconomic effects on the dependent variable.

Regional growth was calculated as sales growth weighted by the share of SME revenue from all activities outside their local market, mirroring the measure of international growth widely used in prior studies (Bonaccorsi, 1992; Calof, 1994; Zahra et al., 2007).

**Control Variables.** Firm age, size, and industry were controlled to minimize the effect of confounding variables. Firm age was measured by the number of years as of SME founding, not taking into account changes in firm ownership or name. Firm size was measured as the natural logarithm of the number of employees (full-time), following Lu & Beamish (2001). Several industries in the sample were coded as high to medium-technology (1) or medium to low-technology (0), following OECD’s (2011) classification of manufacturing industries into categories based on R&D intensities.

SME denaturing was assessed through business group affiliation following Torrés & Julien (2005). Using business group affiliation as an indicator of denaturing seems reasonable, provided that the influence of business groups is significant in many emerging markets (Khanna & Palepu, 1997). In Russian business practices all business groups have to have formal agreements and specific contracts covering the basis of relationships among members. As such, business group membership does reflect a higher level of formality in SME management in comparison with traditional SMEs. SME denaturing was coded as 0 for freestanding firms, and as 1 for members of business groups; thus grouping SMEs into “traditional” and “denatured” categories.

## Results

**Relations between SME Social Capital and SME Growth**

Table 4 presents the descriptive statistics and correlation matrix for all the variables in this study. It also provides the results for measures reliability test.

<table>
<thead>
<tr>
<th>List of Variables</th>
<th>Mean</th>
<th>Std.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Information sharing</td>
<td>2.543</td>
<td>.791</td>
<td>1</td>
<td>(.762)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Trust</td>
<td>2.082</td>
<td>.633</td>
<td>.757**</td>
<td>1</td>
<td>(.801)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Density of horizontal ties</td>
<td>4.310</td>
<td>1.310</td>
<td>-.202</td>
<td>-.142</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Density of vertical ties</td>
<td>2.980</td>
<td>1.858</td>
<td>.140</td>
<td>.209†</td>
<td>.336**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Strength of horizontal ties</td>
<td>2.520</td>
<td>1.310</td>
<td>-.131</td>
<td>-.109</td>
<td>.633**</td>
<td>.128</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Strength of vertical ties</td>
<td>.803</td>
<td>.306</td>
<td>-.078</td>
<td>-.122</td>
<td>-.323**</td>
<td>-.490**</td>
<td>-.296</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Sales growth</td>
<td>.010</td>
<td>.139</td>
<td>-.064</td>
<td>-.167</td>
<td>.213†</td>
<td>.099</td>
<td>.251†</td>
<td>.019</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Regional growth</td>
<td>1.017</td>
<td>.299</td>
<td>-.084</td>
<td>.013</td>
<td>.301*</td>
<td>.063</td>
<td>.302*</td>
<td>-.030</td>
<td>.528**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. LN_Size</td>
<td>3.78</td>
<td>1.649</td>
<td>.056</td>
<td>.125</td>
<td>.163</td>
<td>.233†</td>
<td>.082</td>
<td>-.088</td>
<td>.053</td>
<td>.302*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10. LG_Age</td>
<td>.8999</td>
<td>.409</td>
<td>.202</td>
<td>.156</td>
<td>.061</td>
<td>-.077</td>
<td>.001</td>
<td>-.073</td>
<td>-.239†</td>
<td>.028</td>
<td>.381**</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: N = 65; Figures in parentheses are reliabilities of scales.
* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).
† Correlation is significant at the 0.1 level (2-tailed).
Hypotheses 1.1 and 1.2 were tested using hierarchical multiple regression analysis. A series of regressions were run to test the effects of various measures of bonding and bridging social capital on firm growth, while controlling for firm size, age, and industry. The first set of models was run to test relationships between variables of bridging social capital and the outcome variable (Table 5).

Firm age, size, and industry were entered at Step 1, explaining 23.2 percent (adjusted R square) of the variance in regional growth. Models 1a–2a tested the density of ties. Adding density of vertical ties did not improve model 1a. With the introduction of density of horizontal ties (model 2a), and after controlling for age, size, and industry, the model explained an additional 3.9 percent of the variance in growth. Adjusted R squared change = 3.98 percent, F change (1, 60) = 4.310, p < .042. This variable was statistically significant, with a relatively small positive beta value (beta = 0.225, p < .042).

Models 3a–4a tested the strength of ties. Strength of vertical ties made no contribution for the growth outcome. Model 4a tested strength of horizontal ties at Step 2, which has demonstrated an increase in total variance explained from 23.3 percent to 26.6 percent (adjusted R square), F (4, 60) = 6.785, p < .001. The strength of horizontal ties resulted in an additional 3.6 percent of variance explained, and in F change (1, 60) = 3.702, p < .059. This variable was also statistically significant, with a small positive beta value (beta = 210, p < .10).

Table 5. Hierarchical Regression Analysis of Relationships between Bridging Social Capital and Regional Growth

<table>
<thead>
<tr>
<th>Model</th>
<th>Outcome variable</th>
<th>Step</th>
<th>Variable in the model</th>
<th>Beta</th>
<th>Adj. R²</th>
<th>R² change</th>
<th>Sig. F change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>LG (Regional growth)</td>
<td>1</td>
<td>Control</td>
<td>.233</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Add Density of vertical ties</td>
<td>-.013</td>
<td>.220</td>
<td>.013</td>
<td>.913</td>
</tr>
<tr>
<td>2a</td>
<td></td>
<td>1</td>
<td>Control</td>
<td>.233</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Add Density of horizontal ties</td>
<td>.225*</td>
<td>.272*</td>
<td>.039*</td>
<td>.042*</td>
</tr>
<tr>
<td>3a</td>
<td>LG (Regional growth)</td>
<td>1</td>
<td>Control</td>
<td>.233</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Add Strength of vertical ties</td>
<td>.001</td>
<td>.220</td>
<td>.013</td>
<td>.996</td>
</tr>
<tr>
<td>4a</td>
<td></td>
<td>1</td>
<td>Control</td>
<td>.233</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Add Strength of horizontal ties</td>
<td>.210†</td>
<td>.266†</td>
<td>.033†</td>
<td>.059†</td>
</tr>
</tbody>
</table>

N = 65; Control variables: age (LG), size (LN), and industry dummy;
* p < .05; † p < .10.

Hypotheses 1.1 and 1.2 were tested using hierarchical multiple regression analysis. A series of regressions were run to test the effects of various measures of bonding and bridging social capital on firm growth, while controlling for firm size, age, and industry. The first set of models was run to test relationships between variables of bridging social capital and the outcome variable (Table 5).

Firm age, size, and industry were entered at Step 1, explaining 23.2 percent (adjusted R square) of the variance in regional growth. Models 1a–2a tested the density of ties. Adding density of vertical ties did not improve model 1a. With the introduction of density of horizontal ties (model 2a), and after controlling for age, size, and industry, the model explained an additional 3.9 percent of the variance in growth. Adjusted R squared change = 3.98 percent, F change (1, 60) = 4.310, p < .042. This variable was statistically significant, with a relatively small positive beta value (beta = 0.225, p < .042).

Models 3a–4a tested the strength of ties. Strength of vertical ties made no contribution for the growth outcome. Model 4a tested strength of horizontal ties at Step 2, which has demonstrated the increase in total variance explained from 23.3 percent to 26.6 percent (adjusted R square), F (4, 60) = 6.785, p < .001. The strength of horizontal ties resulted in an additional 3.6 percent of variance explained, and in F change (1, 60) = 3.702, p < .059. This variable was also statistically significant, with a small positive beta value (beta = 210, p < .10).
explained, and in F change (1, 60) = 1.982, p < .17. This variable was marginally significant, with a small positive beta value (beta = 0.170, p < .17). The statistical significance of trust is rather low.

However, for small samples (or small effect sizes) a more liberal “alpha” level is most appropriate for detecting a relationship or an effect (Stevens, 1996). For this sample, observed size effect and significance level of .2 statistical power was .75; it is lower than recommended .8 (Cohen, 1988).

Hypothesis 1.2 proposed a positive association between SME bonding social capital and sales growth. Test results give some indication that trust had a discreet and marginally significant direct effect on the outcome variable of sales growth. Bonding relations were associated with SME’s sales growth as a measure of firm performance, providing cautious support for prior studies. Thus, bonding social capital contributed to efficiency of SME processes, and encouraged better performance. Hence, Hypothesis 1.2 was partially supported, provided that the variable of trust demonstrated a lower level of significance.

**Bonding and Bridging Social Capital of “Denatured” and “Traditional” SMEs**

A series of tests were performed to compare the facets of social capital of traditional and denatured SMEs. Hypotheses 2.1 and 2.2 predicted that parameters of bonding and bridging social capital were different for denatured SMEs, as compared to traditional SMEs. An independent samples t-test was performed in SPSS in order to compare mean scores for density of horizontal ties and trust as measures of bridging and bonding capital, respectively. A one-way multivariate analysis of variance (MANOVA) was considered for testing group differences, but dependent variables did not fully satisfy the requirements for multivariate analysis. MANOVA works best if dependent variables are highly negatively correlated, or moderately correlated in any direction; but this technique is not attractive if variables are highly positively correlated, or weakly correlated (Tabachnick & Fidell, 2007). The latter is the case with measures of bonding and bridging capital that were almost uncorrelated. Thus, two independent samples t-tests were performed to test hypotheses about the build-up of social capital across different types of SME.

