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ORIGINAL EMPIRICAL RESEARCH

How young companies can effectively manage their slack resources over time to ensure sales growth: the contingent role of value-based selling

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Abstract

This research aims to bridge the entrepreneurship and marketing/sales literature streams by studying how young firms enable their resource endowments using value-based selling. Drawing on effectuation logic, the authors examine how young firms can achieve sales growth by using human and financial resource slack during the early years of their existence and accounting for the impact of the variability of these resources over time. The integrated framework and hypotheses are tested using unique, multisource (survey and objective archival) longitudinal panel data from 71 young firms covering a seven-year period. As anticipated, the findings show that both financial and human resource slack are negatively related to young firms' sales growth over time and that financial resource slack variability exerts a positive impact and human resource slack variability exerts a (nonsignificant) negative impact. The results also confirm the importance of value-based selling as a guiding mechanism that significantly alters the effects of both types of resource slack and their variability over time. While value-based selling can help a young firm use slack to grow more effectively, it also has a dark side in that it can stand in the way of risk taking.

Keywords Resource slack · Value-based selling · Entrepreneurship · Longitudinal panel data

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Marketing and entrepreneurship have long been recognized as two key responsibilities of the firm. Despite their tight integration in practice, marketing and entrepreneurship as domains of scholarly inquiry have largely progressed within their respective disciplinary boundaries with minimal cross-disciplinary fertilization.
—Webb et al. (2011, p. 537)

Introduction

As the opening quote illustrates, marketing and sales researchers have paid surprisingly scant attention to the development of entrepreneurial firms' commercial capabilities. A reasonable explanation is marketing scholars' bias toward large firms, such that research attention has focused on marketing orientation and resources of established firms rather

than young firms (e.g., Morgan et al. 2009). However, the question of how young firms should manage their resources to achieve excellent commercial performance is critical, as the answer likely differs for young firms versus established companies.

Established firms often aim to maximize efficiency gains using traditional marketing planning. In contrast, young, nascent firms typically aim to expand and achieve maximal growth in the market using experimentation to discover customers. In this endeavor, young firms face a particular set of challenges due to their liability of newness. In addition to having to overcome a lack of reputation and prospective customers' mistrust (DeKinder and Kohli 2008; Read et al. 2009), young companies generally have limited human and financial resources to accomplish their goals. Therefore, effectively managing these scarce resources is pivotal to young companies' commercial growth.

In this context, an appropriate research topic is to investigate the role of young companies' slack resources. Slack resources are "potentially utilizable resources that can be diverted or redeployed for the achievement of organizational goals" (George 2005, p. 661). However, as high levels of persistent slack refer to un- or underused resources and potential opportunity loss, simply possessing adequate slack resources is not sufficient. Therefore, young companies do not strive to accumulate slack resources for their own sake; rather, they focus on investing them to achieve development and growth.

Prior marketing research has provided important insights into drivers of young company success (e.g., Coviello and Joseph 2012; Rao et al. 2008; Yli-Renko and Janakiraman 2008), but these studies generally use a static rather than dynamic perspective to investigate how young firms can maximize efficiency gains and profitability. A dynamic perspective provides a much better understanding of how young firms can effectively manage their slack resources (Bradley et al. 2011; Caner et al. 2018; Paeleman and Vanacker 2012; Sirmon et al. 2007). More specifically, researchers have paid limited attention to variability of slack resources over time. Extant research has suggested resource slack variability may be indicative of a young firm's development because it signals risk in pursuit of market opportunities (e.g., Bergmann-Lichtenstein and Brush 2001; DeKinder and Kohli 2008; George 2005). For instance, studies show that young firms that make repeated investments (and divestments) are actively managing risk and optimizing control (Reymen et al. 2015).

In addition, young firms need the ability to create value from these resource endowments and overcome their liability of newness to succeed (Vanacker et al. 2013). Thus far, however, little prior research has considered *how* slack resources can best be used to maximize a young company's sales growth. Because slack resources cannot manage themselves, the issue is which commercial guiding mechanism young firms can implement to effectively use their financial and human resources slack to build their new business and how such a mechanism interacts with the variability of these slack resources over time.

The sales/marketing literature has identified specific sales practices, such as value-based selling (VBS), as a way for firms to ensure that their products or services meet customer needs and to grow their companies' sales (e.g., Terho et al. 2017; Ulaga and Kohli 2018). This practice involves working collaboratively with customers to help them fully understand their problems and the costs of those problems to their organizations and then to arrive at solutions for the customer that best utilize their joint resources to increase both firms' revenue and profit. In an entrepreneurial setting, VBS's solution focus can help young firms identify deficiencies in their value creation and delivery and discover paths of improvement though cocreation with lead customers. Considering that VBS allows for effective and efficient knowledge transfer between both parties and knowledge creation through experimentation, these characteristics could make VBS more effective in allocating resources in complex selling contexts than, for example, product, proactive, adaptive, or even consultative selling (Kowalkowski and Ulaga 2017; Terho et al. 2012). Surprisingly, however, the entrepreneurship and slack literature streams have not yet explored the role of VBS as a mechanism for young organizations to successfully manage their slack resources to grow their markets and ultimately prosper.

To create relevant new knowledge within the outlined research gaps, the aim of this article is to bridge the entrepreneurship/slack resources and marketing/sales literature streams by addressing the following research questions: How can young firms optimally manage human and financial resource slack during the early years of their existence to foster sales growth using VBS? What role does the variability of these slack resources play over time?

Our research makes three important contributions. First, we add to a small but increasing number of studies on young firms in marketing (e.g., Chen et al. 2009; Coviello and Joseph 2012; Rao et al. 2008; Yli-Renko and Janakiraman 2008). We extend this important work by focusing on how young firms can best capitalize on their slack resources—in particular, financial and human resource slack as key unabsorbed and absorbed forms of slack, respectively. The concept of financial resource slack refers to resources in excess of what is needed for a firm to meet its current commitments and support current sales levels (cf. Mishina et al. 2004; e.g., George 2005; Kim et al. 2008), and the concept of human resource slack pertains to the number of employees in excess of those needed for operational demands (e.g., Mishina et al. 2004). Consistent with recent entrepreneurship research (e.g., Paeleman and Vanacker 2012), we focus on how a young firm's entrepreneurial team can best use these slack resources

to generate sales growth over time. Sales growth is a more appropriate indicator of young firms' progress than profits (DeKinder and Kohli 2008) and is more closely tied to stock market value of, for example, high-tech unicorns (The Economist 2019).

Second, our study expands extant research regarding variability of slack resources (e.g., Bergmann-Lichtenstein and Brush 2001; DeKinder and Kohli 2008; George 2005) by operationalizing financial and human resource slack variability over time and hypothesizing and statistically testing its effects on young companies' sales growth. The longitudinal design and growth modeling technique we use allow us to test our hypotheses, which would not be feasible with more traditional regression or repeated-measures analysis techniques. We also study how VBS may moderate the effects of variability for different types of slack resources over time. Our longitudinal panel data set allows us to theorize and analyze these dynamic effects and adds to our understanding of how young firms can successfully manage their slack resources (Bradley et al. 2011; Paeleman and Vanacker 2012; Sirmon et al. 2007).

Third, we study the role of VBS as a mechanism for effective resource slack allocation by bridging the entrepreneurship and marketing/sales literature streams. Drawing on effectuation logic (Sarasvathy 2001; Sarasvathy and Dew 2005) rooted in entrepreneurship research, we theorize that VBS can have an altering impact on the effectiveness of financial and human resource slack over time. Effectuation logic maintains that to control the future, entrepreneurs do not need to predict it; rather, "in an effectual view, the environment is endogenous to the actions of entrepreneurs, who therefore attempt to cocreate it through commitments with a network of partner, investor, and customer stakeholders" (Read et al. 2009, p. 2). This view advocates putting resources to work in experimentation to discover the new firm's business model and product/service. In this context, we consider VBS as a potential mechanism for guiding young firms in using their slack resources to effectively cocreate a value proposition that resonates with the market or a segment of early customers. On the one hand, it facilitates the exploitation of resources in experimentation. On the other hand, considering that VBS is associated with customization of solutions for established firms (Ulaga and Eggert 2006), it might be less applicable in the context of the uncertainty of new business development of young firms (Leslie and Holloway 2006). Finally, as part of unraveling the role of VBS, we also empirically compare it with the more established concept of proactive selling (Pitkänen et al. 2014; Pitt et al. 2002).

Theoretical background: Effectuation logic

Effectuation logic is one of the major strands of thinking about organizations and the strategic behaviors that result in interfirm differences in sales growth and survival of young firms (Sarasvathy 2001; Sarasvathy and Dew 2005). The theory focuses on the unpredictable aspects of a firm's environment and future and how firms can control both. Effectuation inverts the fundamental principles and overall logic of predictive rationality, which considers the environment exogenous but predictable and assumes that the firm uses foresight and planning to adjust to trends and capture opportunities in the market. In contrast, in the effectual view, the environment is endogenous to the actions of "effectuators" (which can be either firms or individuals/entrepreneurs) that can apply their resources in an attempt to contribute to and shape the future and environment through commitments with a network of partners, investors, and customers.

Effectuation logic studies emphasize an aspired-to end goal, such as a particular facet of entrepreneurial success. They advocate that these aspirations (and goals) can be updated in the face of new information about market conditions and potential gains achieved in the process (Arend et al. 2015; Wiltbank et al. 2006). This iterative cycle of updating the status quo with new information relies on experimentation to address and control the uncertain environment and future (Sarasvathy and Dew 2005). Experimenting in this way helps young firms discover and build customers; in so doing, they can thus develop their product/service's advantage and achieve a sustainable market position (Andries et al. 2013).

