

Should B2B start-ups invest in marketing?

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ABSTRACT

Start-up firms play a major role in the economy, with B2B start-ups often developing new technologies and offerings to business customers that incumbent firms do not provide. However, little is known about the cost-effectiveness of start-up firms' investments in marketing. We integrate insights from managerial interviews with signaling theory to posit how conducting systematic marketing affects start-up firm valuation, and how the combination of the firm's primary customer-type (B2B versus B2C) and development stage (early versus late) moderates that effect. Our empirical analysis reveals that marketing investments affect firm valuation positively for some start-ups and negatively for others depending on the noted moderators. In particular, we find that investments in systematic marketing by early-stage B2B start-ups increase firm valuation, yet more than half of early-stage B2B start-up firms choose not to invest in systematic marketing, apparently believing such investments will not pay off.

1. Introduction

Business-to-business (B2B) start-up firms are major drivers of economic growth as they produce new technologies and offerings that incumbent firms cannot or are reluctant to provide (Dörner, Flötotto, Henz, & Strålin, 2021). In aggregate, start-up firms are responsible for 10% of all worldwide job growth between 2017 and 2021 (Wijngaarde, 2021), while B2B focused start-ups make up 71% of reported start-up sales in the US Census Bureau's 2015 Annual Survey of Entrepreneurs (U.S. Census Bureau, 2017). However, despite the importance of start-up firms, it is difficult for either B2B or business-to-consumer (B2C) start-up firms to succeed: only about 50% of start-up firms survive for five or more years (U.S. Bureau of Labor Statistics, 2016).

Allocating resources to marketing could potentially help a start-up increase its likelihood to succeed since focusing on marketing reduces ambiguity about the firm, its value proposition, and its offerings (e.g., Acar, Dahl, Fuchs, & Schreier, 2021). Further, a start-up that allocates significant resources to marketing is signaling to investors that the firm is focusing on its customers and is creating and delivering value to them (Halberstadt et al., 2021). Yet, start-up firms are 60 times more likely to report being resource constrained than to report possessing sufficient

resources for their development (Evans & Jovanovic, 1989; Wasserman, 2012). That resource constraint limits what functions start-ups can allocate scarce resources (O'Toole & McGrath, 2018), which, in turn, impacts start-up firms' actions (Fernhaber & Patel, 2012) and ultimately their survival and performance (Dencker & Gruber, 2015).

Consequently, for start-up firms, to conduct *systematic marketing* — that is, following Moorman and Day's (2016) definition of a systematic marketing organization based on four “C's”, e.g., capabilities, configuration, (human) capital, and culture, operating on an on-going basis — often requires directing scarce resources from other aspects of their business. As a result, as confirmed through our multi-method approach that involved interviews, secondary data, and a follow-up survey, many start-ups do not report conducting systematic marketing, but instead report either not conducting any marketing or only conducting marketing on an ad hoc and opportunistic basis.¹ One (typical) interview response about marketing's role was “Marketing?? We don't do any real marketing...we have much more important issues than marketing to focus on.” A 2015 Capital One survey of small business owners supports this observation, reporting that 76% of owners face marketing challenges, 64% feel they are unable to effectively market their businesses, and 39% report that their firms have not executed any marketing

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¹ We test whether this definition applies to start-up firms in the measures section and consistently find clear differences between start-up firms *who were and who were not conducting systematic marketing* across all types of marketing domains: capabilities, culture, (human) capital, and configurations.

initiatives in the past six months (Capital One, 2015).

For large, mature firms, the literature has addressed how marketing-mix efforts contribute to firms' financial performance and valuations (see Hanssens, 2015; Moorman & Day, 2016 for reviews). Those studies have generally assumed that some systematic marketing is both necessary and is being conducted. In contrast, the focus of most research on the role of marketing in start-up firms has been either (1) to examine network development or reliance on particular business customers (e.g., see Web Appendix Table 1; and *Industrial Marketing Management* special issue co-edited by Baraldi, Havenvid, Linné, & Öberg, 2019) or (2) to study start-ups' market orientation strategies (e.g., Frias, Ghosh, Janakiraman, Duhan, & Lusch, 2023; Molner, Prabhu, & Yadav, 2019; Sincić Čorić, Lučić, Brečić, Šević, & Šević, 2020). Additional marketing-related start-up studies have focused on (the atypically) successful later-stage start-up firms that are either VC (Venture Capital)-backed (e.g., DeKunder & Kohli, 2008; Homburg, Hahn, Bornemann, & Sander, 2014) or have attained an initial public offering (IPO: e.g., Saboo, Kumar, & Anand, 2017; Xiong & Bharadwaj, 2011). Less research has examined which start-up firms conduct marketing and how does that marketing affect the firms' financial valuations (Table 1).

Thus, current theory and practice provide little information about three questions we address here: (1) Which, if any, start-up firms conduct systematic marketing? (2) What causes the start-up firms that conduct systematic marketing to do so? and (3) What benefits, if any, do those start-up firms that conduct systematic marketing derive from that investment?

To address these questions, we provide a theoretical framework that combines insights from interviews with 14 founders, 5 investors, and 10 start-up firm consultants involved with start-ups with the marketing and entrepreneurship new venture signaling theory literature (e.g., Connelly, Certo, Ireland, & Reutzel, 2011; Saboo & Grewal, 2013). That research posits that the credibility of signals depends on (1) costly state falsification and (2) presumed costs to send such a signal. Our framework builds on the signaling theory credibility framework and our interview findings to identify the interaction of two moderators, the stage of the start-up firm's development (early or prior to consistently generating revenues vs. late stage or consistently generating revenues²) and its target customer (B2B vs. B2C), as drivers that impact how conducting systematic marketing affects firm valuation. Our associated hypotheses are based on the following observations:

1. B2B start-up firms, relative to B2C start-up firms, have a smaller but more knowledgeable and connected customer base (Lilien, Petersen, & Wuyts, 2022). Thus, B2B customers have a greater ability than B2C firms to verify the credibility of the signal emerging from conducting systematic marketing and, hence, enact a greater reputational punishment to firms with false signals (driving factor 1 of signaling).
2. Early-stage start-up firms are much more likely to face resource constraints than late-stage start-up firms (Wasserman, 2012). That resource constraint influences the relative costs and hence the credibility of sending a signal of quality based on conducting marketing (driving factor 2 of signaling).
3. Taken together, the benefits of conducting systematic marketing are likely to differ based on whether start-ups are early-stage B2C, early-stage B2B, late-stage B2C, or late-stage B2B firms.

We employ a multi-method approach and conduct two empirical

² We consider late-stage start-up firms as firms that generate a consistent, dependable revenue stream; all others, we consider as early-stage start-up firms. Of the early-stage start-up firms, some firms generate no revenues, and some firms generate inconsistent revenues. As financial valuation methods for start-up firms typically require some form of income as an input, we focus only on late-stage and early-stage start-up firms that have developed a product and have generated some revenue, however small or sporadic.

studies to ensure the results are not specific to one of our samples or to one of our data collection methods. Our Main Study employs secondary data on 202 start-up firms that provided firm, financial, and industry information to Equidam, a start-up valuation website. Our Validation Study employs primary survey data collected via survey from 377 start-up firms. Both datasets rely on a mix of successful and unsuccessful small start-up firms. The analysis of our data yields the following results, consistent across both samples:

- Only slightly over half the start-up firms report conducting systematic marketing.
- Conducting systematic marketing provides the greatest benefits to the valuations of early B2B start-up firms but is detrimental to the valuations of early B2C start-up firms.
- Despite the benefits that conducting systematic marketing conveys to early-stage B2B start-up firms, those firms are the least likely to report conducting such marketing.
- *Well over half of the early-stage firms in each of our two empirical samples get the decision about whether to conduct systematic marketing wrong* — either they do not conduct systematic marketing when it would improve their valuation or vice versa.

Our proposed framework and empirical results offer several contributions to the academic literature. First, our research contributes to both the broader marketing literature and the marketing-entrepreneurship literature by examining largely overlooked research questions that are fundamental to certain types of firms: what causes start-up firms to conduct systematic marketing in the first place, and when is conducting such marketing is beneficial to the firm? Second, we link start-up firms' strategic actions with financial outcomes, and find that the majority of early-stage start-up firms make the wrong decision about whether to conduct systematic marketing. Thus, our research also contributes to the entrepreneurship literature, which to date has focused most heavily on examining the importance and roles of founding team members (Wasserman, 2017), investigating the impact of having a defined business plan (Kirsch, Goldfarb, & Gera, 2009), and researching which factors lead to additional VC or angel capital funding (Bernstein, Korteweg, & Laws, 2017).

Third, our research extends previous marketing-finance literature on how marketing-mix efforts contribute to firms' financial performance and valuations (e.g., Edeling & Fischer, 2016; Hanssens, 2015) by examining the potential role and importance of marketing at the very early and resource constrained stages of firms. Finally, our research provides insights for when observable start-up features can provide either positive or negative signals of firm quality, depending on firm and market characteristics, and contributes to a better understanding of signals' effects on start-up firms. Hence, our research also contributes theoretically to the broader new venture signaling literature by overcoming a commonly stated issue of research only examining when signals emit positive signals (e.g., Colombo, 2021; Connelly et al., 2011).

2. Background

Start-up firms are part of the broader classification of new venture or small business firms, defined by the Center for American Entrepreneurship (2018) as firms: "...managed by entrepreneurs, often under considerable personal and financial risk, and [are] temporary in duration, as a phase in a business's lifecycle. A key distinction between start-ups and other small or young businesses is an aspiration (realized or not) to substantially grow." Start-ups typically must obtain external funding to develop products, hire employees, pay salaries, and scale their firms to reach a broader audience (Brown, Mawson, & Rowe, 2019; Drover et al., 2017). Start-ups ability to obtain that funding depends on the value investors place on the firm (Wasserman, 2012). However, assessing the values of start-up firms is difficult (Kirsch et al., 2009).

Consequently, to understand the effect of systematic marketing on

Table 1
Related Recent Literature on Marketing's Role in Start-up Firms.

Authors	Investigated:			Topic	Summary
	Causes for Whether Start-up Firms Conduct Marketing?	How Marketing (or Related Aspects) Affect Performance?	When Marketing Improves/Hurts Performance?		
Anderson, Chandy, and Zia (2018)		✓		Training	Entrepreneurs trained in marketing attain greater profits than if trained in finance
Anderson, Chintagunta, Germann, and Vilcassim (2021)		✓		Consulting	Marketing consultants help small business performance more than other consultants
Arora and Nandkumar (2012)		✓		Sales	Number of salespeople and patents is positively related with start-up survival
Boso, Story, and Cadogan (2013)		✓	✓	Market Or.	Entrepreneurial and market orientation complementary benefit firms, pending start-ups social and business network ties
Brettel, Engelen, Müller, and Schilke (2011)		✓		Distribution	Examines new ventures distribution choices and their performance implications
Boudreau (2021)		✓		Promotion	Simple and relatively costless statements are effective for customer adoption
Corral de Zubielqui and Jones (2020)		✓		Innovation Process	Finds that social media use has a significant positive impact on start-ups' innovation outcomes
Coviello and Joseph (2012)		✓		Customer Co-creation	Examines how customer participation in start-up product development can lead to successful major innovations
Doganova and Karnoe (2015)		✓		Market Innovation	Examining the mechanisms through which new technologies succeed (or fail) to be transformed into goods that are both environmentally and economically valuable
Flatten, Engelen, Möller, and Brettel (2015)		✓	✓	Pricing	Examines link between pricing capabilities and performance
Frias, Ghosh, Janakiraman, Duhan, & Lusch, 2023		✓		Market Or.	Examines start-ups' product-form strategies
Halberstadt et al. (2021)		✓		Social entr. Performance	Investigates performance implications of differences between start-up and established firms' social entrepreneurship orientation
Hashai and Zander (2018)	✓			Outsourcing	Examines conditions when start-ups' marketing (& other functions) get outsourced
Homburg et al. (2014)		✓	✓	CMO traits	Three CMO traits (education, marketing & industry exp.) relate to VC funding
Liu, Eng, and Takeda (2015)		✓		Marketing Capabilities	Investigates link between marketing capability and performance
McMullen, Ding, and Li (2021)		✓		Promotion	Authors' on-going online posts help acquire new customers
McDonald and Gao (2019)		✓		Market Or.	Examines how start-ups re-orient themselves, incl. by marketing, for customers
McKenzie and Woodruff (2017)		✓		General Marketing	Better business practices, incl. Conducting marketing, predict higher survival rates and faster sales growth
Molner et al. (2019)		✓		Market Or.	Investigates how start-up firms conduct market scoping processes
Renko, Yi-Renko, and Denoo (2022)		✓	✓	Market Or.	Market orientation relates with acquisitions, especially in early-stage firms
Ruokolainen and Aarikka-Stenroos (2016)		✓		Signaling to customers	Investigates how start-up companies strengthen argumentation power and the persuasiveness of their scarce customer references
Sinčić Ćorić et al. (2020)	✓	✓		Market Orientation	B2B start-ups have lower levels of strategic integration, societal engagement, and ethical capabilities, than B2C start-ups
Song, Wang, and Parry (2010)		✓	✓	Market Or.	Formal processes for market information utilization are more beneficial for new ventures in developed economies
Zhao, Song, and Storm (2013)		✓	✓	Market Or.	Scalability and protectability affect the relationship between marketing capability and firm performance
<i>This Paper</i>	✓	✓	✓	General Marketing	<i>Investigates antecedents & consequences of conducting systematic marketing, focusing on when marketing is associated with higher financial valuations</i>