Prior to the application of this statistical technique, general assumptions of independence of variation, normality of distribution were checked for; and the homogeneity of variance was taken into consideration. Another consideration needs to be mentioned, which applies to the possibility of having non-significant results due to insufficient power. Stevens (1996) suggested that for small group sizes the “alpha” level of significance should be set at .1 or .15 in order to decrease the probability of a Type II error. Since the sample contained 65 observations, the approximate size of groups was from 20 (for 3 groups comparison) to 30 cases (for 2 groups), which put them in the “small size” category. The cut-off level of significance was set at .15 in order to capture a statistically significant difference between groups. The effect size was calculated to assess the relative magnitude of the differences, as suggested by Cohen (1988).

Independent samples t-tests found significant differences in mean scores of tested parameters of bonding and bridging social capital for denatured and traditional SMEs. There was a significant difference in scores of density of horizontal ties for denatured SMEs (M = 4.55, SD = 1.15) and traditional SMEs (M = 4.09, SD = 1.42; t (63) = 1.43, p = .16, two-tailed). The magnitude of differences in the means (mean difference = .46, 95 percent CI: -.19 to 1.11) was small (eta squared = 0.031). Significant differences were also found for scores of trust; it was lower for denatured SMEs (M = 15.8, SD = 2.9) than for traditional SMEs (M = 16.82, SD = 2.05; t (63) = 1.65, p = .10, two-tailed). The magnitude of differences in the means for trust (mean difference = 1.03, 95 percent CI: -.20 to 2.29) was also very small (eta squared = 0.041).

Overall, Hypothesis 2.1 was supported, as denatured SMEs had a slightly higher density of horizontal ties than traditional SMEs. Hypothesis 2.2 was supported, as scores for trust as the measure of bonding

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**Table 6. Hierarchical Regression Analysis of Relationships between Bonding Social Capital and SME Performance**

<table>
<thead>
<tr>
<th>Model</th>
<th>Outcome variable</th>
<th>Step</th>
<th>Variable in the model</th>
<th>Beta</th>
<th>Adj. R²</th>
<th>R² change</th>
<th>Sig. F change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b</td>
<td>Sales growth</td>
<td>1</td>
<td>Control</td>
<td>.042</td>
<td>.135</td>
<td>.015†</td>
<td>.164†</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Add Trust</td>
<td>.174†</td>
<td>.057†</td>
<td>.015†</td>
<td>.164†</td>
</tr>
</tbody>
</table>

N = 65; Control variables: age (LG), size (LN), and industry dummy; †p < .20
social capital were “significantly” higher for traditional SMEs than for denatured ones. For all the measures tested the effect size was small, meaning that only 3 percent of variance in density of horizontal ties, and 4 percent of variance in trust were explained by SME denaturing. The test results indicated that denatured SMEs had more horizontal ties to their business environment; and thus they may have been better positioned in terms of accessing new market or social opportunities than traditional SMEs. The latter group, on the other hand, had more trust among individuals in a firm; and thus traditional SMEs may have relied more on internal effectiveness, on firm-specific resources, and capabilities than their denatured counterparts. Post-hoc power analysis indicated that for groups of 34 and 31 firms, the power to detect these small effects at .15 level of significance was .55 (for trust) and .45 (for density of horizontal ties). This issue will be discussed further in the research limitations section.

Discussion

Contributions

Various perspectives on social capital research have provided many insights into the mechanisms of social capital formation and deployment. In a recent review of social capital research, Payne et al. (2011) have found that most of the studies were conducted at individual or network levels, with studies of organizational social capital receiving less attention. At the same time, organizational social capital has been studied mainly in terms of its tangible outcomes such as financial performance (Li, Zhou, & Shao, 2009; Peng & Luo, 2000; Park & Luo, 2001).

First, this study not only adds to the less developed stream of organizational social capital research, but it also focuses at specific type of organizations (SMEs), and considers both tangible and intangible implications of social capital. Specifically, this study looks at firm-specific configuration of bonding and bridging social capital in relation to SME performance and geographic expansion. Thus, this paper attempts to provide more evidence regarding the role of firm-internal and firm-external social relations in SME development.

Second, this study adds more support for the role played by social capital in broader context of emerging markets. It is worth noticing that most of the studies of social capital focus on Asian countries, and the evidence from non-Asian context is rather fragmented. Hence, the most important contribution of this study is to shed more light on the value of social capital for small and medium enterprises operating outside the “Asian” group of emerging markets. Survey data collected in Russia contributes more empirical evidence for the less explored areas of firm strategic behavior in less structured environments such as emerging and transition economies. Choosing emerging markets as a research setting emphasizes the role of social capital as a valuable asset to the resource-restricted SMEs. And having empirical data from multiple countries helps generalizability of the social capital research.

Third, this research also contributes to the extant literature by providing more details on specific effects of bonding and bridging relational connections on SME growth outcomes. It was argued that greater bridging social capital would be associated with SME geographic growth, and that greater bonding social capital would be associated with better performance measured by sales growth. Based on the test results, bridging social relations seem to play an important role in helping SMEs move beyond their home region. In other words, external connections help to span boundaries of SME development, while internal bonding ties contribute to SME performance. Overall, this study extends the knowledge about the role of bonding and bridging relations in the context of smaller firms, and more turbulent environmental conditions. The results support the previously established positive association between horizontal bridging ties and growth. What is more important, this research brings into focus a meaningful distinction between the role of horizontal and vertical bridging connections. The results received for vertical bridging ties indicate that hierarchical, power-based relations are not important for building SMEs business networks and expanding geographically. The marginal effects of bonding social capital on SME performance prompt for clarification of the role played by bonding ties at the organizational level of analysis.

Finally, this study makes a contribution to the literature by linking the firm-specific configuration of bonding and bridging capital of SMEs to the nature of SMEs. Between-group comparisons of “traditional” and “denatured” SMEs were used to detect the differences in bonding and bridging capital across two groups of SMEs. As expected, significant variability in trust and in horizontal external ties was indicated for “traditional” and “denatured” SMEs. These groups exhibit distinct characteristics in terms of having more bridging or more bonding connections in their social capital. The findings regarding the higher density of horizontal bridging ties in “denatured” SMEs contribute to better understanding of relations between bridging social capital and strategies of SME development through exploration of market opportunities. It would be interesting to determine the causality of the relationship between the process of creation and the deployment of social capital and SME denaturing.
Thus, present research 1) adds to the body of research on organizational social capital; 2) supports the value of social capital in emerging and transition economies; 3) emphasizes the role of horizontal bridging ties in facilitating SME development; and 4) poses the question of studying the structure of social capital in relation to distinct characteristics of organizations, including SMEs.

**Research Limitations**

The small sample size has limited the choice of analytical options available, and raised the question of the generalizability of the research findings. It also brought up the issue of limited statistical power in testing hypotheses related to social capital of “denatured” and “traditional” SMEs. The size of groups (N=34 and N=31) may have played a role in limiting the significance of between-group comparison. A post hoc power analysis revealed that on the basis of the mean, observed small effect size (d = .4) and alpha level of .05, a sample of approximately 260 firms would be needed to obtain statistical power at the recommended .8 level (Cohen, 1988).

Another issue in terms of research limitations relates to the fact that there was only a single informant per firm, so the answers to survey questions may be biased toward that person’s view. However it is a common practice to only collect SME data from one source, and the questionnaires were filled in by either the CEO, or by another senior manager of a firm. Not all the data was self-reported. The dependent variables were objective measures of growth; and multiple sources were used for survey data verification.

Yet another potential limitation was the availability of appropriate measures of social capital at firm level. Payne et al. (2011) noted that operationalizations of social capital were inconsistent in extant literature. Indeed, the measures used in the prior research were not fully transferable to a firm level. And lastly, the study was cross-sectional, with no longitudinal considerations given to the relationship between social capital and growth. Thus, based on the issues listed above, the results should be taken with some caution.

**Theoretical Implications and Future Research**

This study extends our understanding of the specific role of bonding and bridging social capital for emerging market SMEs, and adds more support to the research on the importance of business networking for firm development. It also broadens our understanding of SME growth as both sales performance and geographical expansion. Moving this research forward it would be interesting to see if contextual factors will channel the process of development of firm’s social capital. Bringing about the temporal perspective is worth testing if bonding and bridging facets of social capital change over time.

**Implications for Practice**

In addition to the theoretical contributions, this study provides important practical guidelines on the benefits of structural components of social capital. Namely, owners and managers of SMEs may benefit from a better understanding of the role played by bridging connections in fostering specific strategies of growth. Firms may pay more attention to the creation and maintenance of horizontal bridging ties if they intend to expand beyond their local market.

**Conclusion**

The present study has answered the question of whether bonding and bridging relational connections have specific effects on the growth outcomes of emerging market SMEs. The results suggest that both the density and the strength of bridging ties are associated with SMEs’ expansion beyond their local “comfort zone”. The study supports the role of firm-external relations in spanning the boundaries of SME growth, and at the same time it brings to focus the difference between horizontal and vertical bridging ties. In addition to clarifying the association between social capital and SME growth, the results suggest that different classes of SMEs exhibit various levels of bonding and bridging social capital. Taken together, these findings contribute to an improved understanding of social capital and its outcomes for a firm across different institutional settings.

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About the Author

**Natalya Totskaya** (ntotskaya@laurentian.ca) received her PhD from Concordia University (Montreal, Canada). She is an Assistant Professor at the Faculty of Management, Laurentian University, Canada. Her research interests are in the area of social capital, emerging markets, and SME internationalization.
Entrepreneurial Behavior During Industry Emergence: An Unconventional Study of Discovery and Creation in the Early PC Industry

Alka Gupta
Christoph Streb
Vishal K. Gupta
Erik Markin

Acting entrepreneurially in nascent industries is a complex endeavor characterized by uncertainty and ambiguity. Nevertheless, entirely new industries do emerge, often as a direct result of entrepreneurial behavior. We extend and apply discovery and creation approaches to study entrepreneurial behavior during industry emergence by means of qualitative analysis of a film about the personal computer (PC) industry’s formative years. We find that discovery and creation behavior are fundamentally interrelated and share a common element: bricolage. Moreover, ideological activism is a major component of entrepreneurial behavior in a new industry’s formative years during both creation and discovery processes. Implications for research and practice are discussed.