Young firms should use their available resources in their experimentation processes. Considering that they often face substantial resource constraints (Rao et al. 2008), how they use these resources is critical and can be the difference between survival and going out of business (Read et al. 2009). Although it is well established that companies' development is driven by their resources (Brettel et al. 2012), how the outcome in terms of their sales growth is actually achieved remains unclear. Effectuation logic suggests that it is not just making use of resources (i.e., so-called means in effectuation logic) to achieve companies' goals that matters; it stresses the importance of the actual usage and course of action taken to identify and seize opportunities in the market. In other words, "what people do with the resources matters. Therefore, the effectual process itself can make any given resource more or less valuable and more or less capable of producing long-term advantages" (Read et al. 2009, p. 14). Thus, effectuation logic suggests using all available resources and making them work effectively to achieve these aspired-to goals (e.g., entrepreneurial success in the form of sales growth). Although the effectuation perspective does recommend setting some level of resources aside to keep future options open in case of necessary recovery (Sarasvathy 2001), it does not glorify the saving of resources or maintaining slack per se. Rather, effectuation logic promotes mobilizing all means possible to capture whatever opportunity exists. In this view, high levels of slack signal abundance and could even reduce the entrepreneurial

team's eagerness and creativity for exploring and using its network and means to the fullest.

We posit that in this context, VBS to a large extent corroborates the principles of effectuation logic. While effectuation logic stimulates young companies to utilize all their available resources, VBS guides them in designating and exploiting those resources effectively to create value for customers. Similar to solution selling (Panagopoulos et al. 2017), VBS focuses on using the sales function as a critical interface for cocreating with customers to enhance their value-in-use of a product or service (Pitkänen et al. 2014; Terho et al. 2017). With VBS, the process of experimenting, or trying things using available resources, can become more effective. It can guide salespeople in approaching customers that can potentially serve as collaboration partners, with the aim of thoroughly understanding their needs and business goals, rather than more ad hoc/superficial experimentation with a wider range of less-committed customers with alternative use contexts and alternative product/service applications. With this focus, VBS can increase the effectiveness of knowledge transfer and learning during experimentation and enable exploitation of the available resources.

Study framework and hypotheses

Study framework

Figure 1 shows our study framework, which focuses on young firms' levels of various slack resources, their variability, and the contingency role of VBS. In line with the previous discussion, we contend that for young firms, active and full use of financial and human resource slack is key to their performance in terms of sales growth. A nascent organization should use its slack resources as much as possible to discover its customers and build a market for its product/service. We focus on financial and human resource slack as important unabsorbed and absorbed types of slack, respectively (Sharfman et al. 1988). Unabsorbed slack refers to flexibility in application of free means and thus corresponds to currently uncommitted resources that can easily be redeployed elsewhere, allowing for greater managerial discretion (Tan and Peng 2003). In contrast, absorbed slack refers to extra resources that are available to perform particular operational tasks, thus referring to excess costs that are more challenging to be redeployed elsewhere (Tan and Peng 2003).

Consistent with our dynamic perspective, we focus on not only direct effects of these resources but also on their variability over time. Effectuation logic focuses on the unpredictable aspects of a firm's environment and future and how firms can control both. Resource variability typically relates to a young firm's uncertain business setting, in which resources are invested for new product development and discovering customers to build the business. This process of new business development is generally characterized by unsteady financial resources and fluctuations in personnel. Whereas the level of slack refers to unused opportunities, slack variability signals that the young firm is willing to take risk. From an effectuation perspective, firms that repeatedly invest (and divest) are actively managing risk and optimizing control (Reymen et al. 2015). Furthermore, we propose VBS as a moderator of the resource slack (variability)–sales growth relationships. It can

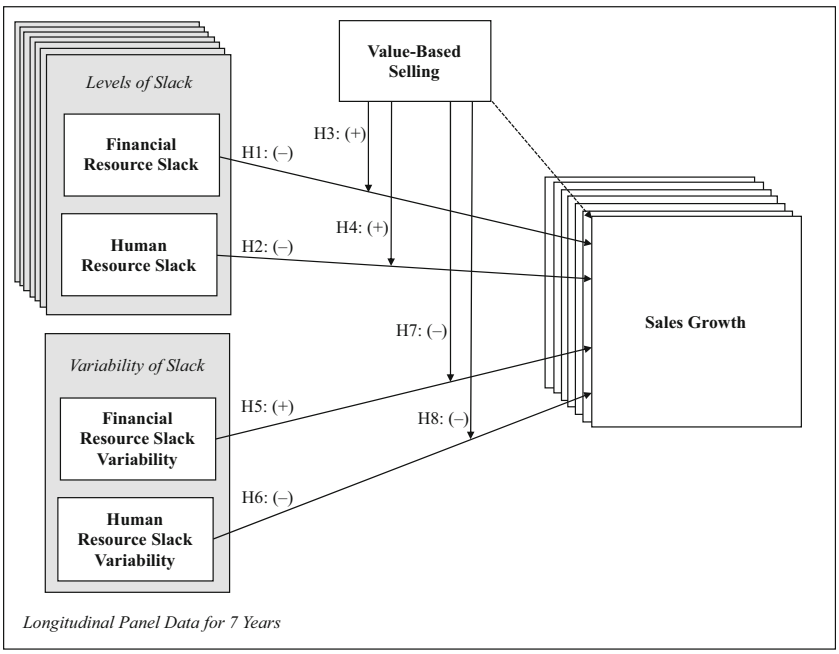

Fig. 1 Study framework

help young firms effectively use the two types of slack resources in their emerging new business process and change how variability of the different types of resource slack affects sales growth over time. Next, we develop our hypotheses.

Hypotheses

Financial and human resource slack Both financial and human resource slack offer discretion and thus can help young companies engage in strategic behavior, where financial resource slack is less constrained and easier to redeploy than human resource slack.

Financial slack generally offers firms the possibility to seize opportunities. However, particularly for young firms, financial slack must be actively spent to develop and benefit growth. Compared with low levels of financial slack, high levels signal available but unused means, which can make young firms complacent. In line with effectuation logic, firms that cannot purposefully put their resources to use forgo the chance to identify, develop, and expand their business and thus typically experience a lower level of sales growth (Read et al. 2009). Spending facilitates thoughtful experimentation to harvest the advantages of the business opportunities pursued. It can help these firms create new product advantage, which in turn supports building a customer base (Blank 2006) and, as a result, fuels their future sales (Kuester et al. 2017). In contrast, not spending their financial resource slack prevents young firms from taking chances and making progress, resulting in lower sales growth. Therefore, we hypothesize:

H1: Financial resource slack has a negative effect on a young firm's sales growth.

Human resource slack represents excess costs, which are more challenging to be redeployed elsewhere. Slack human resources can only be applied to tasks for which the excess employee capacity was educated and trained. This restriction increases strategic inflexibility and lowers the young firm's discretion to use resources to actively pursue opportunities as they emerge, which in turn typically manifests in lower sales growth. Effectuation logic also suggests avoiding high levels of human resource slack. If a young firm cannot purposefully put its resources to use, it will incur excess cost and forgo a chance to develop and achieve its ultimate goal. Therefore, young firms should prevent or swiftly reduce their human resource slack in order to foster sales growth.

Human resource slack may also foster employee inertia, which can further hinder young firm development and expansion of the firm's sales (Brinckmann et al. 2019). Reduced efficiency in the workforce lowers motivation to embrace change and to induce creative solutions (Bradley et al. 2011; Dolmans et al. 2014). Therefore, we hypothesize that human resource slack will harm these firms' development. Formally:

H2: Human resource slack has a negative effect on a young firm's sales growth.

Moderating role of VBS Research defines VBS as "the effective implementation of a firm's value orientation at sales force level" (Terho et al. 2012, p. 174). It refers to sales activities that involve cocreating a solution to ensure that the customer will enjoy the product or service's value in its business processes (Terho et al. 2017; Ulaga and Eggert 2006). With VBS, this process of iterative experimentation typically happens in collaboration with customers that can serve as potential strategic partners to develop a thorough understanding of their business processes and goals (Andries et al. 2013). In this way, VBS can facilitate the exploitation of available resources by using these resources to support the customer in developing new work routines and goals to experience this created value (Hartmann et al. 2018).

Little prior entrepreneurial research has considered the role of VBS. An exception is Pitkänen et al. (2014), whose conceptualization of VBS and findings offer support for our perspective. They identify VBS as an important contingency variable: "Using such a value-based selling approach with the aim of communicating and concretizing the benefits to the customer (Terho et al. 2012), and treating the customer as a relationship partner is essential" (Pitkänen et al. 2014, p. 684).

VBS and financial and human resource slack Drawing on effectuation logic, we anticipate moderating effects of VBS on the effectiveness of financial and human resource slack. Financial slack is unabsorbed and thus offers some flexibility. It may serve to address uncertainty in the organization's environment or that due to market dynamics (Tan and Peng 2003). This is important, considering that "the end product in effectuation is fundamentally unpredictable at the beginning of the process" (Read et al. 2009, p. 3). By spending the young firm's financial slack, the entrepreneurial team can establish and enhance the value-in-use of its new product or service for its customers, identify a sustainable business model, and in so doing fuel sales growth. With its solution focus, VBS can help address the unused opportunity problem, because it ensures that extra financial resources will be put to good use.

By increasing customer engagement throughout the firm's innovation process (Coviello and Joseph 2012), VBS can facilitate effective allocation of resources for joint solution development with customers as partners. It then will increase the quality of the interaction between the young firm's employees and customers, resulting in a better exploitation of financial resource slack during this experimentation effort. In addition, due to its strategic nature, VBS increases young firms' ability to effectively spend slack financial resources, which generates additional initial sales. It can buffer against the originally argued negative effect of financial slack by ensuring that value-

in-use will be delivered, which translates into sales growth. Brinckmann et al. (2019) support this reasoning, showing that through collaboration with customers, young companies can obtain more opportunities to allocate and apply their financial resources. Formally stated:

H3: VBS mitigates the negative effect of financial resource slack on a young firm's sales growth.

Because human resource slack is absorbed, effectively using this excess capacity can be a challenge. The path-dependent nature of human resources is likely to constrain the organization. Human resource slack can cause political and cognitive inertia, which can make capacity expansion in a particular domain difficult (e.g., Hannan and Freeman 1989). These problems may be most prominent in young firms, which are typically small and involve only a limited number of people.

We posit that VBS may help reduce the tendency toward this type of inertia; it can draw attention to allocating human resource slack for building particular capabilities necessary to create value for the customer and integrate it into the customer's business processes, thus helping secure the young firm's future sales. In other words, VBS can act as a guiding mechanism for young firms regarding how their human resource slack should be transformed to ensure that value is created for customers as partners. It allows for effectual decision making and creative experimentation in collaboration with the customer in the young firm's dynamic development (Reymen et al. 2015). By increasing the firm's ability to spend its slack resources effectively, VBS can decrease the negative impact of human resource slack on sales growth. Consistent with this supposition, we hypothesize:

H4: VBS mitigates the negative effect of human resource slack on a young firm's sales growth.