Note: List developed from publications from 2010 to 2023 in all journals listed in the UT-Dallas top business journal ranking, *Industrial Marketing Management*, and the three FT-50 entrepreneurship journals (*Journal of Business Venturing*, *Entrepreneurship: Theory and Practice*, and *Strategic Entrepreneurship Journal*). The list focuses on research that did not limit their analysis to only *start-up firms* that are VC backed, have attained an IPO, or examined via crowdfunding sources. Further, the list focuses on publication abstracts that included a combination of words related to (i) start-up firms, new ventures, young firms, early-stage firms, and entrepreneurs; and (ii) marketing and customers. The list does not include topics not related to allocation to marketing resources such as customer involvement in new products or the impact of customer diversification.

start-up firms, we followed a grounded theory approach. Fischer and Otnes (2006, p. 21–22) describe grounded theory as an appropriate approach for situations such as our less addressed research construct of marketing's role in start-up firms to help address "...questions about the nature of a new construct" exists and better understand topics where there are "previously unrecognized facilitators or implications of a construct." Our grounded theory approach follows the approaches of Schmitz, Lee, and Lilien (2014) and Xu, van der Borgh, Nijssen, and Lam (2022) in that it relies on conducting interviews with 14 founders, 5 investors, and 10 consultants involved with start-up firms (described below) and then integrates the findings from those interviews with established theories (the next section).

Table 2
Insights and Notable Quotes from Interviews.

Theme	Notable Quotes
Do start-ups conduct systematic marketing?	Founders (multiple times)*: "Marketing?? We don't do any real marketing" Investor: "No...I made a t-shirt for it (in order to provide advice to start-ups)" Consultants (multiple times)*: "Start-ups often are clueless on marketing and understanding their customers"
Whether conducting marketing is beneficial?	Founders (multiple times)*: "We have much more important issues than marketing to focus on" Investor: "I want to know how intimately you [a start-up firm] know your customer." Investor: "It depends on what field you are in (B2B/B2C) and what stage you are in" Investor (multiple times)*: "Does the start-up understand its target customer and how its product or service fits in the market" Consultants (multiple times)*: "Of course marketing can help start-up firms, but they could really use a lot of help with it"
Early B2B	Founder: "We were all enthusiastic amateurs (in marketing), so we did it as part of our day jobs ourselves, so we invested a fair amount (of effort) so we are quite well versed and knowledgeable of our marketing" Investor*: "Does the start-up have an established relationship with a firm" Investor*: "Does the start-up product or service fix an established need in market"
Early B2C	Founder*: "We designed this product to help people with this health issue" Investor*: "Hard to judge success of marketing at this point; too small a sample size"; "We only seek out B2C start-up firms who can grow to exponential valuations" Investor: "What I do see is graphs of revenue and customer numbers off to the right, and it is very difficult to achieve this unless you hit on something viral" Consultant: "Take own example and (assume) true for all" Consultant*: "They often do a Facebook ad (of poor quality) and give up after seeing no results"
Late B2B	Founder: "We try to rig the race...we had products that we built that we had clients that were going to buy them the minute they were ready. We had co-creators and companies willing to co-create with us" Founders (multiple times)*: "Our customers provide the marketing by providing us direct referrals"
Late B2C	Investor: "It is a bit more formulaic...to partner in mass to scale you up" Investor*: "I only look at how devoted are the firms customers to the firm's product or service"

* Indicates paraphrased quotes, as we were not given permission or unable to record interview due to the interview setting; Founders = recent founders of start-up firms; Investor = angel or venture capitalist investors; Consultants = consultants focused on start-up firms, or heads of accelerators, incubators, and other related organizations devoted to help start-up firms grow.

Three insights emerged from our interviews (see Table 2 for a sample of quotes). First, many start-up firms do not conduct marketing regularly or on an on-going basis. Instead, start-up firms questioned the importance of conducting such marketing in the first place, noting that conducting marketing would take resources away from what they perceived as more important activities. In addition, the interviews revealed a major disparity between start-up firms that considered themselves as conducting marketing on an on-going and systematic basis and those that either did not or only reported themselves as conducted marketing on an ad hoc basis. Generally, start-up firms were more concerned with the fundamental question of *whether* and *when* conducting systematic marketing provides benefits, which contrasted with previous marketing literature that has typically focused on determining the optimal the size and allocation of a well-defined marketing budget of larger firms.

Second, the start-up firms that did conduct systematic marketing felt that marketing sends a signal about their firms' quality and priorities to the investment community. One start-up investor stated that when he makes an investment decision, he examines the firm's marketing related culture because: "... I want to know how intimately you [a start-up firm] know your customer." Consequently, start-up firms that conduct systematic marketing often promote the fact that they conduct on-going, planned marketing in their communications with investors. In contrast, start-up firms that do not conduct systematic marketing are normally silent about their marketing activity.

Third, the perceived benefits of conducting systematic marketing varied depending on the combination of a start-up firm's type of customer and stage of development. This sentiment was expressed throughout our interviews as follows:

- An investor summarized whether allocating resources to marketing benefits start-ups as: "it depends on what field you are in (B2B vs. B2C) and what stage (of development) you are in."
- Another investor stated that for early-stage B2B start-up firms, he always examines whether "the start-up product or service fixes an established market need."
- The founder of a late-stage B2B start-up firm described their firm's passive, non-systematic approach as having "our customers conduct the marketing by providing us direct referrals."

Overall, we found that the combination of stage of development and type of customer affects the financial, attentional, and opportunity costs for firms to conduct systematic marketing, how involved their founding team has been in conducting marketing, and how the type of and extent of that marketing has helped such firms.

3. Conceptual framework

The next step of a grounded theory approach is to link the qualitative findings with established constructs and theories. Research in the entrepreneurship discipline has consistently employed observable signals as surrogate indicators of quality, since the true value of the start-up firm is often difficult to ascertain (Sanders & Boivie, 2004). Start-up firms' current and potential customers have little information about the quality of the firms' offerings (Ko & McKelvie, 2018), while the firms often lack information about how best to satisfy customers' needs (Ofek, Muller, & Libai, 2016). Thus, both start-up firms' customers and potential investors must rely on contextual information provided by observable signals to make inferences about the firms' value (e.g., see Connelly et al., 2011 for a review).

Conducting systematic marketing should provide an important, observable signal to investors about start-up firms' level of quality. All else equal, conducting systematic marketing should send a signal of quality that start-up firms are proactively attempting to understand, acquire, and retain customers (Ofek et al., 2016) through lowering the ambiguity of information about firms (Halberstadt et al., 2021). However, start-ups have resource constraints that limit their ability to

allocate sufficient resources to all important firm functions (McGrath, Medlin, & O’Toole, 2019), potentially making the effect of conducting marketing on financial valuations be contingent on additional factors.

We rely on our interviews and signaling theory to identify contingencies of when conducting marketing is more or less beneficial for startups. Research following Spence’s (1973) original signaling framework (e.g., Connelly et al., 2011; Saboo & Grewal, 2013) indicates that the viability of a signal depends on: (1) costly state falsification and (2) presumed costs to send such a signal. The viability of the signal derived from conducting systematic marketing is likely to depend on the start-up firm’s type of target customer (B2B versus B2C). B2B start-up firms focus on far fewer customers than B2C start-up firms, and B2B customers are more knowledgeable and connected than those of B2C start-up firms (Lilien et al., 2022). Further, B2B start-up firms rely on personal networking capabilities to establish personal relationships with their customers (La Rocca & Snehota, 2014), with signals of firm quality provided by their founders’ trust, credibility, and integrity (Ruokolainen & Aarikka-Stenroos, 2016). Thus, B2B customers possess a greater ability than B2C customers to verify and provide harsher consequences to firms that send false signals of quality emerging from conducting systematic marketing (signaling factor 1). This greater ability to verify and provide harsher consequences means that B2B firms conducting systematic marketing provide more viable signals of quality than when B2C firms do so.

Start-up firms also possess limited financial resources, few employees, and little ability to specialize in various functions of the firm (Wasserman, 2012). Further, start-up firms’ top management teams must perform multiple roles, but their attention is limited (Frias, Ghosh, Janakiraman, Duhan, & Lusch, 2023). Consequently, allocating resources to conducting systematic marketing exacts a financial and human opportunity cost by redirecting scarce resources from other aspects of the start-up’s business (signaling factor 2). This effect is likely to be more pronounced for early-stage start-up firms, which are more likely than late-stage start-up firms to lack the resources to conduct systematic marketing and other important strategic initiatives (Tzabbar & Margolis, 2017).

Furthermore, start-up firms typically target a primary customer type (B2B or B2C) while operating during a stage of development (early or late) (e.g., U.S. Census Bureau, 2017); hence signaling factors 1 and 2 are likely to act in combination. Consequently, we expect that whether the firm is an early-stage B2C, early-stage B2B, late-stage B2C, or late-stage B2B start-up will likely impact whether conducting systematic marketing produces a credible signal of firm quality.

Fig. 1 describes our conceptual model of antecedents and consequences of conducting systematic marketing. The model focuses on the financial valuation consequences of when firms conduct systematic marketing (right-side of Fig. 1), comparing marketing investments’ effect when the firm is an early-stage B2C, early-stage B2B, late-stage B2C, or late-stage B2B start-up. The model also controls for several antecedents of conducting systematic marketing (left-side of Fig. 1). Table 3 provides a roadmap for our conceptual model and related hypotheses.

3.1. Hypotheses: Main effect of conducting systematic marketing

To create technologies that produce the greatest financial rewards and achieve the highest valuations, some scholars (e.g., Christensen & Bower, 1996) recommend that start-up firms build products or services beyond what their current customers can articulate as needed or preferred. Further, start-up firms may be concerned that conducting systematic marketing can siphon away needed resources from developing technically superior products and hence lower the valuation and potential success of the firm (e.g., Fernhaber & Patel, 2012).