Keywords: entrepreneurial behavior, discovery, creation, qualitative methodology

Entrepreneurial behavior is “risky business” under any condition, but especially during an industry’s formative years when there are few precedents for the kinds of activities in which enterprising actors want to engage (Sine, Haveman, & Tolbert, 2005). Nevertheless, entirely new industries emerge successfully, often as a direct result of human agency (Garud & Karnoe, 2003). Studies of entrepreneurial behavior have tended to concentrate on relatively mature industries where its dynamics may differ (Mezias & Kuperman, 2001), resulting in “the persistence of major gaps in our understanding” of the phenomenon (Forbes & Kirsch, 2011). This lack of studies on entrepreneurial behavior in emergent industries is a notable omission. Not only is entrepreneurial behavior an important research topic in its own right, but events and activities during this time also tend to have a profound impact on an industry’s subsequent development (Aldrich & Reuf, 2006). In our study, we begin to redress this research gap. We extend prior research and empirically apply discovery and creation perspectives to study entrepreneurial behavior during industry emergence through a narrative analysis of a 1999 made-for-TV film, Pirates of Silicon Valley (henceforth PSV), which documents the activities of a variety of actors involved in the emergence of the personal computer (PC) industry (Leonard, 1999).

At present, the literature presents two perspectives—discovery and creation—that explicitly address the role of agency and action in entrepreneurship (Alvarez & Barney, 2007). For discovery theorists, alert actors identify hitherto unperceived discrepancies that can be readily rectified (Kirzner, 1997; Shane, 2003). For creation theorists, imaginative actors create new artifacts (Mathews, 2010; Sarasvathy, 2001). In metaphorical terms, discovery is about “searching the brushy woods for a choice of path,” while creation involves constructing new paths (Hjorth & Johannisson, 2008: 343). For the most part, these two theoretical perspectives have been considered opposed to each other in the prior literature. Despite the increasing popularity of discovery and creation approaches in entrepreneurship (Edelman & Yli-Renko, 2010; Vaghely & Julien, 2010), these two perspectives have not been explicitly used to provide insights into entrepreneurial behavior in emergent industry contexts (Bird & Schjoedt, 2009). We therefore apply these perspectives, with the goal of comparing and contrasting them to advance our understanding of entrepreneurial behavior under conditions of uncertainty and ambiguity (Alvarez & Barney, 2010).

The film PSV is based on careful research that involved digging through “reams of documents dating back to the 1970s,” reading “all available books about those involved” in the process, combing through old magazine pieces written as events were unfolding, and viewing “miles of film and video footage” related to the main characters (Huff, 1999). Steve Wozniak, a key figure in the development of Silicon Valley and a co-founder of Apple Inc., provided an industry insider endorsement of the film when he declared that it “pretty much reflected the events as they happened” (Wozniak, 2000). This is not to say that

P5V, like other entrepreneurship stories, may not take some artistic license, substituting—in Gartner’s words (2007: 614)—“unknowns in the knowledge of specific ‘facts as given’ with ‘facts as made.’” It nevertheless serves as a rich source of information to generate insights into entrepreneurial behavior (Gartner, 2010a). Ahl and Czarniawska (2010: 196) argue that even if an entrepreneurship story is not completely authentic, it can still advance the study of entrepreneurial behavior as long as “it is interesting to analyze.”

In the present study, we deploy discovery and creation theories to cast new light on industry emergence using P5V as a key source of information about the formative years of the PC industry. We advance knowledge about entrepreneurial behavior during industry emergence in several ways. First, the discovery and creation perspectives that we employ not only allow us to examine and apply theoretical tenets from existing perspectives, but also to develop theoretically grounded insights into entrepreneurial behavior in an emergent industry context (Aldrich & Reuf, 2006). Forbes and Kirsch (2011: 4) contend that industry emergence represents the “left side of a story whose center and right are comparatively well documented” in the organizational literature. Our use of two established theoretical frameworks—discovery and creation—seeks to shed new light on entrepreneurial behavior in a nascent industry context.

Second, we use a qualitative approach to provide a context-rich empirical analysis of entrepreneurial behavior (Gartner, 2010a; Hjorth, Jones, & Gartner, 2008). Our approach involves a holistic interpretation of the recorded activities and processes comprising entrepreneurial behavior (Phillips & Brown, 1993), which makes this approach suitable for research in entrepreneurship (Chiles, Vultee, Gupta, Greening & Tuggle, 2010a). Although researchers have long viewed qualitative research with indifference, skepticism, and even disdain, it is gradually gaining respectability in entrepreneurship and is expected to become more prominent (Gartner, 2007), so that some scholars now consider such research crucial for knowledge generation in entrepreneurship (Gartner, 2010b; Steyaert, 2007). The detail, drama, and surprise that characterize qualitative studies provide contextualization and intensity of experience that entrepreneurship researchers believe helps theory development in their field (Fletcher, 2007; Hjorth & Johannisson, 2008; Teague, 2010).

Third, although stories about entrepreneurial behavior abound in contemporary society (Fletcher, 2007), such stories have traditionally been ignored in entrepreneurship scholarship (Ahl & Czarniawska, 2010). This neglect has begun to change in recent years with scholars beginning to appreciate the value of entrepreneurship stories in biographical accounts (e.g., The Toy Store[e]y in Gartner, 2007) and books (e.g., Republic of Tea in Gartner, 2010b). Despite this increase in the use of “stories as data” (Gartner, 2010a), films have not yet entered the repertoire of scholars in our field. This is surprising, because film presents a story as a “sequence of events connected by subject matter and related by time” (Scholes, 1980: 209). In addition, films are important cultural and educational artifacts, and have a “pervasive and enduring presence” in modern society (Neuendorf et al., 2010: 759). Our use of a film that is readily available for future study thus has the potential to extend story-based entrepreneurship research (e.g., Gartner, 2007, 2010b) in new directions (Gartner, 2010a).

Theoretical Background

Discovery and Creation Perspectives

Discovery and creation frameworks can be considered meta-perspectives comprising a wide variety of entrepreneurship research based on underlying philosophical assumptions (Chiles et al., 2010a; Zahra, 2008). Although both perspectives are rooted in fundamentally different assumptions about the nature of the market process (Gloria-Palermo, 1999), they embrace the idea that the economy is driven by enterprising actors’ spontaneous actions (O’Driscoll & Rizzo, 1985). The discovery perspective assumes a realist objective ontology, whereas the creation perspective is rooted in subjective constructivist ontology (Pacheco, Dean, & Payne, 2010). The former posits that the world is comprised of objective phenomena to which entrepreneurs respond actively (Kirzner, 1997; Shane & Venkataraman, 2000), while the latter contends that entrepreneurial action continually constructs the world (Chiles, Tuggle, McMullen, Bierman & Greening, 2010b). In contemporary entrepreneurship research, discovery is associated with the work of, for example, Shane (2000) and Busenitz (1996); creation is associated with entrepreneurship in the work of Sarasvathy (2001) and Chiles and Zarankin (2005).

In recent years, discovery and creation have emerged as credible alternatives to traditional neoclassical models that provided a limited—if any—role for entrepreneurial behavior in the economy (Klein, 2008). Both the discovery and creation approaches spotlight entrepreneurs as enterprising agents who introduce new products and services to the world (Zahra, 2008), and celebrate entrepreneurial behavior as an engine for economic development (Miller, 2007). Table 1 presents a summary comparison of the two perspectives as they pertain to entrepreneurship.
As can be seen in Table 1, a key aspect of the discovery approach is alertness, whereas in the creation approach the focus is on imagination. The former involves scanning the environment to identify pre-existing means-end asymmetries (Sarasvathy, Dew, Velamuri, & Venkataraman, 2003), while the latter involves bringing into being new means and/or ends (Buchanan & Vanberg, 1991). From a discovery perspective, action is based on the interpretation of past experiences (Shane, 2000) while, from a creation lens, action is driven by expectations about an unknown future (Chiles et al, 2010b). In the discovery view, change occurs as a result of exogenous “shocks” beyond one’s control, while in the creation view change is brought about by purposeful acts (Vaughn, 1992). Discovery theorists encourage entrepreneurs to identify and analyze alternatives selecting one with highest expected returns (Fiet, 1996), whereas creation theorists advocate gradual commitments and experimentation (Sarasvathy, 2001). The former emphasizes formulaic agency (combining things in a predetermined manner), while the latter brings bricolage (making do with resources at hand) center-stage. In discovery, entrepreneurship is path-dependent (“where one can be depends on where one has been”), and in creation it is path-generative (“where one can be depends on where one wants to be”) (Garud & Karnoe, 2003).