Slack variability Research emphasizes the importance of exploring young firms' variability of slack resources over time when developing products that fit the market (e.g., Bergmann-Lichtenstein and Brush 2001; DeKinder and Kohli 2008; George 2005). Although these longitudinal measures of patterns of slack resources can be highly informative, little is known about their actual impact on young firms' performance outcomes, such as sales growth.

Effectuation theory suggests that firms as effectuators should use their available resources in experimentation to iteratively create better-informed new options for their initial customers that subsequently can be further developed to address and shape the firm's future (e.g., Andries et al. 2013). Moreover, investments should be no larger than what the young firm can afford to lose (Dew et al. 2009). Therefore, firms often make repeated resource investments (and divestments) (Reymen et al. 2015), which implies variability in slack resources over time. Whereas the level of slack implies unused opportunities, slack variability signals that the young firm is willing to take risk, as indicated by regular spending and accumulation of resources.

Young firms with a high *variability in financial slack resources* over time show the willingness to take risk that is necessary for effectively exploring opportunities from an effectuation perspective. As the general assets of young firms are limited, such risk taking is necessary to enable their development and shape their future (Fang et al. 2008). Therefore, we contend that high financial resource slack variability over time and the associated risk taking are positively related to a young firm's sales growth.

In contrast, low variability in financial resource slack suggests that the firm lacks the willingness to take risks with regard to making necessary investments to achieve sales growth. Whereas low variability and the corresponding low risk taking may be worthwhile and sufficient for established firms and their existing markets, it can be a sign of lack of activity and development for young emerging firms (DeKinder and Kohli 2008). This supposition is consistent with Bergmann-Lichtenstein and Brush (2001), who demonstrate that firms exhibiting alterations and change in their salient resources over time are most likely to survive and grow. Hence, we posit:

H5: Financial resource slack variability has a positive effect on a young firm's sales growth.

High *variability in human resource slack* over time may indicate a risk for young firms. Due to the absorbed nature of human resource slack, this risk is difficult to manage and control. Variability in human resource slack over time may prevent the young firm from gradually and carefully building and consolidating its knowledge base and developing stable relationships with customers and other stakeholders (Hartmann et al. 2018). High human resource slack variability could hamper the firm's development, particularly its sales growth.

In contrast, low variability in human resource slack indicates organizational stability and an entrepreneurial team that is more in control of the young firm's development (Bendapudi and Leone 2002). Young firms with low variability in human resource slack face fewer risks because they are better able to secure their organizations' personnel requirements over time. This low variability in human resource slack facilitates knowledge development and relationship management with stakeholders, including customers. Consequently, such firms will be better able to focus on growing their business and attaining higher sales growth. Thus, we hypothesize:

H6: Human resource slack variability has a negative effect on a young firm's sales growth.

VBS and slack variability On the one hand, VBS may help young firms overcome negative performance implications of different forms of resource slack by increasing their ability to use resources effectively, as argued previously. On the other hand, it may be a hindrance in the presence of slack variability as it is less compatible with the uncertain environment in which young firms operate, where risk taking is often crucial.

Young companies with high financial resource slack variability often engage in risk taking behavior in pursuit of market opportunities. They actively strive to discover and develop business opportunities using purposeful experimentation. They use financial resource slack repeatedly over time to explore alternative product/service applications and test assumptions with new customers with alternative usage contexts. This high variability in spending pattern is associated with not only risk taking but also dynamic search patterns, in which alternating narrow and broad searches still occur (Reymen et al. 2015). Under these conditions, VBS will be less effective because insights from extant but varying customers are difficult to generalize to customers of a yet-to-be-demarcated market.

In contrast, low financial slack variability suggests that a young firm has become less active in its use of financial resource slack, signaling that the firm has explored the market and through experimentation discovered its customers and can now expand on this "stable" position. In this scenario, VBS is highly useful because it can help the young firm enhance its product–customer need linkage, create necessary institutional arrangements for customers to allow for proper implementation to enjoy the offering's value-in-use, and learn to demonstrate the contribution to the customers' bottom line. Therefore, VBS will be more effective in situations of low financial resource slack variability than in high financial resource slack variability, and we anticipate a negative moderating effect of VBS on the positive financial slack variability–performance relationship. Formally stated:

H7: VBS negatively moderates the relationship between financial resource slack variability and a young firm's sales growth.

Human resource slack variability refers to fluctuations of human resource slack over time and indicates that young firms face more risk in terms of their organizations' personnel requirements. As argued previously, high variability in human resource slack signals that high contextual risk will prevent the young firm from building its knowledge base and stable relationships with customers and other stakeholders considered necessary for its success (Hartmann et al. 2018). Under these conditions, VBS will be ineffective because it requires the young firm to focus on actively working with a certain set of customers to develop knowledge about a product/service as a customer solution.

In contrast, young firms with less variability in human resource slack over time will enjoy more stable relationships, not only between their employees and customers but also with other stakeholders. Under these circumstances, VBS is a useful sales approach because it can help leverage the trusting and close relationships between the firm and its customers (e.g., Kuester et al. 2017) to create better solutions. A less disruptive pattern in the number of personnel is advantageous to growth because it creates stability in the firm's organization and knowledge base, which can benefit from the systematic customer-oriented approach of VBS (cf. Blank 2006). Therefore, we posit:

H8: VBS negatively moderates the relationship between human resource slack variability and a young firm's sales growth.

Methodology

Data collection and sample

A panel of young companies that participated in one of two early-stage company incubators provides our sample. The two incubators, hosted by the start-up center of a renowned European university, work in conjunction with the university but act as independent business accelerators. Providing coworking facilities for early-stage companies, the incubators focus on start-ups that seek significant growth and international competitive advantage from their inception and that aim to tap into the optimal set of resources (Oviatt and Phillips McDougall 1994). The entry and selection criteria of the incubators' management are consistent with this definition and objective. The companies cover a range of industries, including technical software (19) and hardware (3) solutions, creative business/design (6), gaming (2), media (13), professional services (22), and other industries (6). The sample includes both successful and less successful businesses.

The incubators' management records information about the start-ups, which provides a rich panel database, including balance sheet information and profit and loss statements. Because the database did not include information about the companies' sales activities, we developed a survey, which we sent to 338 start-up companies in the database and resulted in 113 completely filled-out questionnaires (response rate of 33.4%). Respondents were the entrepreneur or the person on the entrepreneurial team most suitable to answer questions pertaining to sales issues. Confining the sample to companies that had made a first sale (used as a proxy for presence of actual sales activities), we were left with a sample of 95 young companies (response rate of 28.1%).

We used open interviews with two incubator managers to check the quality and representativeness of our sample. They confirmed that the sample was representative for past and current incubator populations and resembled the populations

of other incubators across the country. We then collected slack resource and performance data for our sample from the start-up center's database.

After conducting the survey, we collected three years of additional slack resource and performance data for our sample. Matching these data with our sample ultimately left us with a sample of 71 firms and 210 observations covering a seven-year period (t1–t7), which includes the companies' sales approach data collected in period t4. At t4, the average company age is 4.25 years.

The result is a unique longitudinal panel database for testing our model and hypotheses. Because the companies under study were founded in different years (e.g., some a few years before the start of the data collection, others during the data collection), they differed in the number of data points. Additional analyses confirmed the robustness of our data to these differences.

Measures

Resource slack We used objective data from the incubators' database to operationalize the organizations' resource slack. We operationalized financial resource slack as the ratio of current assets to current liabilities (Kim et al. 2008). We operationalized human resource slack based on Mishina et al. (2004), that is, [(number of employees per firm / firm sales) − (industry average number of employees / industry average firm sales)]. This operationalization measures human resource slack relative to the industry and thus accounts for the type of industry. Moreover, the number of employees is not expressed as a cost.

Resource slack variability We assessed the young firms' financial and human resource slack variability by computing the standard deviation of a company's slack levels over the different points in time. We measured resource slack variability as time-invariant constructs, as such operationalizations would yield the most stable estimates, given the relatively limited number of data points.

VBS We created our VBS measure relying on an extensive literature review of the value (selling) literature (e.g., Slater 1997; Terho et al. 2012; Woodruff 1997). We refined the construct and made it context specific using open interviews with entrepreneurs and sales experts to identify the most relevant aspects that fit the present-day entrepreneurial context, as described in detail next.

To validate the measure, we conducted open interviews with ten entrepreneurs and sales experts and three start-up incubator board members. Interviews lasted between 60 and 90 min and were recorded. A hallmark aspect of these interviews was the time allocated by the new venture to sales-related activities. From these interviews, it became clear that VBS should be classified as a higher-order construct that contains multiple dimensions. Specifically, we identified understanding customer value and working with customers as partners as two dimensions of VBS. The final measure included four items, in which each dimension contained two items and was assessed on seven-point Likert-type scales anchored by "totally disagree" and "totally agree" (see Appendix Table 4).

We evaluated the quality of the scale by conducting Bayesian confirmatory factor analysis (CFA). In this CFA, we modeled the construct as a higher-order construct of these two reflective dimensions. The technique is particularly appropriate for smaller sample sizes such as ours ($n = 71$). We assessed model fit using the validity of the model for future observations that are simulated by generating replications of the observed data (Kaplan and Depaoli 2012; Levy 2011). We subsequently computed the chi-square for the observed and replicated (or updated) data for each iteration within the Markov chain (Levy 2011). The posterior predictive p value (ppp) refers to the proportion of iterations for which the replicated chi-square exceeds the observed chi-square (for other implementations of the ppp, see Gelman et al. 2014). A fit is considered good if the ppp value is greater than .05 (Hoofs et al. 2017). The Bayesian estimation results, based on Markov chain Monte Carlo (MCMC) algorithms, converged, and the 95% confidence interval for the difference between the observed and replicated chi-square values indicate a reasonable ppp value (observed χ^2 value = −17.222; replicated χ^2 value = 30.685; d.f. = 30; ppp value = .253). The average variance extracted (AVE) and internal reliability of this construct exceeded generally accepted cutoff points of .5 and .7 (AVE = .58; composite reliability [CR] =. 73). Together, the results confirm the quality of our VBS approach measure.