However, there are reasons to expect conducting systematic marketing can provide a positive signal to improve start-up firms’ financial valuations. First, start-ups compete in an highly uncertain environment where there is ambiguity about the firm, the products or services offered, and the firm’s relationships with current and potential consumers (Shepherd, Douglas, & Shanley, 2000). Thus, conducting systematic marketing should provide customers and investors information about the firm and its products and services, and result in a reduction of uncertainty. Second, conducting systematic marketing provides a signal of the start-up’s orientations, strategies, and foci. By conducting

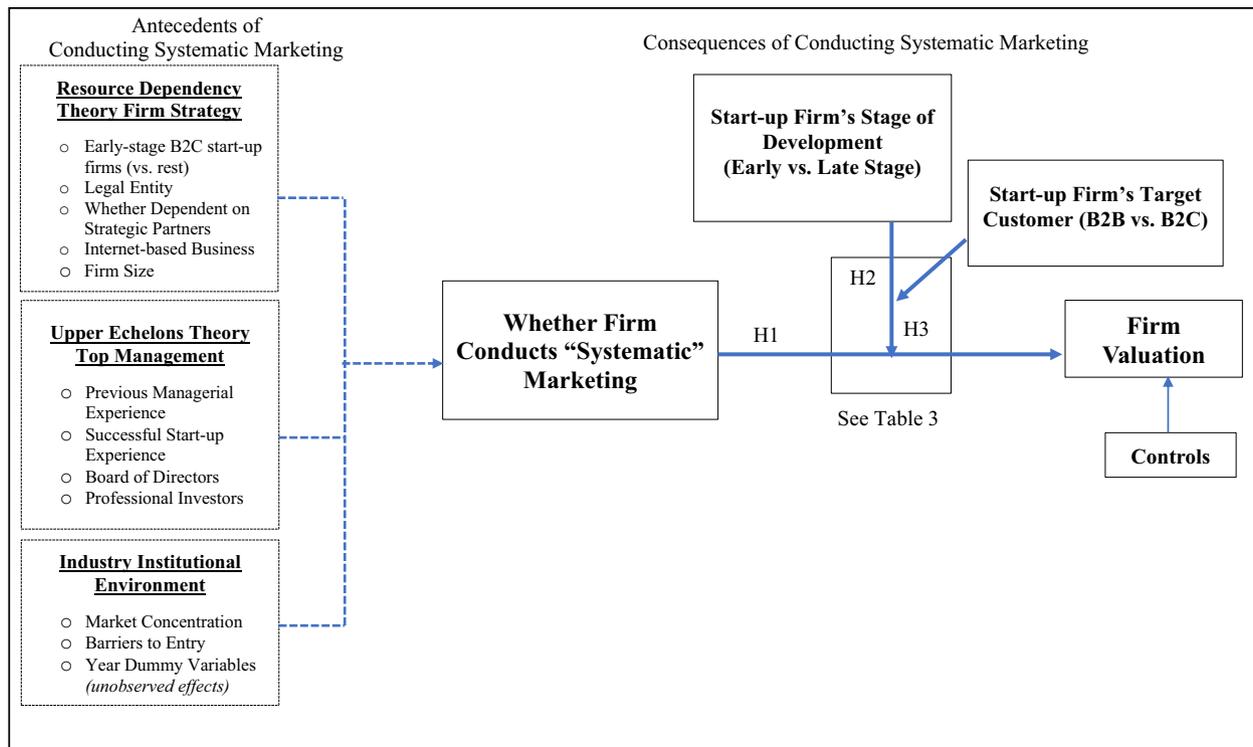


Fig. 1. Conceptual Model.

Table 3
Summary of Hypotheses and Results.

Hypothesis	Effectiveness Comparison by Start-up Firm Type (see table in note below)	Supported in VC Method Valuation Model	Supported in DCF with Growth Valuation Model	Supported in Current Revenues Valuation Model
H1: Conducting systematic marketing benefits all start-up firms	N/A	X	X	X
H2a: Conducting systematic marketing benefits early-stage B2B start-up firms > early-stage B2C start-up firms	A > B	✓	✓	✓
H2b: Conducting systematic marketing benefits early-stage B2B start-up firms > late-stage B2B start-up firms	A > C	✓	✓	✓
H2c: Conducting systematic marketing benefits late-stage B2C start-up firms > early-stage B2C start-up firms	D > B	✓	✓	✓
H2d: Conducting systematic marketing benefits late-stage B2C start-up firms > late-stage B2B start-up firms	D > C	X	✓	X
H3a: Conducting systematic marketing most benefits early-stage B2B start-up firms	A > rest (B, C, and D)	✓	✓	✓
H3b: Conducting systematic marketing least benefits early-stage B2C start-up firms	B < rest (A, C, and D)	✓	✓	✓

Note: Effectiveness Comparison Table		Type of Customer	
		B2B	B2C
Stage of Development	Early	Cell A	Cell B
	Late	Cell C	Cell D

✓ = $p < .1$ in expected direction; X = $p \geq .1$.

systematic marketing, start-ups signal that they are trying to manage product-market fit by better understanding their customers' wants and needs (La Rocca & Snehota, 2021). Third, conducting systematic marketing is a costly expense for start-up firms, which are limited in resources (Wasserman, 2012). Consequently, conducting systematic marketing should provide an observable signal about the legitimacy and sustainability of the start-up firm, although it is plausible that conducting systematic marketing may not always help start-up firms. Nonetheless, we expect:

Hypothesis 1. *Start-up firms that conduct systematic marketing will on average have higher financial valuations than start-up firms that do not conduct systematic marketing.*

3.2. Hypotheses: Relative effects of conducting systematic marketing

Early-Stage B2B vs. B2C Firms. The credibility of signals of high-quality firms to enhance start-up valuations provided by start-up firms conducting systematic marketing should depend on the ability of customers to connect with one-another (La Rocca & Snehota, 2014). Early-stage B2B firms success depends on top management's commitment to develop trust and build relationships with their customers (Laage-Hellman, Landqvist, & Lind, 2018), who are fewer but more knowledgeable and connected those of early-stage B2C firms (Lilien et al., 2022). Hence, lower-quality early-stage B2B start-up firms should face greater difficulty in attaining signals of high-quality by conducting systematic marketing to a more educated target customer than lower-quality early-stage B2C start-up firms. In addition, the need for top managers in early stage B2B start-ups to connect directly with customers gives those managers intimate knowledge of customer needs, enhancing early-stage B2B marketing effectiveness (Luzzini, Amann, Caniato, Essig, & Ronchi, 2015). Our interviews with founders of successful early-stage B2B firms underscored the practical importance of managerial attention to marketing: one successful B2B start-up founder told us that during the early-stage: "... we were all enthusiastic amateurs (in marketing), so we did it as part of our day jobs...[and] we invested a fair amount (of effort), so we are quite well versed and knowledgeable of our marketing."

In contrast, our interviews revealed founders of early-stage B2C firms often perceived themselves as surrogate customers, reducing their perceived need to understand or establish customer relationships by conducting systematic marketing. In addition, investors and consultants noted that many early-stage B2C start-ups conduct systematic marketing campaigns aimed at customer bases that know little about the start-up and its associated brand. This lack of brand knowledge creates a liability for the firm's "newness" (e.g., Shepherd et al., 2000) that challenges its marketing ability to produce differentiation signals and inhibits early-stage B2C start-ups from "crossing the chasm" to mainstream audiences (e.g., Moore, 2014). Indeed, one investor described the likelihood of success for early-stage B2C start-up firms based on conducting marketing as "very difficult to achieve this unless you hit on something viral." Thus:

Hypothesis 2a. *Conducting systematic marketing will have a greater positive association with the financial valuations of early-stage B2B start-up firms than for early-stage B2C start-up firms.*

Early vs. Late-Stage B2B Firms. Early-stage B2B start-up firms often find it difficult to develop relationships with key customers (La Rocca & Snehota, 2014), and those relationships often take a long time to develop and formalize in contracts (Xiong & Bharadwaj, 2011). As such, early-stage B2B start-up firms often find it difficult to develop relationships with key customers (Saboo et al., 2017), and these relationships often take a long time to develop and formalize in contracts (Zhang, Watson IV, Palmatier, & Dant, 2016). Consequently, for early-stage B2B start-up firms to be rewarded for conducting systematic marketing, their top management team must devote a greater share of managerial attention and financial resources than later-stage B2B start-

up firms (O'Toole & McGrath, 2018). However, managerial attention and financial resources are scarce for early-stage B2B firms (Frias, Ghosh, Janakiraman, Duhan, & Lusch, 2023). Hence, as our interviews with successful early-stage B2B firms confirmed, start-up founders would only engage in a relationship and provide a quality signal by conducting systematic marketing with B2B customers after they felt confident in the short- and long-term quality of their offerings (see also Landqvist & Lind, 2019). In contrast, later-stage start-up firms' resource allocations evolve into cost and benefit-based processes instead of personal-based relationships (Brown et al., 2019). Therefore, conducting systematic marketing is likely to provide a strong signal of firm quality for early-stage B2B customers, while conducting systematic marketing is less likely to provide as viable signal of firm quality for late-stage B2B firms. Thus:

Hypothesis 2b. *Conducting systematic marketing will have a greater positive association with the financial valuations of early-stage B2B start-up firms than of late-stage B2B start-up firms.*

Early vs. Late-Stage B2C Firms. Late-stage B2C start-up firms typically have more customers than early-stage B2C firms, which enables late-stage B2C start-up firms to leverage their larger customer base to generate more viral activity and make marketing efforts have a greater impact than early-stage B2C firms (DeKunder & Kohli, 2008). Therefore, it should be beneficial for late-stage B2C start-up firms to conduct systematic marketing to inform and signal the firm's quality in a manner similar to how large B2C firms operate; customers and investors can readily determine whether the firm's products match marketplace needs (Moorman & Day, 2016). Investors in our interviews noted a major difference between the importance of early and late-stage B2C firms' customer metrics, such as loyalty, acquisition and retention rates, and the number and extent of product enthusiasts, typically developed by firms' marketing activities. For later-stage B2C start-up firms, investors placed heavy reliance on those firms' customer metrics to assess potential growth prospects. In contrast, for earlier-stage B2C start-up firm, investors placed less reliance on customer metrics since those firms did not have the time or opportunities to achieve sufficient customer-based results (see Table 2 for related quotes). Thus:

Hypothesis 2c. *Conducting systematic marketing will have a greater positive association with the financial valuations of late-stage B2C start-up firms than with early-stage B2C start-up firms.*

Late-Stage B2B vs. B2C Firms. To increase late-stage B2C start-up firms' financial valuations based on investor evaluations of their customer-based metrics, such firms must develop a large, devoted customer base (Arora & Nandkumar, 2012; Eckhardt, Shane, & Delmar, 2006). A manager of a state government agency who was tasked with nurturing that state's start-up firm environment described marketing as a key strategic activity late-stage B2C start-up firms' need to engage in to signal to investors an ability to scale up to develop a strong customer base. In contrast, for late-stage B2B start-up firms, successful founders spoke more about relying on their partners through an opportunistic but ad hoc passive marketing approach via referrals or co-creating products to gain new customers and consistently grow. Thus:

Hypothesis 2d. *Conducting systematic marketing will have a greater positive association with the financial valuations of late-stage B2C start-up firms than of late-stage B2B start-up firms.*

Overall Rankings. Based on our earlier discussion, we expect conducting systematic marketing to have the greatest benefit for early-stage B2B firms. For such firms, conducting systematic marketing requires top management team attention and engagement with knowledgeable potential clients (e.g., O'Toole & McGrath, 2018). Hence, conducting systematic marketing necessitates organizational buy-in and integration of marketing in early-stage B2B firms (Luzzini et al., 2015), where this organizational integration and personal engagement produces a stronger credible signal of firm quality than for early-stage B2C, late-stage

B2C, or late-stage B2B firms. In contrast, we expect conducting systematic marketing to have the least effect on the financial valuations of early-stage B2C firms. Current and potential customers of early-stage B2C firms have little ability to infer the quality of such firms based on their marketing since those customers have less connection with those firms that have no reputation and little history—in particular, in comparison to early-stage B2B, late-stage B2C, or late-stage B2B firms (DeKunder & Kohli, 2008). Consequently, it should be particularly difficult for early-stage B2C start-up firms to differentiate and inform their customers of their signal of quality by conducting systematic marketing (e.g., Shepherd et al., 2000), making it difficult for investors to assess the value of early-stage B2C start-up firms based on whether or not they are conducting systematic marketing. Thus:

Hypothesis 3a. *Of the four contingencies (B2B/B2C x Early/Late), conducting systematic marketing will have the largest positive association with the financial valuations of early-stage B2B firms.*

Hypothesis 3b. *Of the four contingencies (B2B/B2C x Early/Late), conducting systematic marketing will have the least positive association with the financial valuations of early-stage B2C firms.*

3.3. Controlling for causes for why firms conduct systematic marketing

To account for the organizational and environmental processes that underlie whether start-up firm resources get allocated to conduct systematic marketing, we control for firm, top management, and industry characteristics. We summarize the theoretical reasons for considering these sets of characteristics here and refer the reader to Web Appendix A and Web Appendix Table 2 for more details.