To date, theoretical and empirical research on discovery and creation has largely centered on the opportunity concept (e.g., Zahra, 2008; Sarasvathy, Dew, Velamuri, & Venkataraman, 2003). Entrepreneurship scholars have used discovery and creation to examine business opportunities in Canadian small- and medium-sized enterprises (Vaghely & Julien, 2010), Swedish mobile Internet entrepreneurs (Berglund, 2007), and small ventures in the US (Edelman & Yli-Renko, 2010). While such studies have taught us much about the nature of business opportunities, they do not go far enough to explore the broader domain of entrepreneurial behavior. This is an important shortcoming in prior research, since it is possible that when it comes to entrepreneurial behavior, discovery and creation operate differently than in the realm of opportunity. We advance Alvarez and Barney’s (2007) initial attempt to extend the scope of discovery and creation perspectives. Specifically, we examine and apply discovery and creation in the realm of entrepreneurial behavior, moving beyond their limited application to business opportunity. A number of researchers in entrepreneurship and organizational studies have noted that discovery and creation theories offer distinct insights into entrepreneurship phenomenon (Santos & Eisenhardt, 2009; Kor, Mahoney, & Michael, 2007; Pacheco, Dean, & Payne, 2010; Vaghely & Julien, 2010).
Entrepreneurial Behavior in Emergent Industries

Although some may argue otherwise, it seems evident that much of what we consider entrepreneurship involves intentional entrepreneurial behavior (Krueger, O'Reilly, & Carsrud, 2000). Defined broadly, entrepreneurial behavior encompasses activities and events that enterprising actors enact to pursue an entrepreneurial path (Bird & Schjoedt, 2009). By definition, behavior is concrete, not abstract, and can be seen and/or heard.

An example of such concrete behavior is found in the short story, A Toy Store(y), which is a retrospective account of a toy retailing endeavor and recently the centerpiece of a special journal issue on narrative research in entrepreneurship (Allen, 2007). In this engaging business story, an enterprising team starts a venture selling toys, confronts several obstacles in the process, and cashes out after some weeks (Fletcher, 2007). The story describes the various activities and milestones such as taking out loans, leasing commercial space, obtaining merchandise, running promotions, acquiring customers, and outsmarting competitors (Allen, 2007). When interpreted and understood in the context of the story as a whole, these actions provide rich insights into the concept of entrepreneurial behavior (Gartner, 2007). Together, these activities, each of which can be broken down into its constituent elements (e.g., taking out a loan involves meeting with a banker, completing an application, etc.), constitute the entrepreneurial process.

It is a truism that entrepreneurial behavior is risky (Sine, Haveman, & Tolbert, 2005). In emerging industries, the level of risk is exacerbated as the public and resource providers are unfamiliar with and skeptical about new market offerings (Sarasvathy, 2001). Nevertheless, in the past few decades, various new industries (e.g., the PC industry) have emerged, providing employment, producing wealth, and fostering economic development (Garud & Karone, 2003). The successful emergence of new industries is remarkable, considering that many nascent industries never manage to emerge, remain dormant for decades, or meet a conclusive death at some point (Forbes & Kirsch, 2011). Despite disagreements about the precise temporal boundaries of industry emergence, there is a general consensus that emergence refers to a new industry’s formative years, concluding with maturity or stability (Aldrich and Reuf, 2006). In terms of time, it may take a new industry anywhere from one or two years to more than fifty to get to a stage where its dominant logic is widely accepted (Klepper & Graddy, 1990), at which point it is considered an established industry (Mezias & Kuperman, 2001).

Ambiguity—defined as a “lack of clarity about the meaning and implications of particular events or situations” due to unknown patterns of relationships and actions (Santos & Eisenhardt, 2009: 644)—is a characteristic feature of emergent industries. Ambiguity in emerging industries can be contrasted with the inability to predict the probability of specific outcomes in established industries that have a widely accepted dominant logic (Sarasvathy, Dew, Velamuri, & Venkataraman, 2003). Specifically, emerging industries offer fertile ground for entrepreneurial action, as enterprising actors test new ideas that are retained, discarded, or refined, depending on market responses (Sine & Lee, 2009).

The undefined structure and multiple possible cause-effect relationships characterizing emerging industries facilitate new interpretations that reduce their inherent ambiguity (Santos & Eisenhardt, 2009). Weick (1995: 95) argues that there are two possible responses to ambiguity: “Ambiguity understood as confusion created by multiple meanings calls for … construction [and] ambiguity understood as ignorance created by insufficient information calls for … discovery.” Building on this insight, we suggest that insights into entrepreneurial behavior during industry emergence may emerge from discovery and creation perspectives (Alvarez & Barney, 2007; 2010).

More than four decades ago, Baumol (1968: 66) observed that the entrepreneurial actor—“the Prince of Denmark”—is absent “from the discussion of Hamlet.” Twenty years later, Low and Macmillan’s (1988) seminal article urged researchers to study entrepreneurial behavior on the part of enterprising actors to understand and explain entrepreneurship. This new focus posed certain challenges: entrepreneurial behavior tends to be idiosyncratic, rare, and unpredictable (Macmillan & Katz, 1992), making it difficult to conceptualize and study empirically. Indeed, in their recent review of the extant literature on entrepreneurial behavior published twenty years after Low and Macmillan (1988), Bird and Schjoedt (2009: 334) observed “a paucity of empirical research and a lack of conceptual clarity” in the area. Thus, despite its value as a “fertile and unique intellectual space” (Low, 2001: 22), scholarly understanding of entrepreneurial behavior in emergent industries remains limited (Krueger, Reilly, & Carsrud, 2000). We hold that the application of well-developed theoretical frameworks such as discovery and creation would be helpful in overcoming this problem.

We note that the present study is located in the growing research stream illuminating entrepreneurial behavior during a new industry’s formative years (Forbes & Kirsch, 2011). Aldrich and Fiol (1994: 645)
observed that during the early years, entrepreneurial behavior involves navigating “at best, an institutional vacuum of indifferent munificence” and, at worst, “a hostile environment impervious to [entrepreneurial] action.” Despite these challenges, substantial entrepreneurial activity does occur in nascent industries (Forbes & Kirsch, 2011). Event-driven methods are required to capture the salient features of behavior that unfolds over time during industry emergence (Van de Ven & Engelman, 2004). Such methods employ narrative explanations to address how rare and unpredictable events—in this case, acts of entrepreneurial behavior—occur, and then relate these specific activities to the big picture (Chiles et al., 2010a). The methodological approach we use emphasizes the need to interpret specific events in the broader context in which they occur, and to understand the larger picture by making sense of the individual events (Klein & Myers, 1999). Our study thus facilitates a new understanding of entrepreneurial behavior by conducting a qualitative analysis, which can be employed to study historical events in a variety of contexts (Mumford, 2002).

Method

Data

The data for our study was derived from the film Pirates of Silicon Valley (PSV), which documents the emergence of the PC industry. A film is a “vivid text” that unfolds over time (Valdez & Halley, 1999). Rudy, Popova, and Linz (2010) argue that films occupy an important position in contemporary society because they reflect social norms and conventions, as well as socialize people by communicating ideas about what is (or is not) acceptable in a particular society. Scholars studying the sociology of knowledge consider films to be very useful in establishing and maintaining norms, values, and beliefs in society (Freeman & Valentine, 2004). Thus, films constitute “an important cultural text,” especially in “a predominately visual culture, in which films are often watched far more readily” than other texts are consumed (Jasper, 2004: 128). Yet, as Neuendorf and others (2010: 759) note, “films are a body of media content that is often overlooked” by business organizational researchers. This is especially true in entrepreneurship research, where films remain unexplored as a data source for textual analysis (Gartner, 2010b).

PSV has several characteristics that make it suitable for this research (Eisenhardt & Graebner, 2007). First, the film develops complex arguments, going beyond the usual storybook template of entrepreneurship stories. This atypicality lends credibility and authenticity to the story presented in the film, making it worthy of study (Ahl & Czarniawska, 2010). Second, PSV presents an account of events during the PC industry’s emergence that unfold over several years, linking antecedents to consequences through actions, and in specific contexts (Lunce & Smith, 2005). It creates a meaningful account of industry emergence from disparate activities linking the industry’s fragmented, messy, and non-linear history into a coherent whole (Fletcher, 2007), describing how the industry came about, and the problems and opportunities encountered along the way (Fletcher, 2007). Third, the film offers several well-researched entrepreneurial episodes that can be supplemented with additional research (Mumford, 2002). Although the story told in PSV is a retrospective account by Steve Wozniak (the co-founder of Apple) and Paul Allen (the co-founder of Microsoft), several notable individuals (e.g., Ed Roberts, Bill Gates, Steve Jobs, and Mike Marakula) and organizations (e.g., Xerox and IBM) that each played an important part in the nascent PC industry are also introduced, seen, and heard in the film.

Research Methodology and Analysis

Our methodological approach involved the identification of episodes of entrepreneurial behavior that could be analyzed to develop theoretical insights (Mumford, 2002). We (i.e., research team of two scientists and two research assistants) watched the film attentively (several times in full and in parts) to identify such episodes. Taking the theoretical tenets of discovery and creation into consideration (see Table 1), we deliberately selected episodes of entrepreneurial behavior that, in our view, illustrate the two theoretical frameworks discussed above (Diesing, 1991). Our approach was consistent with theory-based sampling, which selects examples for their potential to manifest or elucidate chosen concepts (Neergaard, 2007). An initial intercoder reliably of 90% was achieved among the four team members before the eventual collection of entrepreneurial episodes was approved. These episodes covered a variety of entrepreneurial behaviors across a range of contexts and situations. Since all the selected episodes occurred over a specific time-span (the early 1970s to the mid-1980s) in a specific cultural setting (the US), our approach implicitly controlled for historical and cultural factors (Eisenhardt, 1989).

We identified five exemplary episodes each of discovery and creation. Some qualitative researchers have noted that understanding evolves when one moves “from the whole to the part and back to the whole” (Myers, 2009: 191). This suggests that the more cases a researcher examines and the more information obtained about each case, the better the
understanding of the entrepreneurial phenomenon and its various aspects (Gartner, 2007). Neergaard (2007) compared such research to a jigsaw puzzle: by putting individual pieces together, a more holistic picture emerges. However, there are no decisive guidelines about how many episodes are needed to provide a complete understanding of any phenomenon. Eisenhardt and Bourgeois (1988) use four firms in their study of the microcomputer industry, while Mumford and van Doorn (2001) examine ten critical incidents from Benjamin Franklin’s life.