Dependent variables To measure dependent variables, we used Log(Sales growth), which we computed from the incubators' databases. Consistent with prior research on sales growth, we took the log of sales growth to normalize its distribution (e.g., Campello 2003; DeKinder and Kohli 2008; Singh and Mitchell 2005): $\text{Log(Sales growth}_t) = \text{Log}(\text{Sales}_t / \text{Sales}_{t-1})$. Sales growth captures the absolute value of sales relative to the prior year and thus controls for differences in product prices across young companies.

Controls We included several controls. Consistent with other longitudinal sales research on organizational change (cf. Ahearne et al. 2010), we account for the effect of time in different arithmetic functional forms. We also included company age, founding team size (number of founding team members), founder experience (in years), founder age (in years), and years in business, which are generally considered important controls in entrepreneurial research. In addition, we added some variables that reflect the founder or founders' marketing experience at the time that company was founded—more specifically, founders' work experience in (1) advertising and promotion, (2) forming and managing sales contacts, and (3) dividing the market into

customer segments. We assessed these three variables on a seven-point Likert-type scales anchored by "totally disagree" (1) and "totally agree" (7). Although we acknowledge that these measures do not directly reflect actual commercial activity, we do consider them proxies for young firms' marketing actions/investments; founders with marketing knowledge/experience are more likely to recognize the importance of marketing activities for success and thus are more likely to focus attention on and allocate means to it.

In addition, we controlled for a number of other types of slack to rule out alternative slack-related explanations from generic slack variables, consistent with other entrepreneurial research on slack resources (Bradley et al. 2011; Vanacker et al. 2013). Potential slack represents the remaining borrowing capacity of a firm or resources not yet put into operation. Recoverable slack refers to organizational resources that can be recovered if needed simply through a more effective and efficient use of these resources. We measured potential slack as (current liabilities + noncurrent liabilities) / shareholders' funds and recoverable slack as (debtors + stock) / total assets. Potential slack contained some missing data (28.6%), so we replaced missing values with estimated values employing a multiple imputation procedure (Schafer 1999). The imputation involved the expectation-maximization algorithm to estimate a set of initial parameter values on which the MCMC process is based. We also added a dummy variable regarding the type of industry (0 = "nonservice" and 1 = "service") and two dummy variables regarding the first closed sale "according to schedule" (0/1) and "faster than schedule" (0/1). "Slower than schedule" serves as the base case (when both "according to schedule" and "faster than schedule" equal 0). In addition, we included Log(sales growth) lagged for empirical reasons. Furthermore, we specified quadratic terms for financial and human resource slack to account for the potential presence of curvilinear effects, in line with extant literature (e.g., George 2005; Mousa and Reed 2013). Consistent with prior research on slack (e.g., Paeleman and Vanacker 2012), we also specified an interaction between financial and human resource slack. Finally, we reestimated our model specifying three alternative measures of firm growth (i.e., absolute sales growth, relative operating revenue growth, and absolute operating revenue growth) to further validate our findings (cf. Delmar et al. 2003). Appendix Table 3 provides the correlations, means, and standard deviations of the variables under study.

Model specification

To estimate our model and test our hypotheses, we specified a multilevel hierarchical regression using MLwiN 2.22 (Rasbash et al. 2010), which computes iterative generalized least squares estimates (Bryk and Raudenbush 1992). Our basic multilevel regression model consists of a Level 1 submodel (Model A1) specifying the effects of the time-level variables that vary over different measurement points in time and Level 2 submodels A2–A4 specifying the effects of company-level variables:

$$\begin{aligned}\mathrm{LOGSALESGROWTH}[t_1]_{ti} &= \beta_{0i} + \beta_{1i}\mathrm{TIME}_{ti} + \beta_{2i}(\mathrm{TIME})^2_{ti} + \beta_{3i}(\mathrm{TIME})^3_{ti} \\ &+ \beta_{4i}\mathrm{COMPAGE}[t_0]_{ti} + \beta_{5i}\mathrm{BUSINESS}[t_0]_{ti} \\ &+ \beta_{6i}\mathrm{LOGSALESGROWTH}[t_0]_{ti} \\ &+ \beta_{7i}\mathrm{POTSLACK}[t_0]_{ti} + \beta_{8i}\mathrm{RECOVSLACK}[t_0]_{ti} \\ &+ \beta_{9i}\mathrm{FINSLACK}[t_0]_{ti} + \beta_{10i}(\mathrm{FINSLACK}[t_0])^2_{ti} \\ &+ \beta_{11i}\mathrm{HRSLACK}[t_0]_{ti} + \beta_{12i}(\mathrm{HRSLACK}[t_0])^2_{ti} \\ &+ \beta_{13i}\left(\mathrm{FINSLACK}[t_0]_{ti} \times \mathrm{HRSLACK}[t_0]_{ti}\right)_{ti} \\ &+ \varepsilon_{ti}, \end{aligned} \tag{A1}$$

$$\begin{aligned}\beta_{0i} &= \gamma_{00} + \gamma_{01}\mathrm{TEAMSIZE}_i + \gamma_{02}\mathrm{JOBEXP}_i \\ &+ \gamma_{03}\mathrm{FOUNDAGE}_i + \gamma_{04}\mathrm{EXPAP}_i \\ &+ \gamma_{05}\mathrm{EXPMSC}_i + \gamma_{06}\mathrm{EXPCS}_i \\ &+ \gamma_{07}\mathrm{INDUSTRY}_i + \gamma_{08}\mathrm{FIRSTSALEDUM1}_i \\ &+ \gamma_{09}\mathrm{FIRSTSALEDUM2}_i \\ &+ \gamma_{010}\mathrm{FINSLACKMEAN}_i \\ &+ \gamma_{011}\mathrm{HRSLACKMEAN}_i \\ &+ \gamma_{012}\mathrm{FINSLACKVAR}_i \\ &+ \gamma_{013}\mathrm{HRSLACKVAR}_i \\ &+ \gamma_{014}(\mathrm{VBS}_i \times \mathrm{FINSLACKVAR}_i)_i \\ &+ \gamma_{015}(\mathrm{VBS}_i \times \mathrm{HRSLACKVAR}_i)_i + \gamma_{016}\mathrm{VBS}_i \\ &+ u_{0i}, \end{aligned} \tag{A2}$$

$$\beta_{qi} = \gamma_{q0} + \gamma_{q1}\mathrm{VBS}_i \text{ for q } (= 9, 11) \tag{A3}$$

$$\beta_{qi} = \gamma_{q0} \text{ for q } (= 1, \ldots 8, 10, 12, 13), \tag{A4}$$

where t stands for time; i indicates companies; $\mathrm{LOGSALESGROWTH}[t_1]$ equals the young company's sales growth at time $_{t1}$; TIME, $(\mathrm{TIME})^2$, and $(\mathrm{TIME})^3$ refer to linear, quadratic, and cubic terms of the time variable, respectively; and $\mathrm{COMPAGE}[t_0]$ and $\mathrm{BUSINESS}[t_0]$ refer to company's founding year and number of years the company has been in business, respectively. $\mathrm{LOGSALESGROWTH}[t_0]$ signifies the young company's sales growth at t_0, and $\mathrm{POTSLACK}[t_0]$ and $\mathrm{RECOVSLACK}[t_0]$ reflect the young company's potential slack and recoverable slack at t_0, respectively. $\mathrm{FINSLACK}[t_0]$ and $\mathrm{HRSLACK}[t_0]$ denote a company's financial resource slack and human resource slack at time t_0, respectively. TEAMSIZE, JOBEXP, and FOUNDAGE refer to the size of the founding

team, lead founder's experience, and lead founder's age, respectively. INDUSTRY reflects the type of industry; EXPAP, EXPMSC, and EXPCS reflect lead founder's experience in advertising and promotion, managing sales contacts, and customer segmentation, respectively. FIRSTSALEDUM1 and FIRSTSALEDUM2 refer to the schedule of the first closed sale; FINSLACKMEAN and HRSLACKMEAN are each company's average financial resource slack and average human resource slack over the years, respectively, and FINSLACKVAR and HRSLACKVAR reflect each firm's financial and human resource slack variability. Finally, VBS is the company's level of VBS. Substituting Eqs. A2–A4 in Eq. A1 yields the following multilevel model:

$$
\begin{aligned}
&\mathrm{LOGSALESGROWTH}[t_1]_{ti} \\
&= \gamma_{00} + \gamma_{10}\mathrm{TIME}_{ti} + \gamma_{20}(\mathrm{TIME})^2_{ti} + \gamma_{30}(\mathrm{TIME})^3_{ti} \\
&\quad + \gamma_{40}\mathrm{COMPAGE}[t_0]_{ti} + \gamma_{50}\mathrm{BUSINESS}[t_0]_{ti} \\
&\quad + \gamma_{60}\mathrm{LOGSALESGROWTH}[t_0]_{ti} \\
&\quad + \gamma_{70}\mathrm{POTSLACK}[t_0]_{ti} \\
&\quad + \gamma_{80}\mathrm{RECOVSLACK}[t_0]_{ti} + \gamma_{90}\,\mathrm{FINSLACK}[t_0]_{ti} \\
&\quad + \gamma_{100}(\mathrm{FINSLACK}[t_0])^2_{ti} + \gamma_{110}\mathrm{HRSLACK}[t_0]_{ti} \\
&\quad + \gamma_{120}(\mathrm{HRSLACK}[t_0])^2_{ti} \\
&\quad + \gamma_{130}\left(\mathrm{FINSLACK}[t_0]_{ti} \times \mathrm{HRSLACK}[t_0]_{ti}\right)_{ti} \\
&\quad + \gamma_{140}\left(\mathrm{VBS}_i \times \mathrm{FINSLACK}[t_0]_{ti}\right)_{ti} \\
&\quad + \gamma_{150}\left(\mathrm{VBS}_i \times \mathrm{HRSLACK}[t_0]_{ti}\right)_{ti} \\
&\quad + \gamma_{01}\mathrm{TEAMSIZE}_i + \gamma_{02}\,\mathrm{JOBEXP}_i \\
&\quad + \gamma_{03}\,\mathrm{FOUNDAGE}_i + \gamma_{04}\mathrm{EXPAP}_i \\
&\quad + \gamma_{05}\mathrm{EXPMSC}_i + \gamma_{06}\mathrm{EXPCS}_i \\
&\quad + \gamma_{07}\mathrm{INDUSTRY}_i + \gamma_{08}\,\mathrm{FIRSTSALEDUM1}_i \\
&\quad + \gamma_{09}\,\mathrm{FIRSTSALEDUM2}_i \\
&\quad + \gamma_{010}\,\mathrm{FINSLACKMEAN}_i \\
&\quad + \gamma_{011}\mathrm{HRSLACKMEAN}_i \\
&\quad + \gamma_{012}\,\mathrm{FINSLACKVAR}_i \\
&\quad + \gamma_{013}\mathrm{HRSLACKVAR}_i \\
&\quad + \gamma_{014}(\mathrm{VBS}_i \times \mathrm{FINSLACKVAR}_i)_i \\
&\quad + \gamma_{015}(\mathrm{VBS}_i \times \mathrm{HRSLACKVAR}_i)_i + \gamma_{016}\mathrm{VBS}_i \\
&\quad + u_{0i} + \varepsilon_{ti} \qquad \text{(A5)}
\end{aligned}
$$