3.3.1. Firm strategy resource antecedents

Start-up firms need close management control of resource allocation decisions given their scarce amount of resources (Wasserman, 2012). Resource dependence theory states that when firm resources are scarce, as with start-up firms, firms actively manage and control the resource flows via their firm strategies (e.g., Pfeffer & Salancik, 1978). Thus, we consider the following commonly used firm strategy variables (e.g., Farris & Buzzell, 1979; Hite & Hesterly, 2001) as antecedents of start-ups' conducting systematic marketing: (1) whether the firm is an early-stage B2B start-up firm or not; (2) whether the start-up is a legal entity; (3) whether the start-up maintains strategic partners; and (4) the size of the start-up firm.

3.3.2. Top management antecedents

Start-up firms' actions and strategies are normally a function of decisions made by top managers (Wasserman, 2012). Upper echelons theory indicates that these key decisions are driven by top management's understanding of the situation (e.g., Hambrick & Mason, 1984). Hence, we include four top management characteristics commonly used in the entrepreneurship literature (e.g., Ko & McKelvie, 2018; Tzabbar & Margolis, 2017): (1) whether a top management team (TMT) member has previous managerial experience; (2) whether a TMT member has successful start-up experience; (3) whether the firm has at least an informal board of directors; and (4) whether the firm is backed by professional investors.

3.3.3. Industry institutional antecedents

Start-up firms, by their nature, both lack and seek legitimization. Institutional theory (Scott, 2013) indicates that firms seeking legitimization will mimic the industry environment's norms to legitimize the firm to its employees, customers, and competitors. Thus, we include two common measures of industry-based institutional pressure (e.g. Mintz & Currim, 2013; Mintz, Gilbride, Lenk, & Currim, 2021; Porter, 1980): (1) market concentration; and (2) barriers to entry.

4. Main study

4.1. Data

A challenge to studying start-up firms is that, in contrast to more mature firms, data are difficult to obtain about the firms themselves and about their valuations (Shane & Venkataraman, 2000, p. 219). The entrepreneurship literature has noted a selection bias in much of their start-up financial valuation research because it mostly focuses on characteristics of (atypically) well performing start-ups that have obtained VC funding or have grown well beyond start-up status by doing an IPO (e.g., Korteweg & Sorensen, 2010; Wasserman, 2017). We address this potential selection bias by using two different empirical samples, collected via two different methods, that do not focus on atypically successful start-ups..

Our Main Study employs secondary data on US start-up firms between July 2016 – April 2018 provided by Equidam, a start-up firm valuator. Equidam's data contains information from a wide range of successful and unsuccessful (primarily) small firms from many industries. Any start-up firm, regardless of level of stage or size, can go to Equidam's website (Equidam.com) to obtain a financial valuation. At the

time of our study, Equidam encouraged start-up firms to answer a questionnaire of over 65 firm, founder, and industry characteristics in addition to about 20 financial questions for the current and several additional forecasted years. Equidam would then provide firms with six financial valuations computed by different methods based on the inputted information, including for firms that did not input full information. Our Main Study employs data from all the 693 B2B and B2C firms in the dataset that inputted information on all the independent and control variables in our model.

One potential bias with the Equidam data is that it could represent a sample of start-up firms that are interested in knowing their own financial valuations but that differs from the larger population. To address this potential bias, our Validation Study collects primary survey data from 377 start-up firms from an unrelated related source and find similar results to the Equidam sample (see Section 4.7).

The main motivation for start-up firms to use Equidam's services is to obtain a financial valuation: many start-up firms seek this service as they are uncertain of their own valuation because of the different valuation processes that rely on different combination of current and potential future cash flows, working capital, and growth and survival rates (described in the next sub-section). Equidam takes several steps to

Table 4
Variables, Operationalization, and Means.

Variable	Operationalization	Antecedents Sample Mean (StDev if not binary)	Consequences Sample Mean (StDev if not binary)
Conducts systematic marketing	Whether the start-up indicated that it has (=1) or has not (=0) begun marketing on a systematic basis	0.57	0.55
Stage of development	Whether the start-up is currently in startup or expansion stage of development, i.e., later-stage (=1) or is in the idea, development, seed, or pre-revenue stage, i.e., early-stage (=0)	Early-stage: 0.14 Late-Stage: 0.86	Early-stage: 0.18 Late-Stage: 0.82
Target customer	Whether the start-up's main business model is B2B (=0) or B2C (=1)	B2B: 0.50 B2C: 0.50	B2B: 0.58 B2C: 0.42
Legal entity	Whether the firm is a legal entity (=1) or not (=0)	0.78	0.85
Strategic partners	Whether the start-up has contacted, identified, and/or made informal or formal agreements with partners (=1) or not (=0)	0.19	0.19
Firm size	Number of employees working for the start-up, log-scaled	17.01 (42.14) LN: 2.01 (1.14)	18.65 (51.43) LN: 21.98 (1.25)
Previous managerial experience	Whether at least some members of the top management team have worked as top-tier managers (=1) or not (=0)	0.43	0.48
Previous managerial start-up success	Whether at least some members of the top management team have had a previous entrepreneurial experience conclude in a successful exit (=1) or not (=0)	0.35	0.36
Board of directors	Whether the start-up has at least an informal board of advisors (=1) or not (=0)	0.53	0.57
Professional investors backing	Whether professional investors such as banks, incubators, angel capitalists, or VC's possess a financial stake in the start-up (=1) or not (=0)	0.22	0.18
High market concentration	Whether the industry is dominated by single or several players (=1) or not (=0)	0.32	0.32
Low barriers to entry	Whether the industry has very low to low barriers of entry (=1) or mid to high barriers of entry (=0)	0.25	0.21
No exit plans	Whether start-up firm did not think about exit strategies so far (=0) or did think about exit strategies (=1)	0.45	0.42
Yes know founder beforehand	Whether the members of the management team known each other professionally before working together for this company (=1) or not (=0)	0.69	0.76
Year	Year data was collected	2016: 0.12 2017: 0.71 2018: 0.17 Ch: 0.002 CA: 0.009 EE: 0.039 Ent: 0.031 Fd: 0.069 Gm: 0.002 HF: 0.116 Ht: 0.057 LF: 0.037 PS: 0.378 SIT: 0.190 SUS: 0.003 THR: 0.069	2016: 0.19 2017: 0.59 2018: 0.21 Ch: — CA: 0.010 EE: 0.030 Ent: 0.074 Fd: 0.074 Gm: 0.010 HF: 0.119 Ht: 0.055 LF: 0.040 PS: 0.282 SIT: 0.267 SUS: — THR: 0.040
Industry	In which industry is the company operating? Charity (Ch), Culture & Arts (CA), Education & E-learning (EE), Entertainment (Ent), Food (Fd), Games (Gm), Health & Fitness (HF), High-tech (Ht), Legal & Finance (LF), Products & Services (PS), Software & IT (SIT), Sustainability (SUS), and Tourism, Hospitality & Real Estate (THR)	—	VC Method: 193 DCF w/Growth: 159 Current Rev.: 201
Number of Positive Financial Valuations	Total number of firms with positive financial valuations	—	202
Number of Observations		693	

obtain an accurate valuation, including allowing respondents to come back later to fill-in responses when they may have more information. Our analysis employs data from firms that both did and did not include financial information, and in Section 4.3, we note the statistical similarity between both sets of firms. Web Appendix B details how we overcome self-report, accuracy, and selection concerns with the Equidam data, and the Statistical Approach Section describes how we control for reasons start-ups may be more or less likely to fill out financial statements in our models.

4.2. Measures

4.2.1. Independent variables

Our focal variable follows previous entrepreneurship research that operationalizes investing in systematic marketing as a binary variable (e.g., Eckhardt et al., 2006; McKenzie & Woodruff, 2017). The operationalization of whether or not a start-up firm conducts systematic marketing in the Equidam dataset is whether the start-up firm reports that it “has or has not begun marketing on a systematic basis” (see Table 4). We employed a multi-method approach to provide external and internal validity for this measure. The managerial interviews noted earlier provide external validity by revealing a disparity between start-up firms that report conducting marketing on an on-going and systematic basis and those that either did not or only conducted marketing on an ad hoc basis. In addition, a Validation Study involving a survey of 377 start-ups (see Appendix Table 1) reports significant differences (all $p < .01$) between start-up firms that did and did not conduct systematic marketing for each of the 26 measured variables in the four marketing domains outlined by Moorman and Day (2016).³

We coded the start-up firm's target customer type based on whether it indicated its main business model is B2B, B2C, or both B2C and B2B. For our Main Study analysis, we omit the mixed B2C and B2B firms but discuss their impact on firm valuations in the Robustness section. We coded the start-up firm's stage of development as late-stage if the start-up indicated that it is consistently generating revenues and as early-stage if the start-up indicated that it has an active product and is generating inconsistent or sporadic revenues. This coding is consistent with investor practice to designate a start-up firm's maturity or stage of development based on its revenues or success (i.e., pre-seed, seed, series A, series B, etc.) rather than its stage of product development or length of time since the firm's inception (e.g., Reiff, 2020).

4.2.2. Dependent variable(s)

Our research examines how conducting systematic marketing is associated with start-ups' financial valuations. However, assessing a start-up's financial valuation is inherently difficult and uncertain start-ups have little history and no public market (Wasserman, 2012). Thus, investors employ multiple valuation methods to overcome that uncertainty (McClure, 2019). In line with what investors do, we sought multiple, distinct but widely used valuation procedures that could yield very different valuations, and hence test the robustness of our conceptual model and hypotheses. The following valuation methods satisfy those criteria: (1) VC method, (2) discounted cash flow (DCF) with long

³ For example, as reported in Table 5, 32% (vs. 0%) of the firms that do not (vs. do) conduct systematic marketing indicated they did not conduct any marketing and only 11% (vs. 75%) and 15% (vs. 84%) of start-up firms that do not (vs. do) conduct systematic marketing indicated they have a founder with a marketing background, or an employee dedicated to marketing tasks, respectively. In addition, Equidam asked firms about applicable types of promotion / communication method for both online and offline marketing. While the lists of activities were not comprehensive, we found firms that do not conduct systematic marketing were significantly more likely than firms that conduct systematic marketing to indicate that none of these methods were applicable (both $p < .01$).

term growth, and (3) current revenues. In addition, we report on 42 variations of these measures in the Robustness section to account for various assumptions underlying start-up valuations.