Following prior research (Klein & Meyers, 1999; Mumford, 2002), we pursued a multi-stage approach. We selected appropriate entrepreneurial episodes from the film, described the context in which these occur, interpreted the interrelationships between selected episodes and other parts of the film, as well as its overall context, and eventually interpreted the results beyond the original context. The interpretation and understanding of the ten selected episodes in their proper context was achieved by using a broad range of textual sources, including books and articles related to the PC industry. Our use of outside sources to understand the meaning of each scene is consistent with the notion that once a narrative has been produced as a work (i.e. textualized), it acquires a certain autonomy from its original production, as well as from the participants involved (Thompson, 1984), thus allowing for new interpretations (Tan, Wilson, & Olver, 2009). In the words of Ricoeur (1981):

“To interpret […] is to appropriate here and now the intention of the text […] the intended meaning of the text is not essentially the presumed intention of the author, the lived experience of the writer, but rather what the text means….”

Episodes and Findings

Tables 2 and 3 present a summary of ten selected entrepreneurial episodes (five of discovery and five of creation) with regards to their film context, thematic substantiation, and industry relevance. We summarize each scene individually, provide a timeline to identify its occurrence in the film, and link it with events and incidents from the film and the real world. Unless referenced otherwise, all direct quotes in this section (including Tables 2 and 3) are from the film.

We use numbers (1 to 5) to refer to specific discovery and creation scenes. For instance, “Paul Allen and Bill Gates discover the need for computer language” is referred to as discovery scene 1, and “Apple I is built” is referred to as creation scene 1.

Table 2. Discovery Episodes from the film *Pirates of Silicon Valley (PSV)*

<table>
<thead>
<tr>
<th>Discovery Episodes</th>
<th>Film Context</th>
<th>Thematic Substantiation (with regards to “discovery”)</th>
<th>Industry Relevance (Literature Support)</th>
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<tr>
<td><strong>Scene 1:</strong> Paul Allen and Bill Gates discover the need for a computer language</td>
<td>This scene takes place fairly early on in the film. Allen and Gates are Harvard students. It is followed by Gates’s specific efforts to gain direct contact with the makers of the Altair (Ed Roberts of Micro Instrumentation and Telemetry Systems) to propose the development of a computer language.</td>
<td>This scene shows that the initiation of discovery occurring exogenously. Paul Allen’s and Bill Gates’s prior knowledge and interest in computers led them to pursue an opportunity that was there for everyone to grab. Paul Allen “stumbles upon” the magazine article about the Altair in a typical Kirznerian fashion. He was not searching for it; in fact, he serendipitously comes across the article, which informs him of the Altair’s development. The magazine stated that there was a demand for a suitable programming language (Day, 1994). Paul and Bill just needed to write a language to meet this demand.</td>
<td>The film indicates that these events take place after 1974. This can be confirmed, as the <em>Popular Electronics</em> magazine cover depicting the Altair 8800 was published in January 1975 (Karlgaard, 2006). The Altair 8800’s introduction was an important chapter in the computer industry’s history, as its build-it-yourself design helped make small computers available to a large consumer (i.e. non-corporate) market, which eventually led to the development of the PC industry (Hill &amp; Deeds, 1996). It is here that Gates and Allen’s interest in computers is channeled into (business) efforts for the first time (i.e., the development of a computer language).</td>
</tr>
<tr>
<td><strong>Synopsis</strong></td>
<td><strong>Film timeline:</strong> 10:25-12:17</td>
<td><strong>Thematic Substantiation:</strong> “right now it just sits there and blinks.”</td>
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</table>
Table 2. Discovery Episodes from the film *Pirates of Silicon Valley* (PSV) (continued)

<table>
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<th>Scene 2: Steve Jobs and Steve Wozniak discover a market for personal computers</th>
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<tr>
<td><strong>Synopsis</strong>&lt;br&gt;Steve Jobs and Steve Wozniak present the Apple I at the Homebrew Computer Club meeting in Berkeley. They enter the venue while the Altair 8800 is being presented on stage. At the meeting, they set up their own homemade computer. The computer’s design impresses the audience and makes Jobs and Wozniak the center of attention. They leave the meeting with orders for fifty computers.</td>
</tr>
<tr>
<td><strong>Film Context</strong>&lt;br&gt;This scene is preceded by scenes depicting the general struggle of both Jobs and Wozniak to find direction in life. Up to this point, they seemingly have no clear aim or intention behind their actions. The obvious success of their prototype, basically anticipating the design of personal computers to come, confirms their initial “feel” for the market and, most importantly, indicates a clear market potential. The scene is followed by Jobs sharing his ideas about future prospects of their endeavor with Wozniak.</td>
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<tr>
<td><strong>Thematic Substantiation</strong>&lt;br&gt;Primarily due to their alertness, Jobs and Wozniak were able to interpret the positive response to their product as a clear indication of a market opportunity. The feedback from the audience is an exogenous factor confirming their discovery’s potential value. It demonstrates that Steve Jobs and Steve Wozniak find an unmet demand for small computers among people who had previously not been considered computer buyers (Bergin, 2006; Levy, 2007). This demand was latent and not explicit, as the major computer companies of the day were apparently not aware of it, and potential customers were not asking for personal computers (Jackson, Mandeville &amp; Potts, 2002).</td>
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<tr>
<td><strong>Industry Relevance</strong>&lt;br&gt;The recognition of the opportunity to sell personal computers is a central event in the industry’s history (Holcombe, 1999). The product they present is later referred to as the Apple I. The market success of the Apple I was due to its most distinct feature: it was a fully assembled machine with an input device and an output device.</td>
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<th>Scene 3: Microsoft finds DOS</th>
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<td><strong>Synopsis</strong>&lt;br&gt;Microsoft needs operating software to sell to IBM. The Seattle Computer Company, an independent venture, had developed an operating system known as QDOS (Quick and Dirty Operating System). After some negotiations, Microsoft buys the QDOS for 50,000 USD.</td>
</tr>
<tr>
<td><strong>Film Context</strong>&lt;br&gt;Microsoft enters into a deal to provide the Disk Operating System (DOS), a product that, at the time, they knew they did not yet have. Microsoft adapts the QDOS to IBM’s requirements and licenses to other companies. The deal is a turning point in Microsoft’s development, as it enabled it to become an IBM business partner.</td>
</tr>
<tr>
<td><strong>Thematic Substantiation</strong>&lt;br&gt;Microsoft realized there was a business opportunity if they could obtain an operating system someone else had actually developed without seeing its market potential. Thus, based on its prior knowledge and alertness to this gap, Microsoft discovered a significant opportunity, which essentially involved arbitrage (Loasby, 1992). As Kirzner (1973: 79) explained, an arbitrageur-entrepreneur “sells for high prices that which he can buy for low prices.” The arbitrageur helps close pockets of ignorance in the market by acquiring a bundle of rights to attributes (i.e. a distinct asset) in one transaction and selling the asset in another transaction (Foss, Foss, Klein, &amp; Klein, 2007).</td>
</tr>
<tr>
<td><strong>Industry Relevance</strong>&lt;br&gt;The episode supposedly takes place in 1980, after Steve Ballmer had joined Microsoft and when IBM required an operating system for its microcomputers (Jackson, Mandeville, &amp; Potts, 2002). Not having developed anything close to what IBM was asking them for, they acquired what was known as QDOS (Wallace, 1993).</td>
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<th>Scene 4:</th>
<th>A team from Apple visits the Xerox Palo Alto Research Center. Apple has learned that Xerox has been developing new, advanced technological applications such as the computer mouse and graphical user interface. Xerox corporate office does not consider these innovations relevant to their business, so they allow Apple to study them in detail. The technological development at Xerox surprises the Apple team, which proceeds to adapt these innovations for their own purposes.</th>
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<tr>
<td><strong>Apple discovers WIMP</strong></td>
<td>This scene follows Steve Jobs echoing Picasso’s famous words: “Good artists copy. Great artists steal.” Jobs makes this idea the guiding philosophy by which Apple conducted its business. Viewer attention is then drawn to Xerox’s innovations. The scene is followed by a voice-over from Wozniak concluding that with “about 100 billion USD head-start on anyone else, Apple was making tons of money.”</td>
</tr>
<tr>
<td><strong>Film timeline:</strong></td>
<td>Apple clearly realized the huge potential of these inventions and their impact on personal computers’ design and capabilities, while the top management at Xerox did not see much potential in these products (Holcombe, 1999; Shane, 2000). Based on their prior knowledge of and experience in the computer industry, Apple realized that there was an opportunity to obtain these technologies from Xerox. As Shane (2000) notes, prior knowledge “from work experience, education, or other means, influences the entrepreneur’s ability to comprehend, extrapolate, interpret, and apply new information in ways that those lacking that prior information cannot replicate.”</td>
</tr>
<tr>
<td><strong>Thematic Substantiation (with regards to “discovery”)</strong></td>
<td>This scene supposedly takes place in December 1979, when Xerox indeed granted Apple three days’ access to familiarize themselves with their Palo Alto Research Center (Levy, 1994; Wozniak &amp; Smith, 2006). Although Xerox received pre-IPO shares from Apple for this privilege, the technological advantage Xerox was giving away here was significant. In Levy’s words (1994: 77–78), “the number crunchers at Xerox considered this a fairly innocuous concession—they were getting a tangible stock deal in exchange for allowing Apple a brief exposure to technology that in their minds belonged more to science fiction than to future revenues.” It ultimately led to the development of the Apple Lisa with a graphical user interface (Wozniak &amp; Smith, 2006).</td>
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<tr>
<th>Scene 5:</th>
<th>When Bill Gates discovers the graphical user interface, he becomes concerned about Apple’s technological head start. He is eager to join forces with Apple. He is able to convince the initially indifferent Jobs to trust him (personally) and to provide him with prototypes of the Macintosh long before its introduction to the market.</th>
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<tr>
<td><strong>Gates discovers the graphical user interface</strong></td>
<td>In the film, this specific scene starts by showing Bill Gates trying an Apple computer in his office. Having met with Steve Jobs, directly after leaving the building, Gates mentions to Ballmer “if he [Jobs] is not careful, he is going to wreck the place,” thus making no secret of his plans to copy Apple’s innovations for himself. This scene recalls Apple adapting Xerox’s innovations (Scene 4), with the major difference that Jobs is not aware of Gates’s plans.</td>
</tr>
<tr>
<td><strong>Film timeline:</strong></td>
<td>Gates becomes aware that Apple, with its progressive corporate culture and technological lead, is the real competitor in the market. At a time when Jobs still perceived IBM as the major threat, Microsoft and Apple have actually become direct rivals. This opens the opportunity for Gates to gain Jobs’s trust and to adapt their innovations before Jobs realizes what is happening. Alertness to opportunities and knowledge of market potential are the basis of Gates’s discovery.</td>
</tr>
<tr>
<td><strong>Industry Relevance (Literature Support)</strong></td>
<td>This scene presumably takes place in 1983 (Wozniak &amp; Smith, 2006; Simmons, 2007). It depicts an important moment in the development of the relationship between Apple and Microsoft, as well as between Jobs and Gates, because it lays the foundation of the direct competition between the two companies, which continues to this day (Wallace, 1993). Notably, at this time, Bill Gates was not actively searching for new technologies for operating software. Microsoft had already gained a reputation in operating systems and programming languages (Rivlin, 1999). When Gates saw the graphical user interface developed at Apple, he “knew [it] portended the future” (Levy, 1994: 161). Microsoft then zealously turned its attention to working on this new software, which formed the basis of its now ubiquitous Windows product (Holcombe, 2003).</td>
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### Table 3. Creation Episodes from the film *Pirates of Silicon Valley* (PSV)