Results

Main analysis

To mitigate concerns over common method variance bias as well as endogeneity due to simultaneity or reverse causality bias (e.g., Jaeger et al. 2016), we separated the measurement of the dependent variable sales growth$_t$ from financial resource slack$_{t-1}$ and human resource slack$_{t-1}$, which reflect the company's financial resource slack and human resource slack at time t − 1, respectively. In addition, our analysis includes the lagged dependent variable (i.e., lagged sales growth) in the model as an independent variable to account for the effect of omitted variables not explicitly included in the model (e.g., Campello 2003; cf. DeKinder and Kohli 2008). We find that our results remain substantively unchanged whether the lagged dependent variable is included in the model or not, thus providing further evidence of the robustness of our results.

Similarly, we included lagged dependent variables for the models with alternative dependent variables. These lagged dependent variables covered the period t0–t6 and had some missing data at t0 (21.4%). We employed the expectation-maximization algorithm to impute estimates for these missing values. Finally, we estimated the model with the conceptually relevant variables only, omitting all control variables. The results remain substantively stable (all but one of the seven significant main effects and interactions remained significant), which indicates the robustness of the model.

Model 1 (Table 1) presents the results of the multilevel regression analysis. The coefficients are unstandardized. The results reveal that financial resource slack exerts a significant negative effect on a company's sales growth ($\beta = -.00035$, $p < .05$), in support of H1. In addition, human resource slack has a significant negative effect on a company's sales growth ($\beta = -3.670$, $p < .05$), which confirms H2.

In support of H3, the results report that VBS positively moderates the financial slack–sales growth relationship ($\beta = .00034$, $p < .01$). We used simple slope analysis (Aiken and West 1991) to facilitate the interpretation of the moderation effect. The analysis provides insight into how the moderated relationships behave under different values of the moderator variable(s) (i.e., one standard deviation above or below the mean). Figure 2a shows that VBS mitigates the negative effect of financial slack on sales growth such that financial resource slack's negative effect is absent under high VBS conditions. In addition, VBS mitigates the negative effect of human resource slack on sales growth ($\beta = 1.664$, $p < .01$), in line with H4. As Fig. 2b shows, human resource slack exerts a significantly smaller negative influence on sales growth when the level of VBS is high than when it is low.

Furthermore, the findings show that financial resource slack variability exerts a significant positive effect on a

company's sales growth (β = .00179, $p < .01$), in support of H5; however, the negative effect of human resource slack variability is not significant (β = −.3229, $p =$ n.s.), offering no support for H6. In addition, our results reveal that VBS negatively moderates the financial slack variability–sales growth relationship (β = −.00110, $p < .01$), in support of H7. Figure 2c shows that the positive effect of financial slack variability on sales growth is weaker for high than for low VBS.

Moreover, VBS negatively moderates the relationship between human resource slack variability and sales growth (β = −.945, $p < .01$), which is in line with H8. Figure 2d displays the finding that human resource slack variability's negative influence on sales growth is more negative when the level of VBS is high than when it is low.

To validate the results of Model 1, we performed several additional analyses. First, we reestimated the regression models using an alternative operationalization of sales growth (Model 3 in Table 1) as well as a different dependent variable, namely, operating revenue (see Models 2 and 4 in Table 1). The results of this exercise proved largely similar to those of Model 1, providing extra support and robustness to our findings. Second, we performed the Chow F_c test to determine whether a structural change had occurred in the antecedent–sales growth relationships over the seven-year period (t1–t7). The Chow F_c test reported no significant F value ($F_{32, 194} = .554$; $p = .92$), which indicates that no structural alterations occurred over time and confirms the consistency of the results across various time frames.

Of the control variables, time[3] exerts a significant negative effect, illustrating the curvilinear nature of sales growth over time. In addition, the results revealed that the quadratic term of human resource slack was significantly positive (β = 18.432, $p < .01$). We plotted the effect of human resource slack on sales growth to gain more insight into the nature of this effect (see Fig. 3). The plot illustrates that the effect of human resource slack is mainly linearly negative with some slight leveling off. Hence, we conclude that the quadratic term of the human resource slack variable does not have a strong impact, which is also consistent with the nonsignificance of this quadratic term in Models 2, 3, and 4 and confirms our focus on interpreting the linear relationship. Furthermore, the results reveal significant positive effects of company age and the dummy "first closed sale – faster than schedule" on sales growth. In addition, we observed a significant negative effect of potential slack, which illustrates that young companies that possess more potential slack perform significantly worse. Finally, the results reveal a negative interaction effect of financial resource and human resource slack on sales growth, which is in line with the resource constraint view (e.g., Baker and Nelson 2005). This view contends that it is beneficial that companies are constrained in one area of resources in terms of having either limited financial or human resource slack, because it drives young firms' creativity to use the other, more abundant resources more effectively (Paeleman and Vanacker 2012).

In addition, we estimated an alternative model in which we controlled for self-selection-based endogeneity bias by using the two-stage Heckman's selection correction procedure (Greene 2003; Worm et al. 2017). In our sample, young companies with a more favorable first closed sale planning (i.e., according to or faster than schedule) may be overrepresented as they may have self-selected themselves to respond to the survey. As a result, the relationship between the schedule of the first closed sales and the outcome of interest (sales growth) might be an artifact of overrepresentation of young companies with the first closed sale according to or faster than schedule. More specifically, the speed at which a young company closes its first sale may be endogenously determined and driven by company characteristics (cf. Sleep et al. 2015; Worm et al. 2017). Therefore, we selected "schedule of the first closed sale" to be instrumented by company-level characteristics (see Eq. A2).

In the first stage, we estimated two binary probit models using MCMC estimation, where we use the dummy variable "first closed sale – according to schedule" and the dummy variable "first closed sale – faster than schedule" as the dependent variable, respectively. For each model, we regressed the dependent variable on all company-level variables (cf. Equation A2) to obtain the Mills lambdas (or inverse Mills ratios). Of these company-level variables, we identified lead founder's experience in "advertising and promotion," "forming and managing sales contacts," and "dividing the market into customer segments" as suitable instruments. It can be argued that more experienced founders are less likely to rush into a first sale, as they take the execution of these time-consuming marketing activities more seriously. In addition, the three founder experience variables are significantly correlated with the first dummy variable "first closed sale – according to schedule" (−.17, $p < .05$; −.16, $p < .05$; and − .20, $p < .01$, respectively), while they do not correlate with $\text{Log(sales growth)}_t$. Consequently, these three founder experience variables (cf. Schwab 2011) can be considered exogenous variables that precede the endogenous variable "first closed sale – according to schedule". The negative correlations with "first closed sale – according to schedule" indicate that more experienced founders may indeed be slower in closing a first deal than less experienced ones. However, the three lead founder experience variables do not significantly correlate with the second dummy variable "first closed sale – faster than schedule", which implies that these experience variables do not work as instruments for this dummy. Hence, the lack of strong instruments is a limitation of the study.

In the second stage, we added these Mills lambdas as control variables to the regression model (cf. Equation A5), while excluding the variables that served as instruments. The results

Table 1 Results of the multilevel regression analysis

Model [Dependent variable]	Model 1: Log(Sales growth)$_t$	Model 2: Log(Operating revenue growth)$_t$	Model 3: Abs. (Sales growth)$_t$	Model 4: Abs. (Operating revenue growth)$_t$	
Intercept	.065 (.064)	.149 (.076)	79.014 (133.871)	46.321 (110.088)	
Control variables					
Time	.043 (.033)	.017 (.018)	35.006 (32.026)	30.132 (30.051)	
Time^2	−.002 (.010)	−.002 (.006)	−5.544 (7.434)	−7.916 (5.081)	
Time^3	−.011 (.005)*	−.005 (.003)	−5.513 (4.246)	−3.604 (3.176)	
Company age	.016 (.007)*	.009 (.004)*	24.158 (10.546)*	14.773 (9.372)	
Founding team size	.009 (.012)	.001 (.007)	−15.603 (11.166)	−5.180 (7.899)	
Founder experience	.002 (.009)	.002 (.006)	−18.372 (11.232)	−8.861 (9.712)	
Founder age	.002 (.003)	−.001 (.002)	5.577 (3.509)	4.935 (2.833)	
Years of business	.002 (.012)	.004 (.007)	17.778 (11.176)	3.731 (13.793)	
Founder experience advertising and promotion	.002 (.018)	−.005 (.010)	−25.278 (24.094)	−20.639 (21.046)	
Founder experience managing sales contacts	−.00009 (.01021)	.008 (.007)	−17.255 (11.660)	−23.898 (15.848)	
Founder experience market segmentation	.009 (.020)	.009 (.013)	50.891 (26.999)	50.624 (30.097)	
Potential slack	−.004 (.002)*	−.003 (.001)*	−7.595 (2.532)**	−5.502 (1.708)**	
Recoverable slack	.013 (.089)	.002 (.052)	64.263 (82.859)	64.039 (70.479)	
Industry cat service	−.040 (.056)	−.012 (.030)	−72.870 (57.354)	−29.632 (48.296)	
First closed sale – according to schedule	.049 (.111)	.009 (.057)	−12.684 (50.112)	18.370 (48.135)	
First closed sale – faster than schedule	.687 (.108)**	.126 (.064)*	25.454 (112.889)	−28.597 (105.874)	
Financial slack (company mean)	−.00059 (.00017)**	−.00045 (.00008)**	−.917 (.682)	−.751 (.502)	
Human resource slack (company mean)	−.810 (1.086)	.051 (.687)	1067.602 (945.178)	938.422 (827.224)	
Log relative sales growth lagged	.091 (.052)				
Log relative operating revenue growth lagged		−.152 (.103)			
Sales growth lagged			.335 (.036)**		
Operating revenue growth lagged				.364 (.049)**	
VBS	.020 (.020)	.011 (.013)	40.881 (23.588)	13.194 (20.978)	
Main effects					
Financial resource slack	−.00035 (.00017)*	−.00020 (.00011)	−.022 (.396)	−.151 (.265)	**H1**
Human resource slack	−3.670 (1.515)*	−2.080 (1.094)	−10,676.696 (2289.631)**	−7371.349 (2010.752)**	**H2**
Financial resource slack variability	.00179 (.00037)**	.00115 (.00018)**	3.033 (1.135)**	2.485 (.849)**	**H5**
Human resource slack variability	−3.229 (1.665)	−1.091 (1.175)	126.054 (741.453)	−393.051 (667.127)	**H6**
Financial resource slack squared	.00000002 (.00000003)	.00000002 (.00000002)	−.00012 (.00008)	−.00006 (.00005)	
Human resource slack squared	18.432 (6.492)**	5.657 (4.791)	−1076.210 (3163.587)	629.833 (2955.455)	
Interaction effects					
Financial resource slack × VBS	.00034 (.00008)**	.00011 (.00005)*	1.102 (.190)**	.796 (.140)**	**H3**
Human resource slack × VBS	1.664 (.316)**	.660 (.244)**	857.349 (182.910)**	715.665 (143.464)**	**H4**