The VC method (e.g., Sahlman & Scherlis, 1987) computes the valuation of a start-up firm based on a projected exit valuation at the end of a forecast period that depends on the firm's expected earnings before interest, taxes, debt, and amortization (EBITDA), industry multiples, and a relatively high discount rate contingent on the firm's stage of development. It is specified as:

$$VC \text{ Method} = (EBITDA_T * IndMultiple) / (1 + d)^T \quad (1)$$

where $EBITDA_T$ is the start-up firm's earnings before interest, taxes, debt, and amortization in the final (T) reported year of its forecast horizon of anticipated profit and loss financial statements. $IndMultiple$ is the industry multiplier that accounts for heuristics investors often employ for industry differences, and d is the discount rate, which depends on the stage of the start-up firm.⁴

The DCF with long-term growth method measure is calculated based on the start-up's current and projected operating working capital-based cash flows while accounting for anticipated growth, and the discounted time value of money. It is operationalized as:

$$DCF \text{ Growth} = \frac{WorkingCap_{t_1}}{(1 + d)^1} + \sum_{t=1}^T \frac{WorkingCap_{t_1} + (WorkingCap_{t_1} * g)^t}{(1 + d)^{t+1}} \quad (2)$$

where $WorkingCap_{t_1}$ is the working capital of the start-up firm in the current year, calculated based on the firm's reported current assets minus current liabilities (i.e., $receivables_t + inventory_t - payables_t$). t is number of years in the future, with $t = 1$ indicating current year and $T = 5$ for our main analysis; we selected $T = 5$ to conform to the report that half of all start-up firms are out of business within five years (U.S. Bureau of Labor Statistics, 2016). d is the discount rate, which we set at 15%, based on industry rule-of-thumb rates of 15–20% (e.g., Skok & Reiss, n.d.); and g is the expected growth rate of the firm, which we set at 1.5%, based on consultations with Equidam's staff and analysis of the reported anticipated growth rates by firms in the data.

The current revenues method is calculated as the firm's most recent annual revenues, which firms report directly to Equidam.

These three valuation measures differ conceptually and operationally. The VC method comes directly from Equidam's calculation, computed based on the start-ups' EBITDA and industry multiples, and rewards earlier-staged firms that are expected to grow at a faster rate; however, it ignores firm level of success or failure until the end of the projected time horizon. The DCF with long term growth method is computed by the authors and is based on start-up firms' working capital and expected growth over the intermediate and long term; however, it assumes conservative levels of growth and smaller discount rates than the VC method. The current revenues method is from the firm's financial information and provides a snapshot of start-up firms' current level of success based on its current revenue stream; however, it does not

⁴ We employ Equidam's VC Method financial valuation, although our computation with a shorter forecast horizon yielded similar valuations ($r = 0.92$). EBITDA is calculated based on subtracting the start-up's anticipated cost of goods sold, salaries, and other operating costs from the firms' anticipated revenues in the final year of their forecast horizon. Industry classifications and multiples come from Aswath Damodaran's New York University website (<http://pages.stern.nyu.edu/~adamodar/>). The discount rate Equidam employed is 48.60% for expansion stage, 89.12% for startup stage, 114.74% for development stage, and 135.93% for idea stage. Firms reported which of these stages they are currently in, which we aggregate, for simplicity, when creating our early (i.e., development and idea stage) vs. late stage (i.e., expansion and start-up stage) development measure. We also note that differences in start-up valuations come from within industry and stage of development variation across start-up firms.

measure whether firms are consistently generating revenues or their potential growth or risk of survival.

4.2.3. Control variables for antecedents of conducting systematic marketing

In Table 4, we provide the measures for a number of managerial, firm, and industry variables that drive start-up firms to conduct systematic marketing; those variables include firm size, year applied and whether start-ups have strategic partners, founders with previous managerial experience, have an exit strategy in place, and if they face significant barriers to entry. These variables are based on prior literature (e.g., Mintz, Gilbride, et al., 2021; Tzabbar & Margolis, 2017; (Wasserman, 2012) and are taken from the Equidam dataset.

4.3. Descriptive statistics

We received data from Equidam on 693 U.S. B2B or B2C start-up firms that provided full information on firm, founder, and industry characteristics; 202 of these firms also filled out current and anticipated financial information for at least the next two years. The 693 start-up firm dataset enabled us to test and control for antecedents of whether start-up firms conduct systematic marketing, which we call the antecedents dataset; the 202 start-up firm dataset enabled us to test for consequences of conducting systematic marketing, which we call the consequences dataset.

As reported in Table 4, the average firm in the consequences dataset employs 18.65 workers (median of 7). Yet, around a third (36%) of the firms have a TMT member with previous entrepreneurial success, and the majority (57%) have at least an informal board of directors, demonstrating that while perhaps smaller in size, they have characteristics associated with successful start-ups. Firms in our sample are nearly

evenly split between whether they conduct systematic marketing (55%) or not (45%). Further, over two-fifths (42%) of the start-up firms classify themselves as B2C firms, a little less than three-fifths (58%) classify themselves as B2B firms, and around four-fifths (82%) classify themselves in a later-stage of development.

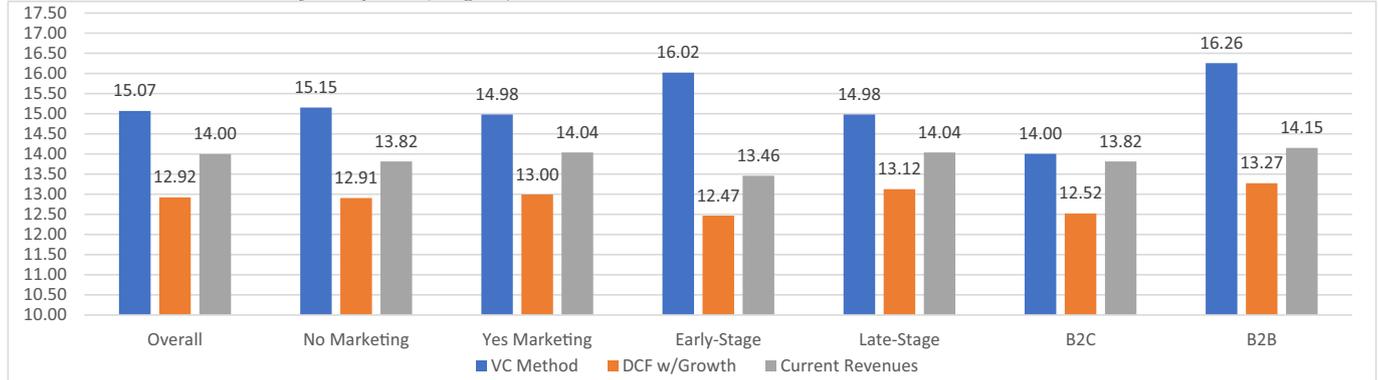
The median start-up valuations are \$5,662,944, \$433,108, and \$1,250,000, respectively, based on the VC, DCF with long-term growth, and current revenues valuation methods. These differences by type of valuation method show the diversity and range of the valuation methods, and why multiple, divergent valuation methods are needed. In Fig. 2, Panel A, we provide log-scaled median valuations split by our focal variables. As expected, the VC Method provides far greater median valuations across each focal variable, and rewards early-stage firms more than the other two measures, which give more similar results. Fig. 2, Panel B shows the differences in firm valuations based on whether start-ups conducted marketing or not for each combination of stage of development and type of customer, using median values. Across the sample, the average start-up firm, and early-stage B2B, late-stage B2C, and late-stage B2B start-up firms that conduct systematic marketing generally have a greater valuation than such firms that do not conduct systematic marketing. Consequently, firm valuation differences appear to exist based on whether start-up firms allocate resources to conduct systematic marketing. We next provide statistical-based analysis to refine our understanding of those differences.

4.4. Statistical approach

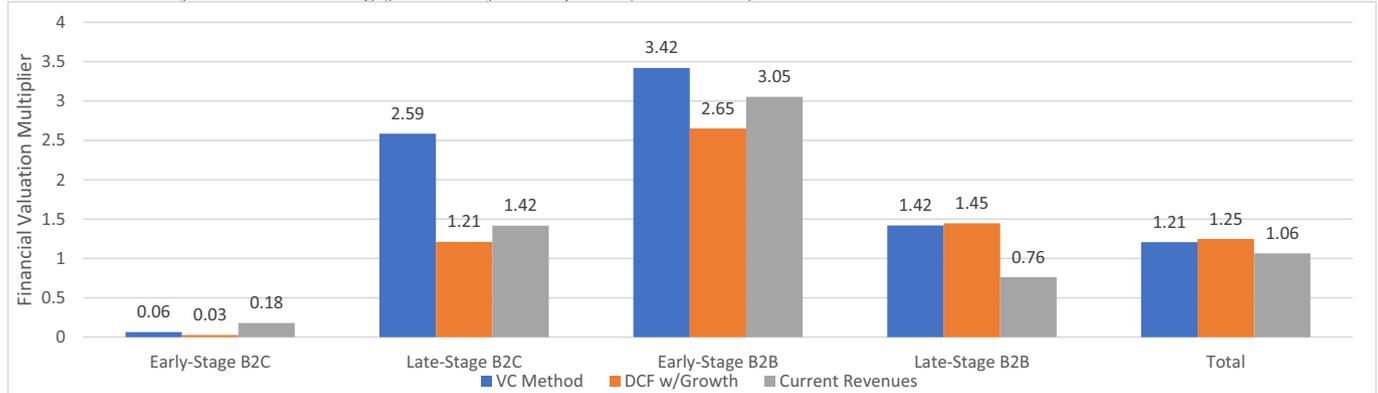
4.4.1. Models

We first specify the following probit model of antecedents of conducting systematic marketing, as we need to control for this potential

Panel A. Median Financial Valuations of Start-up Firms (on log-scale)



Panel B. Median Value for How Much Conducting Systematic Benefits Start-up Firms (on nominal scale)



Calculated by: $\frac{\text{median valuation for a start-up firm conducting systematic marketing in a given condition}}{\text{median valuation for a start-up firm not conducting systematic marketing in a given condition}}$

Fig. 2. Median Valuations.

endogeneity in the subsequent model of consequences of conducting systematic marketing.

$$\begin{aligned}
 \text{SysMktg} = & \beta_0 + \sum_{w=1}^4 \beta_w \text{FSRes}_w + \sum_{p=1}^4 \beta_p \text{TopMgmt}_{p+4} + \sum_{z=1}^2 \beta_{z+8} \text{IndChar}_{z+8} \\
 & + \sum_{m=1}^2 \beta_{m+10} \text{Year}_{m+10} + \varepsilon_{\text{SysMktg}}
 \end{aligned}
 \tag{3}$$

where *SysMktg* is whether the firm conducts systematic marketing (=1) or not (=0). *FSRes* are the four firm strategy resource variables (early-stage B2B firms vs. not, legal entity, dependency on strategic partners, and ln[firm size]). *TopMgmt* are the four TMT characteristics (previous managerial experience, previous start-up success, board of directors, and professional investors backing). *IndChar* are high market concentration and low barriers to entry, and *Year* are two dummy variables for the year (2017 and 2018 vs. base level 2016) to account for additional unobservables due to the economy, political events, etc. To incorporate potential dependency between the errors of observations belonging to the same industry, we employ a robust maximum-likelihood procedure with cluster-robust standard errors by industry (e.g., Cameron & Miller, 2015).