<table>
<thead>
<tr>
<th>Scene 1:</th>
<th>Apple I is built</th>
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<tbody>
<tr>
<td><strong>Film</strong></td>
<td><strong>Timeline:</strong> 16:09-18:02</td>
</tr>
<tr>
<td><strong>Synopsis</strong></td>
<td>Wozniak and Jobs, university students at the time, are at the kitchen table, chatting and working on constructing a computer (which later came to be called the Apple I). From their conversation, it becomes apparent that, so far, also with regard to the computer on which they are working, they have no clear goal, not to mention business intentions.</td>
</tr>
<tr>
<td><strong>Film Context</strong></td>
<td>The actual scene does not depict the specific procedure by which the computer is built. Yet, the characters' comments and work make it clear that they are building a computer. For example, a reporter from the <em>Mercury News</em> wants to interview Wozniak when he learns that they are building a computer “all from spare parts.”</td>
</tr>
<tr>
<td><strong>Thematic Substantiation (with regards to “creation”)</strong></td>
<td>The construction of the Apple I computer was not based on an existing design; instead, it involved imagination, tinkering, and trial and error, with several setbacks along the way (see Table 1). According to Levi-Strauss (1967), entrepreneurship often involves making do with “whatever is at hand.” The conscious and willful tendency to make do also involves combining and re-using existing resources to put them to unexpected uses, sometimes resulting in “brilliant unforeseen results” (Baker &amp; Nelson, 2005). The willingness to make do and engage in resource recombination facilitated the construction of the Apple I by two young men with very limited resources and no existing blueprint to follow in terms of what a computer should look like.</td>
</tr>
<tr>
<td><strong>Industry Relevance (Literature Support)</strong></td>
<td>From the film, no clear deduction can be made regarding the period during which the construction of the Apple I took place. But there can be little doubt that design was a milestone in the development of the PC industry (Moritz, 1984). The homemade computer was built from parts that were readily available; yet, the finished product turned out to be the first personal computer that provided a realistic marketing opportunity (Wozniak &amp; Smith, 2006). The Apple I’s significance also lies in it serving as a model for future generations of computers, as subsequent computers were expected to have a keyboard to enter information and a monitor to display output.</td>
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<th>Scene 2:</th>
<th>Apple is founded in a garage</th>
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<tr>
<td><strong>Movie</strong></td>
<td><strong>Timeline:</strong> 20:40-23:04</td>
</tr>
<tr>
<td><strong>Synopsis</strong></td>
<td>Jobs and Wozniak start to build their computers in Jobs’s parents’ garage. They have little funds. It is also not clear at this point whether Hewlett-Packard (HP) actually has ownership of Wozniak’s computer design, as he works for them, and has signed a contract. When HP management scoffs at the idea of computers for everyday use, Steve Jobs and Wozniak start their company, calling it Apple Computers.</td>
</tr>
<tr>
<td><strong>Film Context</strong></td>
<td>This scene follows the successful presentation of the Apple I at the Homebrew Computer Club in 1976. The interest they saw among people for their design convinced Jobs and Wozniak to go ahead and build computers in larger numbers to sell to individual customers. The scene is followed by another scene, which shows Steve Jobs trying to secure a bank loan to finance the business’s initial expansion, a task at which he is not successful at first.</td>
</tr>
<tr>
<td><strong>Thematic Substantiation (with regards to “creation”)</strong></td>
<td>The formation of a new organization is arguably the most important aspect of entrepreneurial activity (Gartner, 1990). Apple was founded when PCs were an untested idea, and it was not clear why “ordinary people would want computers.” Starting the company under such circumstances involved imaginative entrepreneurs’ intentionality (to sell computers), acquisition of resources (e.g., obtaining credit from suppliers), taking an organizational identity (the name Apple Computers), and transacting with customers as a business (Katz &amp; Gartner, 1988).</td>
</tr>
<tr>
<td><strong>Industry Relevance (Literature Support)</strong></td>
<td>Organizing disparate business activities and selling computers into a formal business was obviously key to Apple’s commercial success (Wozniak &amp; Smith, 2006). If the various activities had not been organized into a business, it would have been impossible to create the necessary momentum and legitimacy for the new venture. As the Wozniak character explains in the film, this was a time when “business guys and bankers thought you had just barfed on their shoes if you tried to interest them into computers for ordinary people.” Apple soon becomes the world’s leading personal computer company (Levy, 1994), and in less than five years after its founding, Apple enters the Fortune 500 list.</td>
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(continues)
### Table 3. Creation Episodes from the film *Pirates of Silicon Valley (PSV)* (continued)

<table>
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<tr>
<th>Scene 3:</th>
<th>Creation of the software business</th>
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<tr>
<td><strong>Movie</strong></td>
<td>Bill Gates, Paul Allen, and Steve Ballmer visit IBM headquarters. They offer to license IBM an operating system for their new line of computers to compete with Apple. IBM finds their suggestion “no big deal”- “the profits are in the computers themselves, not this software stuff” is how an IBM manager put it.</td>
</tr>
<tr>
<td><strong>Timeline:</strong></td>
<td>48:02-50:30</td>
</tr>
<tr>
<td><strong>Synopsis</strong></td>
<td>At the time that Microsoft dares to propose this deal to IBM, the company has had only limited market success. In the words of Steve Ballmer, at this stage, the company is still a “two-bit little outfit.” From this vulnerable position, they sought to create a new business, in which Microsoft would retain ownership of the software and customers would only obtained usage rights.</td>
</tr>
<tr>
<td><strong>Film Context</strong></td>
<td>Microsoft succeeded in carving out an entirely new software business market in an era when the established wisdom was that the profitable side of computers is hardware, not software. This required imagination and conjecture based on future expectations. We consider Microsoft’s exploitation of a perceived opportunity in software as an entrepreneurial creation episode, as it led to the unforeseen emergence of an entirely new industry. By choosing to walk an unbeaten path, Microsoft was taking a massive risk (Aldrich &amp; Fiol, 1994).</td>
</tr>
<tr>
<td><strong>Thematic Substantiation</strong></td>
<td>Around 1980, IBM decided to take on the challenge Apple presented in the PC market. It required an operating system for its machines (Jackson, Mandeville, &amp; Potts, 2002). Microsoft saw the opportunity and the market value in the software, as opposed to the IBM’s emphasis on the hardware. Within four years of the “breakthrough deal” with IBM, <em>TIME</em> magazine featured the 28-year-old Bill Gates on its cover, calling software “the magic carpet to the future” and the “soul of the [computer] machine” (Taylor, Moritz, &amp; Stoler, 1984).</td>
</tr>
<tr>
<td><strong>Industry Relevance</strong></td>
<td>The Macintosh was hailed by fans as the “most revolutionary introduction in the history of personal computing.” Although it was fourth in the Apple series of computers (preceded by Apple I, II, and Lisa), it was widely regarded as “the computer that changed everything.”</td>
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<tr>
<th>Scene 4:</th>
<th>Xerox invents the mouse and GUI</th>
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<tr>
<td><strong>Film</strong></td>
<td>In the words of a Xerox executive, “We created the mouse and all the rest of it…” (1:02:30).</td>
</tr>
<tr>
<td><strong>Timeline:</strong></td>
<td>1:01:04-1:01:48</td>
</tr>
<tr>
<td><strong>Synopsis</strong></td>
<td>This scene is presented in the film after Wozniak has shared that “Xerox was secretly developing all this amazing stuff like the mouse and the graphics on the screen, instead of a bunch of numbers.” It is followed by Wozniak comparing the development at Xerox to a Rembrandt, worth about “a hundred billion dollars.”</td>
</tr>
<tr>
<td><strong>Film Context</strong></td>
<td>The mouse invented at Xerox was a palm-sized contraption that contained a metal ball pressed against two rollers to track movement and send digital positional information directly to the computer. Although it was not the first mouse invented (the credit for that goes to Doug Engelbart at Stanford Research Institute) (Levy, 1994), it provided the predominant model for use in PC for years to come. We consider Xerox’s invention of the mouse as a creation episode, because it clearly illustrates imagination translated into reality through action based on future expectations.</td>
</tr>
<tr>
<td><strong>Thematic Substantiation</strong></td>
<td>It is not possible to assign an accurate date or even timeframe to this innovation process. However, the impact that the development of the computer mouse and graphical user interface has generated for everyday computing today is significant: Both tools are key interfaces for modern information technology. Furthermore, with regards to this film, and related industry relevance, subsequent work at Apple and developments in the computer industry substantially built on the mouse and the GUI (Wozniak &amp; Smith, 2006).</td>
</tr>
<tr>
<td><strong>Industry Relevance</strong></td>
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As explained earlier, these scenes were selected for their potential to illustrate either discovery or creation, and demonstrated high inter-coder reliability when they were classified into discovery or creation categories. Tables 2 and 3 provide more context, which is an important result of our analysis, as the following is only summarized descriptions of our findings.