Table 1 (continued)

Model [Dependent variable]	Model 1: Log(Sales growth)$_t$	Model 2: Log(Operating revenue growth)$_t$	Model 3: Abs. (Sales growth)$_t$	Model 4: Abs. (Operating revenue growth)$_t$	
Financial resource slack × Human resource slack	−.031 (.009)**	−.016 (.007)*	−58.971 (12.002)**	−41.300 (10.600)**	
Financial resource slack variability × VBS	−.00110 (.00033)**	−.00047 (.00019)*	−3.070 (.665)**	−2.275 (.494)**	**H7**
Human resource slack variability × VBS	−.945 (.281)**	−.152 (.103)	−483.151 (239.933)*	−383.831 (173.231)*	**H8**
Pseudo R^2	34.1%	24.9%	79.6%	83.7%	
Increase in overall model fit: −2 Log(likelihood)	χ^2 (31) 87.428** [a]	χ^2 (31) 59.797** [a]	χ^2 (31) 286.499** [a]	χ^2 (31) 262.482** [a]	

* $p < .05$. ** $p < .01$. (N = 71 companies nested within 210 points in time)

This table reports unstandardized coefficients, with standard errors in parentheses. We inspected the variance inflation factors (VIFs) of the variables of the models in the table. The model with only main effects yielded low VIF values (median VIF was 1.603 and max. VIF 5.963). For our main model with interactions (Model 1), VIFs are somewhat higher but still acceptable (median VIF of 1.726 and max. VIF 7.359 VIFs of variables with higher order terms were corrected for the number of d.f. (Dost et al. 2019; Fox and Monette 1992). [a] Increase in model fit compared with baseline model (intercept-only model)

remain stable: All significant main and interaction effects remain significant, suggesting that the model estimates are not biased due to self-selection (see Model 5 in Table 2).

Finally, we used the Gaussian copula method to address endogeneity due to temporal autocorrelation (e.g., Datta et al. 2015; Park and Gupta 2012; Schweidel and Knox 2013). Specifically, we calculated a Gaussian copula term to model the correlation between the lagged dependent variable (log relative sales growth lagged) and the model's error ε_{ti}. Whereas classical methods to correct for endogeneity rely on instrumental variables to partial out the exogenous variation in the endogenous regressors, copulas do not require instrumental variables (Park and Gupta 2012; Schweidel and Knox 2013). In line with Park and Gupta (2012, p. 573), we add the following regressor to our model Eq. A5:

$$\widetilde{\text{LOGSALESGROWTH}[t_0]}_{ti} = \Phi^{-1}\left[H_{\text{LOGSALESGROWTH}[t_0]}\left(\text{LOGSALESGROWTH}[t_0]_{ti}\right)\right], \quad \text{(A6)}$$

where $\Phi^{-1}$is the inverse of the normal cumulative distribution function and LOGSALESGROWTH[t_0] represents the empirical cumulative distribution function of log relative sales growth lagged. For identification purposes, the endogenous regressor must be nonnormally distributed (Park and Gupta 2012), which a Shapiro–Wilk test shows to be the case (LOGSALESGROWTH[t_0]: W = .0634, $p < .001$). After adding this copula as a regressor to our main model, the results remained substantively the same, which indicates that the impact of endogeneity due to temporal autocorrelation is limited (see Model 6 in Table 2). In addition, following DeKinder and Kohli (2008), we checked the model with and without the lagged dependent variable included and found that our results remain substantively unchanged.

Follow-up analysis

In our search for appropriate guiding mechanisms for managing young companies' human and financial resource slack, we also examined salesperson proactive selling as an alternative and competing mechanism for VBS. Proactive selling behavior entails taking initiative in selling products, anticipating opportunities rather than threats, and persisting in the sale of products until customers have adopted them (e.g., Pitt et al. 2002). It is considered one of the most powerful behavioral predictors of salesperson performance (cf. Van der Borgh et al. 2019). We used a higher-order measure of proactive selling (cf. Parker and Collins 2010) that consists of two components, each capturing a proactive behavior (see Crant 2000 for an overview of proactive behaviors). Each component contained two items: The first component reflects proactive

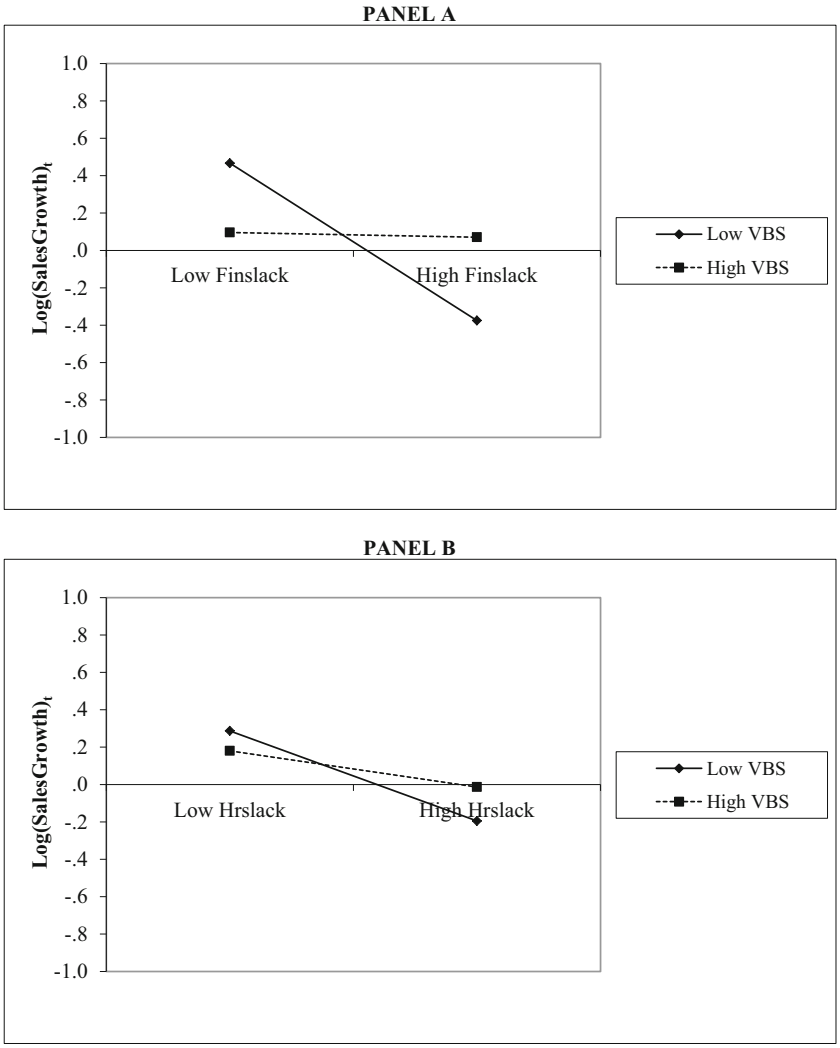

Fig. 2 Moderating effects of value-based selling

work behavior ([1] the development of a sales argument for the products and [2] experimenting with selling tactics for the products), and the second component reflects proactive strategic behavior ([3] creating and identifying sales opportunities in the market and [4] spotting new, rising needs of customers).

Next, we reestimated our Models 1 and 2 using proactive selling as an alternative to VBS. The results of Models 7 and 8 (see Table 2) demonstrate that the impact of proactive selling is substantially different from that of VBS. First, the positive main effect of proactive selling on absolute sales growth is evident ($\beta = 59.098$, $p < .01$; see Model 8), which suggests that, in contrast to VBS, proactive selling *directly* stimulates sales growth.

Second, the absence of virtually any significant interaction of proactive selling with financial and human resource slack (see Table 2, Models 7 and 8) suggests that, in contrast to VBS, proactive selling does not actually act as an enabler of young companies' financial and human resource slack. Likewise, additional analyses with each component of proactive selling (i.e., proactive work behavior and proactive strategic behavior) separately reveal similar results, showing substantially fewer significant interactions of the slack resource variables with these proactive selling components.

Finally, we also considered the measurement properties of proactive selling (CR = .57; AVE = .42). Using Fornell and Larcker's (1981) criterion, we determined that the correlation between VBS and proactive selling (.09) was consistently less than the square root of the AVE for each construct, in support of discriminant validity. We also examined the effects of the two components separately as an additional validation, as both proactive work behavior (CR = .68; AVE = .51) and proactive strategic behavior (CR = .76; AVE = .61) show solid measurement properties. These findings also revealed that both proactive work behavior ($\beta = 38.563$, $p < .01$) and proactive strategic behavior ($\beta = 37.692$, $p < .05$) yield a significant positive main effect on absolute sales growth, confirming the differential effect of proactive selling behaviors compared with VBS.