For our model of the consequences of conducting systematic marketing, we specify:

$$\begin{aligned}
 \ln(\text{TermValue}_k) = & \alpha_0 + \alpha_1 \text{SysMktg} + \sum_{w=1}^3 \alpha_{w+1} \text{StageCustomer} \\
 & + \sum_{q=1}^3 \alpha_{q+4} (\text{SysMktg} * \text{StageCustomer}) \\
 & + \alpha_8 \text{IMRSysMktg} + \alpha_9 \text{IMRFinData} \\
 & + \sum_{r=1}^7 \alpha_{r+9} \text{Controls}_{r+9} + \varepsilon_{\text{TermValue}}
 \end{aligned}
 \tag{4}$$

where *TermValue* is the financial valuation of the start-up firm and *k* is an indicator for the financial valuation method dependent variable (VC, DCF with long-term growth, or current revenues method). *SysMktg* is whether the firm conducts systematic marketing, *StageCustomer* is a series of dummy variables indicating the 2 × 2 combination of stage of development and type of customer (Early/Late and B2B/B2C), and *SysMktg*StageCustomer* is the interaction indicating whether the firm in the 2 × 2 combination of stage of development and type of customer conducted systematic marketing. The use of dummy variables for the 2 × 2 combinations enables easier interpretability and direct tests of our hypotheses in comparison to a three-way interaction approach. Further, results from an alternative model employing three-way interactions yields similar coefficient signs and significance levels for our focal variables (see Web Appendix Table 3). *IMRSysMktg* and *IMRFinData*, respectively, are as discussed in the next sub-section, the *inverse Mills ratio* terms (IMR) included to control for possible endogeneity and selection bias of whether start-up firms conduct systematic marketing and complete their financial statements in the Equidam application.

For *Controls*, we employ an inductive reasoning approach because of the exploratory nature of this analysis and due to sample size limitations (Bass, 1995; Mintz, Currim, Steenkamp, & de Jong, 2021). First, we estimate a main effects regression model examining which variables in our data that based on theory and practice could potentially influence start-up firm valuations (Web Appendix Table 4). Next, we include in Eq. (4) only the five variables from the main effects regression model found to significantly affect the financial valuation of start-ups (*p* < .1): (1) whether the firm has contacted strategic partners, (2) whether the firm has founder(s) with previous managerial experience, (3) whether the firm has discussed a concrete exit strategy, (4) whether the firm competes in an industry with low barriers to entry, and (5) firm size (# of employees; log-scaled).

To lessen the impact of outliers, to control for financial valuation skewness, and to reduce the sensitivity of firms' self-reported financial inputs, we log-scaled our dependent variable. The use of log-scaling also minimizes any changes to valuations used in our analysis based on firms adjusting their information to see different valuations. In addition, we Winsorize the financial dependent variables at the 2.5% and 97.5% level in our focal analysis, and use different cut-points in robustness tests. As with our antecedents of conducting marketing model, we employ a robust maximum-likelihood procedure with cluster-robust standard errors by industry to control for potential dependency between observations in the same industry. In Web Appendix Table 5, Panels A and B, we provide evidence that the estimation does not suffer from multicollinearity (Hair, Anderson, Tatham, & Black, 1998): each independent variable's variance inflation factor score is below 3 and no pairwise correlation coefficient in either dataset is less than −0.40 or greater than 0.40 other than between the year dummy variables and between firm size and the IMR terms.

4.4.2. Controlling for endogeneity based on firm quality

Endogeneity and reverse causality can occur in our start-up context where higher quality firms, that are also higher valued, are more likely to conduct systematic marketing. To control for such issues, we follow Sande and Ghosh's (2018) guidelines on how to handle endogeneity in strategic contexts. Their guidelines recommend that for our cross-sectional data with a discrete binary and potentially endogenous variable, and with low concern for unobserved heterogeneity, we should employ an instrumental variable (IV) method with justified exogenous variables. Thus, we employed a two-stage least squares estimation method (2SLS) with a first-stage probit model (Eq. 3) using the full antecedents dataset that included eight variables that proxy for quality of the start-up firms and a second-stage regression model (Eq. 4) that included an IMR term calculated from the first-stage (Wooldridge, 2010).⁵

In addition, selection effects may be present based on higher quality firms being perhaps more likely to complete their financial information on Equidam. Hence, we estimate a Heckman selection effect model with six antecedents in the Equidam dataset that could potentially correlate with characteristics of start-up firms that either have better financial information or would be more likely to complete their information eight variables proxying for firm quality (see Web Appendix B). We include the resultant IMR term in our second-stage regression model (Eq. 4). Exclusion restrictions of not including instruments in both equations are met between Eqs. (3) and (4) with several antecedents of conducting systematic marketing not significantly impacting the consequences equation. Similarly, exclusion restrictions are met between Eq. (4) and the equation that controls for potential self-selection biases of firms' completing their financial information (see Web Appendix B).

Finally, we employed a multiplicative model as an alternative modeling approach to account for endogeneity and reverse causality. The model, as detailed in Web Appendix B, controls for unobservables related to firm quality by directly using firm size to scale the effect of whether start-up firms do or do not conduct systematic marketing (see Srinivasan, Lilien, & Sridhar, 2011). The results from this model, reported in Web Appendix Table 6, are similar to the 2SLS analysis.

⁵ The eight variables in our analysis that proxy for firm quality are (i) firm size (# of employees) and whether the firm was (ii) a legal entity, (iii) in the late stage, (iv) has strategic partners, (v) a founder(s) with previous top management experience, (vi) a founder(s) with successful startup experience, (vii) include a board of directors, and (viii) are backed by professional investors. We calculate the IMR term as the ratio of the probability density function to the cumulative density function from the probit model examining the antecedents of conducting systematic marketing (Equation 4).

Table 5
Main Effects Model (H1).

Base Value Type of Valuation Method (Column) Variable	Early-stage B2B Start-up Firms as base					
	VC Method		DCF w/ Growth		Revenues	
	(1)	(2)	(3)	(4)	(5)	(6)
	Coef.	P-value	Coef.	P-value	Coef.	P-value
Intercept	17.11	0.00	12.78	0.00	14.20	0.00
Conduct systematic marketing (H1)	-0.08	0.57	-0.20	0.47	-0.20	0.14
Early-stage B2C firms	-1.14	0.16	-0.19	0.61	-0.59	0.23
Late-stage B2C firms	-1.28	0.01	0.14	0.63	-0.17	0.71
Late-stage B2B firms	-0.05	0.91	0.78	0.03	0.22	0.66
<i>Controls</i>						
Strategic partners	-0.53	0.21	-0.20	0.31	-0.33	0.10
Previous managerial experience	0.49	0.05	0.20	0.11	0.10	0.52
Firm size (ln)	0.56	0.00	0.76	0.00	0.71	0.00
No start-up exit discussed	-0.53	0.15	-0.31	0.14	-0.13	0.53
Low barriers to entry	0.23	0.19	-0.16	0.48	-0.16	0.47
Year 2017 (vs. 2016)	0.37	0.18	-0.05	0.89	-0.02	0.90
Year 2018 (vs. 2016)	0.99	0.05	-0.51	0.29	-0.42	0.16
IMR antecedents of marketing	-0.43	0.51	0.64	0.05	0.17	0.50
IMR antecedents of financial information	-2.28	0.00	-1.60	0.08	-1.24	0.03
<i>Model Diagnostics</i>						
Number of observations	193		159		201	
R-squared	0.40		0.38		0.44	
Root MSE	1.76		1.40		1.11	

The boxed row highlights the results of H1.

4.5. Empirical results

4.5.1. Consequences of conducting systematic marketing

We estimate a main effects version of Eq. (4) to test whether conducting systematic marketing benefits all start-up firms (Hypothesis 1 [H1]). We find that conducting systematic marketing does not significantly benefit all start-up firms for any of the three financial valuations, and, in fact, has a negative coefficient for each valuation model (p = n.s.; see Table 5). Hence, counter to H1, we find that marketing's impact on financial valuation is not uniformly positive. We discuss the impact of this result in the Discussion section.

Next, we directly compare the situations (interactions) where

conducting systematic marketing is expected to provide a benefit to start-up firms' financial valuations (H2). To make the tests of H2 easily interpretable, we estimate two groups of models. For the first, reported in columns 1–3 of Table 6, we set early-stage B2B start-up firms as the base value for StageCustomer in Eq. (4) to test whether conducting systematic marketing benefits early-stage B2B start-up firms over early-stage B2C (H2a) and late-stage B2B start-up firms (H2b). For the second group of models, reported in columns 4–6, we set late-stage B2C start-up firms as the base value for StageCustomer in Eq. (4) to test whether conducting systematic marketing benefits late-stage B2C start-up firms over early-stage B2C firms (H2c) and late-stage B2B start-up firms (H2d).

Table 6
Results of When Conducting Systematic Marketing is Associated with Increased Valuations (H2).

Base Value Type of Valuation Method (Column) Variable	Early-stage B2B Start-up Firms as base						Late-stage B2C Start-up Firms as base					
	VC Method		DCF w/ Growth		Revenues		VC Method		DCF w/ Growth		Revenues	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value
Intercept	16.28	0.00	12.33	0.00	13.59	0.00	15.26	0.00	12.41	0.00	13.66	0.00
<i>Main Effects</i>												
Conduct systematic marketing	1.40	0.01	0.72	0.01	0.88	0.12	0.47	0.20	0.42	0.33	0.13	0.59
Early-stage B2C firms	1.08	0.22	1.53	0.12	0.84	0.18	2.10	0.01	1.44	0.10	0.77	0.19
Late-stage B2B firms	0.75	0.06	1.20	0.87	0.78	0.84	1.78	0.01	1.11	0.12	0.71	0.09
Early-stage B2B firms	---	---	---	---	---	---	1.02	0.06	-0.09	0.87	-0.07	0.84
Late-stage B2C firms	-1.02	0.12	0.09	0.00	0.07	0.00	---	---	---	---	---	---
<i>Interactions</i>												
Conduct systematic marketing * Early-stage B2C (H2a for columns 1-3 and H2d for columns 4-6)	-3.73	0.00	-3.18	0.02	-2.55	0.02	-2.81	0.00	-2.88	0.01	-1.80	0.00
Conduct systematic marketing * Late-stage B2B (H2b for columns 1-3 and H2c for columns 4-6)	-1.75	0.02	-1.04	0.01	-1.25	0.03	-0.83	0.16	-0.74	0.09	-0.49	0.17
Conduct systematic marketing * Early-stage B2B	---	---	---	---	---	---	0.93	0.07	0.30	0.50	0.75	0.26
Conduct systematic marketing * Late-stage B2C	-0.93	0.07	-0.30	0.50	-0.75	0.26	---	---	---	---	---	---
<i>Controls</i>												
Strategic partners	-0.42	0.28	-0.12	0.61	-0.26	0.20	-0.42	0.28	-0.12	0.61	-0.26	0.20
Previous managerial experience	0.48	0.06	0.20	0.13	0.10	0.50	0.48	0.06	0.20	0.13	0.10	0.50
Firm size (ln)	0.53	0.00	0.74	0.00	0.70	0.00	0.53	0.00	0.74	0.00	0.70	0.00
No start-up exit discussed	-0.53	0.13	-0.29	0.25	-0.14	0.50	-0.53	0.13	-0.29	0.25	-0.14	0.50
Low barriers to entry	0.26	0.06	-0.19	0.34	-0.13	0.51	0.26	0.06	-0.19	0.34	-0.13	0.51
Year 2017 (vs. 2016)	0.29	0.27	-0.13	0.72	-0.09	0.65	0.29	0.27	-0.13	0.72	-0.09	0.65
Year 2018 (vs. 2016)	1.02	0.05	-0.48	0.33	-0.41	0.21	1.02	0.05	-0.48	0.33	-0.41	0.21
IMR antecedents of marketing	-0.43	0.52	0.69	0.02	0.23	0.38	-0.43	0.52	0.69	0.02	0.23	0.38
IMR antecedents of financial information	-2.05	0.00	-1.49	0.11	-1.12	0.05	-2.05	0.00	-1.49	0.11	-1.12	0.05
<i>Model Diagnostics</i>												
Number of observations	193		159		201		193		159		201	
R-squared	0.43		0.44		0.48		0.43		0.44		0.48	
Root MSE	1.72		1.35		1.08		1.72		1.35		1.08	

The boxed rows highlight the results of H2.