In discovery scene 1, Paul Allen spots the Altair 8800 computer developed by Micro Instrumentation and Telemetry Systems (MITS) on the cover of the “Popular Electronics” magazine, which he brings to Bill Gates’s attention. This appears to be a classic example of entrepreneurial alertness as Allen “stumbles upon” the opportunity that exists “out there” through an exogenous event (Kirzner, 1997). Yet, when related scenes, as well as the overall film context are taken into consideration, it becomes obvious that simply finding the Altair 8800 on a magazine cover was not enough. It took Gates and Allen’s proactive action to convince Ed Roberts of their offer to provide a programming language for the Altair, which facilitated their entry into the industry and the start of Microsoft. As Gates (2010) recounted recently, “Ed [took] a chance on us—two young guys interested in computers—and [when] our first untested software worked on his Altair [it] was the start of a lot of great things.”

In discovery scene 2, Jobs and Wozniak arrive at a meeting of the Homebrew Computer Club at Stanford. The club was “where a bunch of guys spent all their spare time trying to …show the stuff they built, except that most of it didn’t really work all that well.” They use the meeting to present their prototype of a personal computer, which results in sales to the club members. We categorize the recognition of the opportunity to sell personal computers as a discovery episode because Jobs and Wozniak find an unmet demand for small computers among common people, who had not been considered by large corporations as serious buyers earlier.

However, from creation scenes 1 and 2 it becomes obvious that the demand only surfaced after they had presented a working prototype of the computer they had built. We consider the building of the computer a creation episode (creation scene 1 in Table 3), although the movie tells us little about the detailed action taken to create the computer. The scene is rather implicitly presented but clearly indicates path-dependent behavior enacted by the two leading individuals behind Apple. Discovery scene 2 is preceded by creation scene 1 and followed by creation scene 2 when “Apple Computers” is started in a garage. More explicitly, creation scene 2 describes Apple’s humble start with limited finances and unclear ownership structure. While this clearly outlines evolutionary behavior under uncertainty driven by the actors’ imagination, it also foreshadows a disequilibrating outcome (see Table 1).

In discovery scene 3, Microsoft is asked to provide an operating system—foundation software that allocates storage and schedules tasks in a computer—for a new line of IBM personal computers. Microsoft finds that the Seattle Computer Company has developed an operating system known as QDOS (Quick and Dirty Operating System). Without disclosing its intention to re-sell the QDOS to IBM, Microsoft buys it from the Seattle Computer Company for $50,000. Microsoft then adapts QDOS for use by IBM. We categorize this episode as discovery because it essentially involves arbitrage (Loasby, 1992). Such transactions comprise both demand and supply (Sarasvathy, Dew, Velamuri, & Venkataraman, 2003). As is seen in this episode, there is both demand for and supply of disk operating system (DOS). Microsoft’s role was to buy at a low price and sell at a high price, with the profit as the reward for this arbitrage.

In creation scene 3, rather than sell the software outright to IBM as discovery theories predict, Microsoft negotiates the right to retain the ownership of the software. In effect, IBM obtained a license for the software from Microsoft, which was then free to also sell it to other computer manufacturers. We consider this a creation episode because at the time IBM believed that “the money is in hardware,” while Microsoft expected software to become important. Microsoft’s decision, which was based on certain expectations of the future, led to the unforeseen emergence of an entirely new industry. The deal between Microsoft and IBM can be readily traced to IBM being in dire need of an operating system and the Seattle Computer Company’s development of the disc operating system, which Microsoft bought.

In discovery scene 4, a team from Apple visits Xerox’s Palo Alto Research Center (PARC) for a preview of their latest research. The Apple team is shown the new technologies PARC is developing—windows, icons, a menu, and a pointing device (WIMP). These technological wonders amaze the Apple team, who ask probing questions about the different tools. By the end of the visit, the Apple team has “about a hundred billion dollar head-start over everyone else” in the computer business. We categorize this episode as discovery because it involves the Apple team seeing different value in the WIMP tools than the Xerox corporate managers, who had already been briefed on the technological developments in their research laboratory (Shane, 2000).
Nevertheless, creation scene 4 clarifies that this discovery would not have occurred had Xerox not invented the WIMP technology in the first place. At the time of its development at Xerox, WIMP’s usefulness was unclear and it seemed to belong “more to science fiction than to future revenues” (Levy, 1994: 78). In short time, the Xerox preview proved to be the “bedrock” on which the computer industry was constructed; a future in which Apple went on to become a leading player, while Xerox was relegated to a footnote.

In discovery scene 5, Microsoft learns that Apple is incorporating GUI into their computers, which is radically ahead of the command-line system in which Microsoft had been investing (Levy, 1994). Microsoft recognizes the usefulness of GUI and decides to incorporate the user interface in the now ubiquitous Windows product (Holcombe, 2003). We consider this a discovery episode as it involved Microsoft recognizing the potential value of a system that was already being developed by Apple. At this time, Microsoft was not actively searching for new technologies to use in their operating software, as the company had already gained somewhat of a reputation for its existing product line.

Nonetheless, in relation to creation scene 5, one can see that Microsoft made a radical about-turn regarding the technology underlying its earlier software. It “just copied the Mac” in giving the new Windows software its look and feel (Jobs, 2005). We associate the Macintosh computer’s construction with creation because it redefined the trajectory of the computer industry, setting the whole industry on a new path. According to Chan (2004), the Macintosh was “the most revolutionary introduction in the history of personal computing.” The features that made the Macintosh “insanely great” were not, however, incorporated in response to consumer demands or market feedback, but reflected Apple’s proactive initiative to “transform the world” and “put a dent in the Universe” (Levy, 1994: 6).

In the next section, we discuss various implications of the findings reported here. Although these findings are derived from an analysis of a specific industry context (i.e. the PC industry), we believe they have broader implications for entrepreneurship theory and practice, a topic to which we now turn our attention.

Discussion

The formative phase of a new industry is, in Utterback and Suarez’s words (1993: 17), “predominantly entrepreneurial,” making it worthy of closer study to understand entrepreneurial behavior. Our research using a novel qualitative method—revealed three key unanticipated findings. First, we found that that discovery and creation are fundamentally interrelated. Second, at least, during industry emergence, discovery and creation behaviors share a common element: bricolage. Third, we also found that ideological activism is a major component of entrepreneurial behavior in a new industry’s formative years, as entrepreneurs seek to convince others of the value of their offerings and evangelize them into a new industry. We discuss each of these major findings of our study in greater detail below.

Implications for Theory

Our findings about the nature of entrepreneurial activity during industry emergence have important implications for theory development in entrepreneurship.

We find evidence of ideologically motivated behavior’s role in discovery and creation in the emergent PC industry. We believe our finding is doubly informative. First, it reveals that during industry emergence, both discovery and creation activities involve enterprising actors engaging in evangelical efforts to make the new offering comprehensible and acceptable to others. The role of evangelism— or ideological activism—rather than economic maximization, has been previously recognized in the successful emergence of new industries such as automobiles (Rao, 2004) and wind energy (Sine & Lee, 2009). However, these studies attribute evangelical efforts mostly to third-party organizations such as consumer clubs and social organizations (Lee, Sine, & Tolbert, 2011). Our research reveals that enterprising actors occupy a vanguard position in advocacy efforts with ideological—rather than economic—motivation driving them to engage in entrepreneurial behavior. To our knowledge, such evangelism has not received any attention in the discovery and creation literature, which we hope will begin to be redressed as a consequence of our findings. Second, our conception of evangelism is consistent with the previously recognized influence of so-called champions who “energize efforts toward collective action and devise strategies...to create entirely new industries and associated institutions” which is at the heart of the growing institutional entrepreneurship literature (Garud, Jain, & Kumaraswamy, 2002: 197-8). Notably, our findings extend this understanding of championing behavior in a new direction: Where evangelists have traditionally been believed to occupy “positions associated with the highest degrees of legitimacy,” our research shows that activism is a key aspect of emerging industries even when the champions engaging in evangelizing efforts are themselves striving to gain legitimacy (Maguire, Hardy, & Lawrence, 2004: 667).
We also found that bricolage comprised a major part of both discovery and creation. This is a novel finding because bricolage has traditionally been associated only with creation approaches (Garud & Karnoe, 2003). As the film reveals, bricolage helped nascent entrepreneurs—at Apple and Microsoft—counter their resource deficit by combining the resources around them. For example, the building of Apple I computer involved recombining readily available parts, and the founding of Apple involved obtaining parts on credit from a supplier and converting Jobs’ parents’ garage into a production floor and an office. Particularly interesting in the PSV context is that in the new industry’s very early days, bricolage was dominant, while formulaic agency occurred much later (after venture creation) (Katz & Gartner, 1988). Furthermore, we find evidence that bricolage also plays an important role in the discovery perspective. Contrary to the notion that discovery involves simply fulfilling predetermined resource requirements (Edelman & Yli-Renko, 2010), we find evidence of bricolage in several discovery episodes, such as the discovery of a market for personal computers and Microsoft’s discovery of DOS. Specifically, these episodes involve “network bricolage”: the use of pre-existing contact networks to achieve objectives and goals (Baker, 2007). Research on bricolage only began in earnest in recent years. Based on our findings, we call for further research to gain a deeper understanding of bricolage’s role in both discovery and creation.