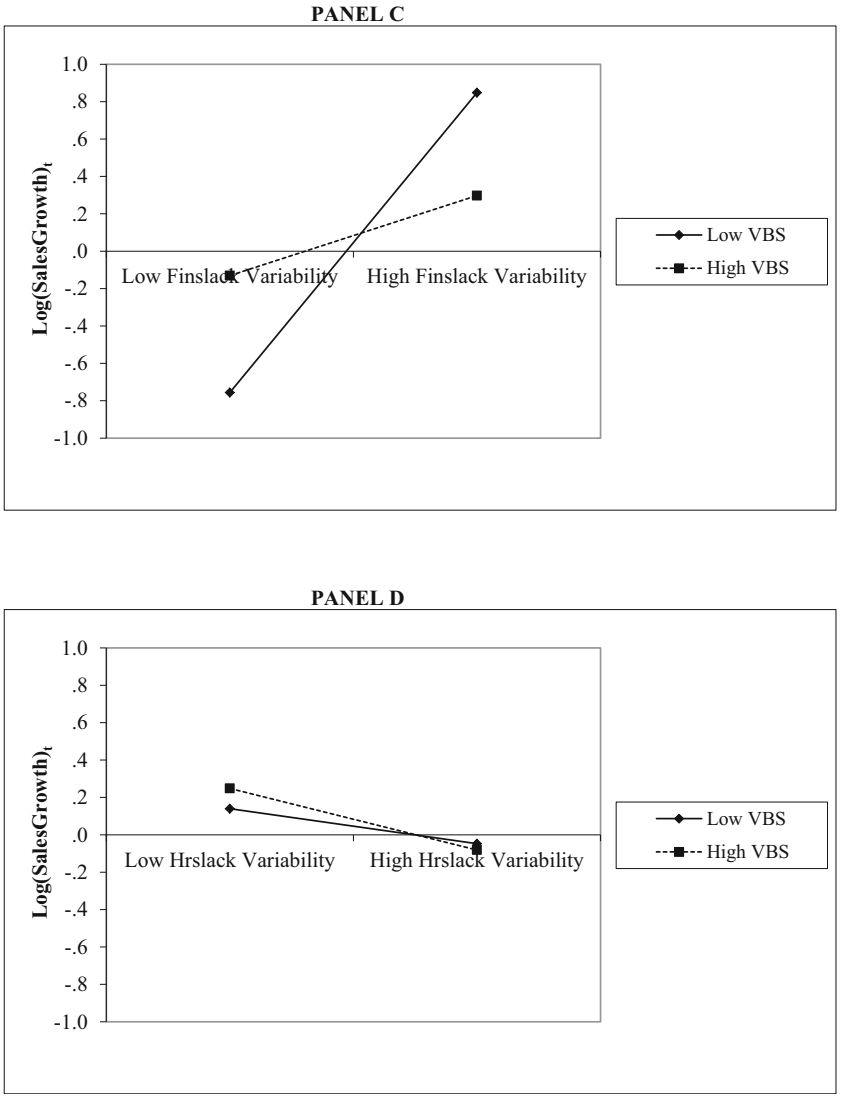

Fig. 2 (continued)

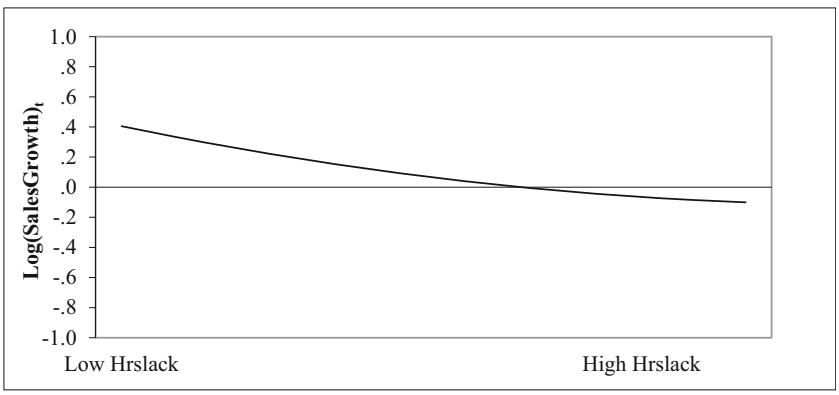

Fig. 3 Effect of human resource slack on $\text{Log(SalesGrowth)}_t$

Table 2 Results of the additional analyses

Model [Dependent variable]	Model 5: Heckman procedure Log(Sales growth)$_t$	Model 6: Gaussian copula method Log(Sales growth)$_t$	Model 7: PROACT Log(Sales growth)$_t$	Model 8: PROACT Abs. (Sales growth)$_t$	
Intercept	−.139 (.136)	−.304 (.182)†	.150 (.076)*	333.402 (136.883)*	
Control variables					
Time	.046 (.032)	.050 (.033)	.044 (.033)	55.074 (27.500)*	
Time^2	−.002 (.010)	−.001 (.009)	.001 (.010)	2.205 (6.772)	
Time^3	−.011 (.005)*	−.012 (.005)*	−.010 (.005)*	−6.565 (3.858)†	
Company age	.015 (.006)*	.017 (.007)*	.013 (.007)†	8.279 (5.412)	
Founding team size	.012 (.014)	.012 (.013)	.009 (.012)	−3.623 (9.505)	
Founder experience	.008 (.008)	.003 (.009)	.001 (.009)	−2.027 (6.396)	
Founder age	.002 (.003)	.002 (.003)	.0003 (.0027)	.529 (2.264)	
Years of business	−.002 (.011)	.002 (.012)	−.001 (.012)	−5.848 (9.432)	
Founder experience advertising and promotion		.002 (.019)	.007 (.017)	−4.682 (15.565)	
Founder experience managing sales contacts		.001 (.011)	.008 (.012)	−1.360 (7.823)	
Founder experience market segmentation		.009 (.021)	−.001 (.019)	.047 (19.442)	
Potential slack	−.004 (.002)*	−.004 (.002)*	−.002 (.002)	−3.790 (1.561)*	
Recoverable slack	.023 (.084)	.007 (.091)	−.012 (.092)	155.524 (91.007)†	
Industry cat service	−.031 (.061)	−.038 (.057)	.005 (.047)	31.495 (35.892)	
First closed sale – according to schedule	.054 (.136)	.026 (.120)	.051 (.090)	29.126 (32.575)	
First closed sale – faster than schedule	.728 (.119)**	.615 (.129)**	.713 (.143)**	121.008 (76.883)	
Financial resource slack (company mean)	−.00055 (.00018)**	−.00072 (.00020)**	−.00083 (.00020)**	−1.351 (.554)*	
Human resource slack (company mean)	−1.153 (1.543)	−.932 (1.163)	.242 (1.509)	−302.173 (782.647)	
Log relative sales growth lagged	.095 (.053)†	.155 (.070)*	.019 (.048)		
Sales growth lagged				.288 (.095)**	
VBS (or PROACT)	.026 (.025)	.021 (.021)	−.008 (.028)	59.098 (11.574) **	
Mills lambda_1	−.007 (.031)				
Mills lambda_2	−.006 (.024)				
Copula term		−.051 (.031)			
Main effects					
Financial resource slack	−.00036 (.00017)*	−.00033 (.00017)†	−.00021 (.00015)	1.001 (.479)*	**H1**
Human resource slack	−3.681 (1.514)*	−2.998 (1.599)†	−1.164 (1.898)	−624.199 (2525.995)	**H2**
Financial resource slack variability	.00172 (.00038)**	.00201 (.00041)**	.00159 (.00029)**	2.440 (.432)**	**H5**
Human resource slack variability	−3.210 (1.718)†	−2.885 (1.722)†	−1.744 (1.676)	−30.845 (661.809)	**H6**
Financial resource slack squared	.00000002 (.00000003)	.00000001 (.00000003)	.00000002 (.00000003)	−.00021 (.00010)†	
Human resource slack squared	18.175 (6.719)**	16.228 (6.767)*	9.163 (7.711)	1038.878 (3489.299)	

Table 2 (continued)

Model [Dependent variable]	Model 5: Heckman procedure Log(Sales growth)$_t$	Model 6: Gaussian copula method Log(Sales growth)$_t$	Model 7: PROACT Log(Sales growth)$_t$	Model 8: PROACT Abs. (Sales growth)$_t$	
Interaction effects					
Financial resource slack × VBS (or PROACT)	.00035 (.00009)**	.00031 (.00008)**	.00013 (.00007)†	.454 (.216)*	**H3**
Human resource slack × VBS (or PROACT)	1.667 (.310)**	1.498 (.333)**	−1.372 (1.735)	−640.224 (486.483)	**H4**
Financial resource slack × Human resource slack (or PROACT)	−.031 (.009)**	−.027 (.010)**	−.010 (.011)	−7.713 (13.375)	
Financial resource slack variability × VBS (or PROACT)	−.00110 (.00032)**	−.00103 (.00032)**	−.00032 (.00029)	−.472 (.767)	**H7**
Human resource slack variability × VBS (or PROACT)	−1.021 (.279)**	−.917 (.280)**	.953 (1.023)	−77.259 (586.080)	**H8**
Pseudo R^2	34.0%	35.4%	28.0%	71.8%	
Increase in overall model fit: −2 Log(likelihood)	χ^2 (30) 87.002** [a]	χ^2 (32) 91.657** [a]	χ^2 (31) 68.971** [a]	χ^2 (31) 211.159** [a]	

† $p < .10$. * $p < .05$. ** $p < .01$. ($N = 71$ companies nested within 210 points in time)
This table reports unstandardized coefficients, with standard errors in parentheses. [a]Increase in model fit compared with baseline model (intercept-only model)

Discussion

Research implications

The marketing and sales literature has largely neglected young, nascent firms, a peculiar oversight considering the amount of time and money invested in entrepreneurship and new business development. Nascent firms, as "vehicles of innovation and change," are generally considered the engine of the economy (Carree and Thurik 2003, p. 465) and thus must overcome the important marketing challenge of discovering and building their customers. By addressing this major sales/marketing challenge, we contribute to the marketing literature in several ways.