We find that conducting systematic marketing benefits the financial valuations of early-stage B2C start-up firms and late-stage B2B start-up firms significantly less than it benefits the financial valuations of early-stage B2B start-up firms for each of the three financial valuations (each $p < .05$; columns 1–3). Thus, we find support for H2a and H2b. We also find that conducting systematic marketing benefits each of the three types of financial valuations of early-stage B2C start-up firms significantly less than it benefits the financial valuations of late-stage B2C start-up firms (each $p < .05$; columns 4–6), as hypothesized in H2c. However, while we find conducting systematic marketing significantly benefits late-stage B2C firms more than it benefits late-stage B2B firms when employing the DCF with long-term growth ($p = .09$; column 5), we do not find a significant effect when employing either the VC ($p = .16$; column 4) or the current revenues methods ($p = .17$; column 6). Consequently, we find support for H2c for each of the three valuations and support for H2d for one of the three valuations.

Finally, we test whether conducting systematic marketing benefits the financial valuations of early-stage B2B start-up firms the most (H3a) and early-stage B2C start-up firms the least (H3b), both compared to the other combinations of stage of development and type of customer. To test H3a (H3b), we alter the *StageCustomer* dummy variable in Eq. (4) to be a binary value of 1 for early-stage B2B (early-stage B2C) start-up firms or 0 if not. In both sets of models, reported in Table 7, we examine whether the interaction term between this binary *Stage-Customer* dummy value and conducting systematic marketing has a significant coefficient.

We find that conducting systematic marketing is significantly more beneficial for the financial valuations of early-stage B2B start-up firms than for the other three combinations of stage of development and type of customer (each $p < .05$; see columns 7–9). In contrast, we find that conducting systematic marketing is significantly less beneficial for the financial valuations for early-stage B2C start-up firms than for the other three combinations (each $p < .05$; columns 10–12). Both these results hold for each of the three types of financial valuation methods. Thus, we find support for H3a and H3b, indicating that conducting systematic marketing is most beneficial for early-stage B2B start-up firms and least beneficial for early-stage B2C start-up firms.

4.5.2. Antecedents of conducting systematic marketing

Web Appendix Table 7 details the analysis of the antecedents for why start-up firms conduct systematic marketing. First, we report on the four firm strategy resource antecedents. We find that early-stage B2B start-up firms are significantly less likely to conduct systematic marketing than all other types of start-up firms ($\beta = -0.31, p = .04$), a noteworthy result, given our finding that conducting systematic marketing is most beneficial for these start-up firms. In addition, we find that larger start-up firms ($\beta = 0.12, p = .02$) are more likely to conduct systematic marketing, but start-ups being a legal entity ($\beta = 0.12, p = .33$) or possessing strategic partners ($\beta = 0.22, p = .12$) does not impact whether firms conduct marketing.

Next, we consider top management characteristics. We find that start-up firms are more likely to conduct systematic marketing when they have managers with previously successful entrepreneurial experience(s) ($\beta = 0.32, p < .01$) and are backed by professional investors with a financial stake in the firm ($\beta = 0.17, p = .02$). In contrast, we do not find that start-up firms with managers with some previous managerial experience ($\beta = -0.03, p = .87$) or with a board of directors ($\beta = 0.15, p = .19$) are more likely to conduct marketing. Finally, we find limited support of the industry's institutional environment affecting whether firms conduct systematic marketing as neither of our industry variables, market concentration ($\beta = -0.09, p = .19$) and low barriers to entry ($\beta = 0.02, p = .81$), are found to have a significant effect.

To summarize the antecedents' analysis, we find resource dependent-based firm strategy and upper echelon-based top management have the greatest impact on whether firms conduct systematic marketing, and institutional-based industry environment has the least impact.

4.6. Robustness tests on Equidam data analysis

4.6.1. Alternative model specifications

To test whether the results of our focal models are sensitive to our modeling approach, we make five types of modifications to the computation of our dependent variable in Eq. (4), using the DCF with long-term growth financial valuation method. These modifications, detailed in Web Appendix Table 8 are: (i) using effects coding for

Table 7
Results of When Conducting Systematic Marketing is Associated with Highest and Lowest Valuations (H3).

Value Type of Valuation Method (Column)	Early-Stage B2B Firm vs. Rest						Early-Stage B2C Firm vs. Rest					
	VC Method (7)		DCF w/ Growth (8)		Revenues (9)		VC Method (10)		DCF w/ Growth (11)		Revenues (12)	
Variable	Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value
Intercept	17.12	0.00	13.44		14.26	0.00	17.32	0.00	13.39	0.00	14.34	0.00
<i>Main Effects</i>												
Conduct systematic marketing	-0.52	0.01	-0.43	0.04	-0.42	0.00	-0.15	0.30	-0.06	0.75	-0.14	0.26
Early-stage B2B (vs. all other) firms	-0.20	0.73	-0.85	0.01	-0.49	0.08	---	---	---	---	---	---
Early-stage B2C (vs. all other) firms	---	---	---	---	---	---	0.79	0.26	0.82	0.29	0.34	0.49
<i>Interactions</i>												
Conduct systematic marketing * Early-stage (vs. all other) B2B firms (H3a)	1.62	0.01	0.98	0.03	1.19	0.05	---	---	---	---	---	---
Conduct systematic marketing * Early-stage (vs. all other) B2C firms (H3b)	---	---	---	---	---	---	-2.27	0.00	-2.47	0.03	-1.56	0.01
<i>Controls</i>												
Strategic partners	-0.66	0.11	-0.24	0.14	-0.29	0.10	-0.89	0.03	-0.37	0.10	-0.45	0.03
Previous managerial experience	0.74	0.01	0.32	0.10	0.18	0.26	0.79	0.00	0.26	0.21	0.18	0.34
Firm size (ln)	0.57	0.00	0.78	0.00	0.71	0.00	0.59	0.00	0.72	0.00	0.71	0.00
No start-up exit discussed	-0.59	0.12	-0.38	0.11	-0.17	0.45	-0.55	0.14	-0.33	0.15	-0.14	0.51
Low barriers to entry	0.11	0.48	-0.25	0.23	-0.21	0.34	0.09	0.63	-0.31	0.07	-0.21	0.26
Year 2017 (vs. 2016)	0.33	0.24	-0.16	0.70	-0.07	0.77	0.37	0.20	-0.20	0.57	-0.07	0.68
Year 2018 (vs. 2016)	0.97	0.03	-0.60	0.26	-0.47	0.17	1.01	0.02	-0.60	0.20	-0.44	0.17
IMR term for antecedents of conducting systematic marketing	-0.76	0.34	0.47	0.11	-0.02	0.93	-0.26	0.69	0.31	0.39	0.13	0.57
IMR term for antecedents of completing financial information	-2.42	0.00	-1.54	0.06	-1.04	0.03	-3.07	0.00	-1.37	0.20	-1.27	0.07
<i>Model Diagnostics</i>												
Number of observations	193		159		201		193		159		201	
R-squared	0.36		0.35		0.43		0.36		0.40		0.45	
Root MSE	1.80		1.43		1.11		1.80		1.38		1.10	

The boxed rows highlight the results of H3.

categorical variables, (ii) employing additional control variables, (iii) using different cut-points when Winsorizing the financial variable, (iv) including industry dummy variables, and (v) estimating separate regression models split-out by our three focal independent variables. We find support for the original results in 96% (44 of 46) of the applicable hypotheses tests.

4.6.2. Alternative metrics for start-up firm financial valuations

Due to the uncertainty in the start-up valuation process, investors typically employ a variety of financial metrics and parameters underlying their assumptions in the start-up firm valuation process (e.g., Gompers, 1995). Therefore, in Web Appendix Table 9, we detail analysis on the following 42 alternative financial valuation methods: (i) 16 alternative DCF measures with long-term growth financial valuations (including varying growth and discount rates, and number of years in the forecast window), (ii) 9 valuations based *solely on reported financials* by the start-up firms, (iii) 12 valuations that use the start-up's EBITDA and EBIT and their industry multiples to account for heuristics based on potential growth of the industry that investors often employ, and (iv) 5 financial valuations computed by Equidam's proprietary algorithm. To summarize the results of these analyses, we find robust statistical support for our results in terms of coefficient significance levels and expected signs.

4.6.3. Mixed B2C and B2B firms

The Equidam sample also includes 485 mixed B2C and B2B firms, with 171 of these mixed firms providing financial information. When including these mixed firms, omitted earlier to simplify our focus on the 2×2 early/late and B2C/B2B interactions, we find conducting systematic marketing has an effect on the financial valuations of start-up firms that is in-between the effects of marketing on B2C and B2B early and late-stage focused firms, a result providing support for our analyses (Web Appendix Fig. 1). In addition, when including mixed B2C and B2B firms, we also find that early-stage B2B firms are still significantly less likely to conduct such marketing than all other types of start-up firms ($\beta = -0.35, p = .01$).

4.7. Validation study

Another robustness test—our Validation Study—involves an analysis of a survey of 377 start-up firms selected from a Survey Sampling International (SSI) panel of entrepreneurs (see Appendix). This approach allows us to (1) assess the robustness of our findings to their reliance on the Equidam data, (2) conduct a further robustness test of the Equidam based binary systematic marketing variable by measuring systematic marketing using a 1–7 Likert-based scale, and (3) investigate whether different elements of marketing relate to the conducting systematic marketing variable (as noted in the Measures Section).

We estimated three models using the survey data, which are reduced forms of Eq. (4). Model 1 is a robust-standard errors regression with the dependent variable of firm performance based on the Jaworski and Kohli (1993) construct of performance; Models 2 and 3 are ordinal probit models that employ dependent variables based on firm sales and firm profitability category performance measures, respectively. Each of the three models produced results similar to those using the Equidam data: they indicate that conducting systematic marketing is significantly more beneficial for early-stage B2B and late-stage B2C start-up firms than for other categories of start-ups (each $p < .1$; See Web Appendix Table 10 for the models and results). In addition, these results hold in models that include additional control variables such as market concentration, barriers to entry, and whether the firm has at least an informal board of directors.

Consequently, the consistency of our findings with a separate dataset and different measures than the main study provides robust support for our conceptual model.

5. Discussion

This research investigates whether and when conducting systematic marketing benefits start-up firms, an important topic that has been rarely addressed in the marketing literature. We develop a conceptual model of the antecedents and consequences of conducting systematic marketing that includes the interactions of two firm characteristics—type of customer and stage of development—to determine when conducting systematic marketing should be more or less beneficial to start-up firms. We test our conceptual model using a rich dataset on start-up firms provided by Equidam, an online start-up firm valuator, through a wide range of robustness tests, and with an analysis of an independent survey of start-up firms. In each of these analyses, we find strong support for our conceptual model and associated hypotheses. One key finding challenges current practice: while we find that conducting systematic is more beneficial to early-stage B2B start-up firms than to any other category of firm, such firms are the least likely to conduct systematic marketing.

5.1. Theoretical implications

Our research documents contingent factors that influence whether conducting systematic marketing is associated with better or worse start-up financial valuations. We utilize a grounded theory approach that relied on connecting managerial interviews with established theories to identify how the combination of start-up firms' type of customers and stage of development. Our proposed framework and empirical results offer the following contributions to the academic literature:

First, our research improves the marketing literature's understanding of the signaling and resource constraint challenges that start-up firms face when deciding whether to use systematic marketing and demonstrating when conducting such marketing is beneficial to such firms. Previous research on the role of marketing in the start-up firms has examined the impact of having a chief marketing officer (e.g., Homburg et al., 2014), effects of co-creating business products with customers (e.g., Laage-Hellman et al., 2018), evolution of business customer networks (e.g., La Rocca & Snehota, 2021), and reliance on particular customers (e.g., Yi-Renko, Denoo, & Janakiraman, 2020). In contrast, our research focused on a different fundamental question: how, why, and whether start-up firms allocate resources to marketing, and how allocating those resources relates to performance. We find signaling and resource constraints impact both whether start-up's conduct marketing and how beneficial is that marketing based on the firm's type of customer and stage of development. Future research should expand on our initial findings to explore boundary conditions.