Finally, our research reveals that discovery and creation behaviors are fundamentally interrelated, rather than simply competing (Edelman & Yli-Renko, 2010) or complementary (Zahra, 2008). Creation behaviors generate new artifacts that enterprising actors discover over time yield more new artifacts, which become the basis for future creative endeavors. The intersection of discovery and creation thus moves the entrepreneurial process forward. We therefore suggest that, rather than polarize entrepreneurial phenomena by theorizing, researchers need to encompass both discovery and creation to build “constructs that accommodate contradictions” (Lewis, 2000: 773). Consideration of the interactive nature of discovery and creation may not find favor with either discovery or creation purists who tend to be dismissive of those on the other side of aisle. Yet, our findings suggest that comprehensive understanding of industry emergence requires combining insights from both perspectives. In a similar vein, Evans and Doz (1992) argue that the duality concept offers a new provocative framework for exploring complex phenomena such as entrepreneurship. Within a duality framework, researchers and scholars can explore questions related to the kinds of tensions that exist between discovery and creation, why the two might trigger reinforcing cycles, and how entrepreneurial agents can navigate through the two as catalysts for ongoing entrepreneurial behaviors (Graetz & Smith, 2007). Thus, based on the findings of our study, future research would do well to consider the interactive nature of creation and discovery from the outset.

Implications for Practice
Our research also has certain implications for entrepreneurs. First, there is growing interest worldwide in practically relevant entrepreneurship research (Busenitz et al., 2003; Corner and Pavlovich, 2007). Entrepreneurship researchers are often encouraged to use entrepreneurship practice to inform their research; consequently, practice shapes research from the very onset. DeTienne and Chandler (2004) note that studying real-world entrepreneurial activity, focusing specifically on issues related to actions and processes, will make entrepreneurship research more engaging. Corley and Gioia (2011) argue that researchers in management schools should conduct studies that provide business insights derived from real-world observations. This may specifically apply to entrepreneurship researchers, who are often called to and tasked with enhancing entrepreneurial activity in society. By seeking to understand behaviors of some of the most enterprising actors during one of the most entrepreneurial periods in recent US history, our research engages closely with entrepreneurship in a real-world context.

Second, prior research and anecdotal evidence indicate that nascent entrepreneurs are often advised to not disclose information about their activities to others. However, we find that even when entrepreneurs share their ideas and clearly describe what they are considering, others may not appreciate its potential. For example, Steve Wozniak was required to tell Hewlett Packard’s (HP) management about his work on the new computer, but HP saw no future in activities related to designing and making a computer for individual use. Similarly, even when Microsoft informed IBM managers that it wanted to be able to sell the operating system to other firms, IBM failed to realize that software could actually be a profitable business. These corporate managers’ prior knowledge, which was based on their work experience, industry exposure, and education, prevented them from recognizing the value of these new endeavors. In other words, managers’ existing knowledge corridors adversely affected their ability to evaluate new business initiatives with an open mind. It would thus be incorrect to assume that everyone is equally and instantly capable of exploiting an opportunity once it is presented to them (Endres & Woods, 2006). It seems that the secret to engaging in entre-
entrepreneurial behavior does not lie in information about new opportunities, but in making sense about them—what Garud and Karnoe (2003) refer to as “interpretive asymmetries” (Garud & Karnoe, 2003).

Finally, films may be particularly well-suited for entertainment education (Singhal & Rogers, 2002) in entrepreneurship, as millions of viewers watch entrepreneurship-related films—for example, The Social Network (2010) and Risky Business (1983). While most people probably watch these films for entertainment, prior studies have shown that people are also impacted by the entrepreneurship-related information depicted in them (Bumpus, 2005; Champoux, 1999). In addition, according to the drench hypothesis (Greenberg, 1988), noteworthy or striking examples presented in films (e.g., Bill Gates and Steve Jobs in PSV) can have a significant influence on viewer attitudes and perceptions. Social cognitive theory (e.g., Bandura, 1986) suggests that audience members can vicariously learn norms and behaviors from films, as people are far more likely to mimic a behavior they have seen rather than one that has been recommended but not demonstrated. Seeing someone—who—like them—starts out small and overcomes tremendous obstacles to succeed in the face of adversity is likely to enhance students’ beliefs in their abilities—or self-efficacy—with regard to entrepreneurial behavior.

Limitations
Notwithstanding our interesting findings, our study has certain limitations that suggest avenues for further research. First, our study uses data derived from a film officially based on the book titled Fire in the Valley: The Making of the Personal Computer by Paul Freiberger and Michael Swaine. It is possible that looking at the PC industry through a different worldview would uncover some different entrepreneurial behaviors not covered in the PSV—the “Rashoman effect,” which posits that people see and describe reality based on their unique filters (Mittelmeier & Friedman, 1991). Future research may use other texts about the PC industry’s emergence, such as Accidental Empires (Cringley, 1992), or the 1996 PBS documentary derivative Triumph of the Nerds to further generate additional insights into entrepreneurial behavior.

Second, following prior research, we treated the two theoretical perspectives—discovery and creation—as distinct. Consequently, we did not consider the possibility of interaction between the two theories in our interpretation of the PSV episodes. It is possible that had we focused from the outset on the intersection between discovery and creation, we would have identified novel findings that were not uncovered by our current approach. Future research should consider the implications of interactions between discovery and creation as we found in our study.

Finally, our study is situated in the context of a technology-based industry. The extent to which the findings revealed here will generalize to other industries (e.g., non-technology industries such as management consulting) cannot simply be assumed, but needs to be carefully examined. Relatedly, the applicability of the theory used here and the findings obtained is limited to the United States. Whether our theoretical insights and empirical results hold promise for understanding industry emergence in other countries is a topic for future research.

Conclusion
This study was undertaken to explore and apply discovery and creation perspectives to the study of entrepreneurial behavior in an emerging industry. While prior research has done a masterful job of articulating the two perspectives (Alvarez & Barney, 2007), our study addresses the next critical step in advancing this research stream: Extending discovery and creation approaches to generate insights into an important area that is in need of theoretical elaboration and empirical examination: entrepreneurial behavior during industry emergence (Bird & Schjoedt, 2009). Although the use of entrepreneurial stories as text for qualitative entrepreneurship research has begun to gain traction in the literature (Gartner, 2007, 2010b), our study goes one step further and conducts a textual analysis of a film. Given the complexities associated with gaining access to historical data about industry emergence, qualitative research that analyzes texts (e.g., books, films, and magazines) may provide researchers with a unique window into what happened during a new industry’s early years (Mezias & Kuperman, 2001). Thus, our research advances knowledge about entrepreneurial behavior by capitalizing on well-regarded theoretical perspectives (Okhuysen & Bonardi, 2011) and using an innovative methodology (Corner & Paclovich, 2007) to better understand the complex and dynamic phenomenon of entrepreneurial behavior during industry emergence (Gartner, 2007).

We encourage future research to extend the knowledge frontier by studying industry emergence in other industrial and national contexts, using process-theoretic methods as the one presented here and variance-theoretic methods that are more common in entrepreneurship research. Entrepreneurial behavior in emergent industries is an important research topic, one that merits further research attention using different methodological approaches.
References


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About the Authors

**ALKA GUPTA** (Gupta.A2@lynchburg.edu) is an Assistant Professor in the School of Business and Economics at Lynchburg College. She received her Ph.D. in Business Administration (concentration in Organizational Behavior and Leadership) from State University of New York at Binghamton. Her research interests include entrepreneurial orientation and focus on decision-making dynamics under crisis situations. She has published in journals such as *Organization Research Methods* and *Leadership Quarterly*.

**CHRISTOPH K. STREB** (christoph.streb@uni.lu) earned his Ph.D. at the Jacobs University Bremen (Germany) before taking up a professorship at the University of Groningen (The Netherlands), next to extended visiting professorships in China, India, Peru, and Egypt. During his career he has engaged in several entrepreneurial activities on a multinational level, in the automotive, software, and publishing industries. He also serves on the advisory board of a number of distinguished companies. At his current position at the University of Luxembourg, he is researching the intersection of entrepreneurship and material culture from a business historical/archaeological perspective.

**VISHAL K. GUPTA** (vgupta@bus.olemiss.edu) is Associate Professor in the School of Business Administration at the University of Mississippi. He received his Ph.D. in Strategic Management (with emphasis in Entrepreneurship) from the University of Missouri. His professional experience includes starting or managing businesses in machine tools, automobile ancillaries, and vocational training sectors.

**ERIK MARKIN** is a doctoral student of Management at the University of Mississippi. His areas of interest include entrepreneurship and family business. He has owned and operated multiple small businesses, a small business consultation, and instructed economics at the university level.