Second, our research extends previous marketing-finance and new venture signaling theory literatures on how marketing-mix efforts, and how signals of firm quality produced by those marketing-mix efforts, contribute to firms' financial performance and valuations (e.g., Edeling & Fischer, 2016; Hanssens, 2015). Colombo (2021, p. 254) notes in their review of signaling theory in the broader new venture literature that previous research “predominantly concentrates on signals intended to convey positive information about the sender or the venture” but that future research on the effects of positive and negative signals “could contribute to a largely ignored area.” In contrast, our model identifies that conducting marketing should provide positive signals for early-stage B2B and late-stage B2C start-up firms whose customers are better able to verify the viability and credibility of those signals, but that conducting marketing provides either a nil or a negative signal for early-stage B2C start-up firms.

Third, our research follows the rich literature in marketing that identifies conditions for when B2B firms are likely to invest in marketing (e.g., Lilien, 1979; Lilien & Weinstein, 1984). Unlike that prior literature, which focused on mature B2B firms and was conducted in a competitive scenario different than today, we focus on start-up firms. We develop a framework about *when and why* start-up firms allocate

resources to conduct systematic marketing based on managerial interviews and theory, which should provide substantial resource allocation decision guidance for start-ups. We propose and provide theoretical support for three types of antecedents of marketing: (i) the start-ups' strategy-based resources, (ii) its upper echelons-based top management characteristics, and (iii) its institutional-industry environment. We also find that early-stage B2B firms are the least likely to conduct marketing, offering avenues for future B2B-focused research to explore boundary conditions on our findings.

5.2. Managerial implications

Our results offer empirical evidence to assist both start-up firms and investors. We find that despite being the least likely to conduct systematic marketing, conducting such marketing provides the greatest impact to early-stage B2B firms. In contrast, we find that conducting systematic marketing is associated with lower financial valuations for early-stage B2C start-up firms. Thus, we find that the decision to conduct systematic marketing has the greatest impact on the valuation of start-ups in the early stage of development. Yet, in the Equidam sample, we find 11 of the 16 (69%) early-stage B2C firms invest in systematic marketing (and would be better off *not* doing so), while 10 of the 19 (53%) of early-stage B2B firms do not invest in systematic marketing and would be better off doing so. Consequently, 60% of early-stage start-ups in the Equidam sample get the decision wrong on whether to invest in systematic marketing. For the survey sample, we find comparable numbers, with 61% of the early-stage start-ups getting the decision wrong. Hence, it appears that founders of both B2B and B2C start-ups are misinformed about whether or not to conduct systematic marketing, a situation our research has potential to redress.

Thus, our research documents that while early-stage B2B start-up firms should conduct systematic marketing, they need encouragement and justification to conduct such marketing since they are the type of start-ups least likely to conduct systematic marketing. Many B2B start-up firms were formed to solve industry problems their founders previously dealt with, so they rely on their personal networks to develop their offerings and avoid more systematic marketing methods (La Rocca & Snehota, 2014). The lack of systematic marketing also appears to limit the growth of such firms, and their potential valuations: consequently, future research is needed to determine how best to encourage early-stage B2B start-up firms to conduct systematic marketing.

In addition, our research documents that early-stage B2C start-up firms need assistance with their marketing, which, when conducted, is associated with lesser financial valuations. This was a striking result to us that likely stems from the high-risk/high-reward or “moon-shot” nature of investing in B2C start-ups, which, as our interviews revealed, often causes such investors to prefer firms that rely on disruptive advancements not necessarily aligned with an understanding of current customers. Early-stage B2C firms lack of connections with their customers makes the signal of firm quality provided by conducting marketing less viable (e.g., DeKinder & Kohli, 2008), while such firms often do not possess marketing capabilities or enough resources to invest in marketing at this stage (Wasserman, 2012). Hence, we encourage future research to expand on our finding to examine more specific factors and contingencies for why conducting systematic marketing is associated with lower financial valuations for early-stage B2C start-up firms.

Appendix A. Details on a survey on systematic marketing among start-up firms

We conducted a survey of 377 entrepreneurs selected from a Survey Sampling International (SSI) panel of entrepreneurs. Entrepreneurs were defined as someone who considered his or herself as an entrepreneur and is currently or has previously worked for more than one year at a start-up firm.

We asked respondents about multiple characteristics of how their start-up firm conducted marketing. Related to our focal construct, we asked “to what extent does your firm conduct marketing on a systematic basis” on a 1–7 scale, with 1 = not at all and 7 = very much. In our analysis, we

5.3. Limitations and future research

An aspect of our study that differentiates it from most past research is that the data employed relies on a mixture of successful and unsuccessful, smaller and less developed start-up firms. Ideally, we would have access to more detailed data on other measures including more details on marketing spending and the process the firms used to determine resource allocation decisions. The lack of such data has undoubtedly discouraged research in this domain in the past, but those data limitations provide fruitful future research opportunities. For example, future research should expand beyond variables taken from the Equidam dataset to better understand how resource allocation decisions develops and evolves in such firms. In addition, it would be useful to examine whether our results on the effects of conducting systematic marketing hold when examining other outcome variables beyond financial valuation, like the start-up firm's likelihood of survival, being acquired, or obtaining an IPO or VC funding. Identifying additional factors that impact marketing's benefits to start-ups, such as cross-cultural differences, would be a useful area for further study.

5.4. Conclusion

Our findings document a resource allocation challenge faced by many start-up firms: whether or not to allocate scarce resources to conduct systematic marketing. The data employed provides a view of a broad spectrum of start-up situations in a domain that the literature has largely ignored. We use a multi-method and multi-source data and find that conducting systematic marketing on average do no impact firm valuations, but rather marketing's effect is contingent on a firm's type of target customer (B2B or B2C) and stage of development (early or late). In particular, the lack of support for H1 – the main effect of conducting systematic marketing – means that there are circumstances where it does in fact help and others where it hurts firm valuation. The main empirical finding that 60% of early-stage start-up firms in both our empirical samples are making the wrong decision on whether or not to conduct systematic marketing demonstrates that more research on the topic is needed. It is particularly striking that while *investing in systematic marketing is more beneficial to early-stage B2B start-up firms than to any other category of start-up, those firms are the least likely to do so*. We hope that such results (and their robustness) provide insights for the stakeholders of the many start-ups that develop each year and encouragement to further study functional resource allocation for start-ups.

CRedit authorship contribution statement

Ofer Mintz: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing. **Gary L. Lilien:** Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Supervision, Writing – original draft, Writing – review & editing.

Data availability

Data will be made available on request.

classified those who answered a 6 or 7 on this scale as “conducting systematic marketing and those who answered 1 or 2 as “not conducting systematic marketing.” We next asked questions about the background of top management, the firm's marketing capabilities and what specific marketing activities (such as the 4 P's) their firm was engaged in or outsourced to a marketing consultancy firm (see Appendix Table 1 for measures and literature sources).

As reported in Appendix Table 1, start-up firms that report *not* conducting marketing on a systematic basis *are much less likely to have each component of Moorman and Day (2016) four “C's” based definition of a marketing organization than firms that do report conducting marketing on a systematic basis.* For example, in terms of the marketing configuration of start-up firms, 32% (vs. 0%) of those firms that do not (vs. do) conduct systematic marketing indicated they did not conduct any marketing at all and 37% (vs. 3%) of such firms indicated they do not consider any of the 4 types of P's as marketing in their firms. In terms of (human) capital, only 11% (vs. 75%) and 15% (vs. 84%) of start-up firms that do not (vs. do) conduct systematic marketing indicated they have a founder with a marketing background, or an employee dedicated to marketing tasks, respectively. Further, large disparities exist between those firms that do not and do conduct systematic marketing in terms of their organizational involvement in marketing (3.74 vs. 5.60 on a seven-point scale, with seven indicating higher involvement), marketing's influence in the firm (2.95 vs. 5.12 on a seven-point scale, with seven indicating greater influence), and marketing's capabilities (3.59 vs. 5.45 on a seven-point scale, with seven indicating greater capabilities).

Major cultural differences also exist regarding the perception of marketing between start-up firms that do and do not report conducting systematic marketing. For example, 66% (vs. 17%) of start-ups who do not (vs. do) conduct systematic marketing do not outsource or rely on any strategic partners to conduct marketing, and such start-up firms are even *less likely* to acknowledge that a variety of limitations constrain their ability to even conduct marketing (3.14 vs. 4.31 on seven-point aggregated scale). These results are not solely a function of the stage of the firm. In fact, more start-ups who conduct marketing on a less systematic basis indicated they are at a later stage of development (87% vs. 69%). Thus, firms that do and do not report conducting systematic marketing vary greatly and are easily identified: firms that do not report conducting systematic marketing do not have a configuration suited to conduct much marketing, employ less human capital dedicated to marketing, possess fewer marketing capabilities, and have a culture less encouraging towards marketing.

Appendix Table 1
Differences between Firms that Do and Do Not Report Conducting Systematic Marketing.

Question / Construct	Literature Source (if any)	Does Not Conduct Systematic Marketing	Conducts Systematic Marketing	Significant Difference ^a (p < .01)
Configuration				
Does not Conduct Marketing at All?		32%	0%	Yes
Has a Zero Marketing Budget?		40%	3%	Yes
If Conducts None Of the 4P's of Marketing?		37%	3%	Yes
• If Conducts Place Marketing?		15%	44%	Yes
• If Conducts Price Marketing?		20%	38%	Yes
• If Conducts Product Marketing?		35%	57%	Yes
• If Conducts Promotions Marketing?		35%	65%	Yes
If Does No Outsourcing?		66%	17%	Yes
(Human) Capital				
Has Co-Founder with a Marketing Background?		11%	75%	Yes
Has Employee Dedicated to Marketing Tasks?		15%	84%	Yes
Culture				
Organizational Involvement in Marketing Construct (1–7 range)		3.74	5.60	Yes
• Marketing is a real firm-wide effort	Noble and Mokwa (1999)	3.90	5.62	Yes
• A wide range of departments or functions in the firm get involved in marketing		3.58	5.57	Yes
Marketing's Influence in the Firm Construct (1–7 range)		2.95	5.12	Yes
• The functions performed by the marketing department are generally considered to be more critical than other functions	Verhoef and Leeflang (2009)	3.10	5.18	Yes
• Marketing tends to dominate other functions in decision-making		2.81	5.06	Yes
Marketing Resource Limitations (1–7 range)		3.14	4.31	Yes
• Marketing is limited because of personnel limitations?		3.02	4.33	Yes
• Marketing is limited because of resource funding limitations?		3.59	4.50	Yes
• Marketing is limited because of own knowledge limitations?		2.98	4.29	Yes
• Marketing is limited because of target market limitations?		2.98	4.12	Yes
Capabilities				
Marketing Capability Construct (1–7 range)		3.59	5.45	Yes
• Allocating marketing resources effectively		3.57	5.31	Yes
• Organizing to deliver marketing programs effectively	Morgan, Katsikeas, and Vorhies (2012)	3.54	5.38	Yes
• Effectively translating marketing strategies into action		3.55	5.50	Yes
• Executing marketing strategies effectively		3.69	5.60	Yes
If in Late Stage?		87%	69%	

Note: we asked self-declared entrepreneurs working for a start-up firm for at least a year “to what extent does your firm conduct marketing on a systematic basis” on a 1–7 scale, with 1 = not at all and 7 = very much. In our analysis, we classified those who answered a 6 or 7 on this scale as “conducting systematic marketing and those who answered 1 or 2 as “not conducting systematic marketing.”

^a We estimated individual logits with the dependent variable specified as whether the firm conducting systematic marketing (=1) or not (=0) and the independent variable specified as the question noted above.

Appendix B. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.indmarman.2024.01.003>.

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