First, our results extend prior research that has begun to integrate entrepreneurship and marketing (DeKinder and Kohli 2008; Webb et al. 2011), specifically by combining the work on entrepreneurial firms and slack mechanisms (Bradley et al. 2011; Paeleman and Vanacker 2012) and prior work on marketing/sales and start-ups (Pitkänen et al. 2014; Rao et al. 2008). Drawing on effectuation logic, we develop an integrated framework, introducing VBS as a guiding mechanism that a young firm's entrepreneurial team can use to effectively exploit its slack resources.

Consistent with effectuation logic (Read et al. 2009; Sarasvathy 2001), our results confirm that both financial and human resource slack have a negative impact on young firms' sales growth and related performance outcomes. For a young firm, investing resource slack (i.e., lowering resource slack by spending it) is beneficial and not spending is disadvantageous as it represents available but unused means. Underspending suggests inactivity and forgoing taking advantage of the market opportunities available, particularly underspending in the domain of unabsorbed financial resource slack.

Second, we expand recent research that adopts a dynamic perspective (DeKinder and Kohli 2008) by accounting for levels of resource slack as well as the patterns of variation in resource position as informative of a firm's ability to grow over time. Our findings largely confirm that young firms' financial and human resource slack variability over time have differential impacts on customers and thus the young firms' sales growth: While financial resource slack variability relates to higher sales growth, we do not find the expected negative effect of human resource slack variability on sales growth. High financial variability indicates risk taking with regard to investments (and divestments), which signals activity and development for young emerging firms (DeKinder and Kohli 2008). The non-significant effect of human resource slack variability

may imply that the challenges in actively managing human resource slack are not as severe as expected, even though this type of resource slack is absorbed.

Third, our results add to Coviello and Joseph's (2012) findings regarding the importance of close interaction with customers throughout a young firm's innovation process. While these authors emphasize the importance of young firms' experimentation with customers, they do not link this experimentation behavior to selling activities and orientation. Our findings empirically substantiate that VBS is a powerful new business development and sales mechanism that can help curtail the negative effects of financial and human resource slack on sales growth. Our data show that VBS is capable of largely mitigating the negative effect of financial resource slack and partially mitigating the negative effect of human resource slack. This differential impact matches the expectation that redirecting unabsorbed financial resource slack is easier than redirecting absorbed human resource slack. These mitigating effects of VBS empirically substantiate Leslie and Holloway's (2006) observation that a thoughtful selling strategy that makes use of a more accurately planned resource allocation will avoid disastrous cash shortfalls and reduce the time, money, and human capital required to effectively ramp up a young company's new products in the market.

That said, we acknowledge that VBS's negative moderating effects of the relationships of financial and human resource slack variability on sales growth point to its limitations and a dark side of this sales approach. Young firms with highly varying financial resource slack are still in the process of searching for the right customers and configuring their product/service application for a specific value-in-use setting. Although experimentation and close customer cooperation are part of VBS, it patently does not account for considering new, alternative customers. Consequently, low financial resource slack variability is a better match for VBS usage. Similarly, the relationship between young companies' human resource slack variability and sales growth is significantly more negative when VBS is high than when it is low. This approach's focus on experimentation with current customers to optimize the new firm's product/service solution benefits from a stable human resource slack pattern over time. This is consistent with literature on sales learning that suggests that such learning benefits from a small, stable sales organization (e.g., Leslie and Holloway 2006). To maximally contribute to young firms' commercial success, high levels of VBS must be aligned with an appropriate slack resource management strategy.

Finally, our results unveil substantive differences between the effects of VBS and proactive selling on sales growth. In contrast to VBS, proactive selling has a direct effect on our young firms' sales growth but does not act an enabler of the effective use of available resource slack. This result illustrates that VBS is more applicable for helping young companies exploit their resource endowments than proactive selling. Our findings indicate that VBS's enabling function is reflected in its aims to understand customers' needs and business processes, and to use close collaboration and experimentation together with transparent costing, to develop an appropriate solution for customers.

Overall, our research addresses Webb et al.'s (2011) pertinent call to integrate marketing into entrepreneurial models as worthwhile in helping marketing scholars more effectively study young firms, generally considered the engine of an economy. It also can help bridge entrepreneurial research on commercialization with concepts in sales/marketing.

Managerial implications

Regarding business practice, it is particularly important for managers of young companies and new venture capitalists alike to monitor their organizations by observing both levels of resource slack and their variability over time. Slack is an indicator of management discretion but must be invested effectively to be beneficial. Financial slack should be invested to facilitate thoughtful experimentation and to specify and optimize the young firm's product/service and related business model to stimulate sales growth. Human resource slack should be reduced as well to avoid employee inertia and increase human resource efficiency, which in turn facilitates firm development and sales growth.

Variability in resource slack yields valuable information regarding young firms' willingness to take risks and, thus, also

holds important clues about their future. While our data show that human resource slack variability is neutral, they that financial resource slack variability has a positive impact on sales growth. In line with entrepreneurship knowledge, our findings demonstrate the advantages gained by taking risks to explore opportunities from an effectuation perspective and enable young firms' development.

Our study also suggests that managers would do well to embrace VBS, but with caution. We find that VBS is an important new business development enabler in that it can mitigate the negative effects of financial and human resource slack. Compared with other sales approaches, such as proactive selling, VBS can increase a young firm's ability to use its slack resources more effectively to build a value proposition and thus a sustainable competitive advantage. However, managers should be wary of the effect of VBS on slack variability. It is a more appropriate solution for young firms that have identified the appropriate market, discovered their customers, and are ready to expand on this secure position, which implies that it is a better fit for firms with low rather than high fluctuation in financial slack. It is also a better match in low rather than high human resource slack variability situations. Hence, VBS is best implemented when young firms aspire to more stability to continue growing after the initial development stages.

In contrast to much research on entrepreneurship that seems to pay only lip service to marketing/sales issues, and sometimes even seems to have taken selling out of new business development altogether, we promote a reconsideration and reconceptualization. By explicitly connecting entrepreneurship and its usage of slack resources with sales/marketing, managers of young firms can substantially increase the sales growth of their organizations and thereby prevent failure.

Limitations and avenues for further research

This research has several limitations, which point to important avenues for future research. First, we focused on two important slack resources: financial and human resource slack. Although these resources are generally considered most important, particularly for young firms, other slack resources could be considered and explored as well—for example, marketing slack (Xiong and Bharadwaj 2011). Second, in accordance with the extant slack literature we selected a particular operationalization of the two types of resource slack; however, we recognize that alternative measures are possible. We invite future research to adopt our dynamic lens and explore other options or even compare the impact of different operationalizations on outcomes. Third, although we used a rich longitudinal data set our VBS measure relies on a single observation per company at the midpoint of the period we studied. This measure offers a good proxy for the selling approach the firm used in the first part of the study period, particularly considering such an orientation is generally not implemented overnight but takes time to become effective. However, future research could measure more frequently and also account for the impact of changes in the approach on young firms' success. These studies could adopt and enhance our measure of VBS in the process. This recommendation similarly applies for the calculation of the resource slack variability measures, which future research could operationalize as a moving time average of a smaller number of points in time on the basis of more complete data. Fourth, although for young firms selling and new business development are considered more important than marketing activities, the young firm's marketing approach and decisions could also be considered in more detail. For example, explicitly accounting for effectual marketing choices made (Read et al. 2009) could offer a more complete picture. It could also account for which customers are involved in the development process. Research shows that adventurous and critical, yet positively minded customers should be preferred and thus may have the greatest impact on sales growth (e.g., Hoffman et al. 2010). Finally, future studies should pay additional research attention to the relation between VBS and the effective use of slack resources by exploring how VBS aligns with curvilinear main effects of these slack resources.

Overall, the commercialization of young firms is an important research area with high social impact and relevance. It is too important for marketers to leave only to management and entrepreneurship scholars. Rather, they should proactively help bridge these research streams with existing and emerging marketing and sales concepts.

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Appendix

Table 3 Means, standard deviations, and correlations

	Variables	M SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Log(Sales growth)$_t$	.081 (.39)																				
2	Time	5.18 (1.62)	−.10																			
3	Company age	4.25 (2.99)	.10	.30**																		
4	Founding team size	2.96 (1.60)	.12	−.04	−.04																	
5	Founder exp.	3.52 (2.58)	.07	−.12	.14*	.23**																
6	Founder age	39.45 (9.05)	−.04	−.02	.04	−.12	.06															
7	Years of business	4.58 (2.24)	−.17*	.29**	−.49**	.01	.03	.04														
8	Found. exp. adv. prom.	3.77 (2.12)	.12	.05	.26**	.14*	.54**	−.08	−.18**													
9	Found. exp. sales cont.	3.90 (2.18)	.11	.03	.33**	.09	.42**	.02	−.22**	.79**												
10	Found. exp. mark. seg.	3.63 (2.17)	.11	.07	.29**	.20**	.50**	−.19**	−.20**	.85**	.74**											
11	Potential slack	1.91 (8.55)	.00	−.14*	−.01	−.03	−.14*	−.18**	−.13	−.07	−.05	−.04										
12	Recoverable slack	.31 (.27)	−.07	−.05	−.41**	−.11	−.04	−.09	.33**	−.03	−.17*	−.04	.20**									
13	Industry cat service	.34 (.47)	−.00	.01	.08	−.12	−.11	.46**	−.06	.01	.12	−.02	−.21**	−.20**								
14	First closed sale –according to schedule	.08 (.27)	−.01	.11	.20**	−.05	−.13	.08	−.17*	−.17*	−.16*	−.20**	−.02	−.20**	.14*							
15	First closed sale – faster than schedule	.01 (.07)	.10	.09	.11	−05	−.07	−.12	−.10	−.06	−.02	.07	.05	−.10	−.05	−.02						
16	Financial resource slack	171.75 (619.26)	−.18**	−.12	−.20**	.03	.04	−.10	.31**	−.21**	−.33**	−.18**	.26**	.26**	−.16*	−.15*	−07					
17	Human resource slack	.00 (.05)	.08	−.02	.01	.06	.06	−.05	−.08	−.04	−.08	−.05	−.08	.01	−.08	.18**	.01	−.02				
18	Financial resource slack variability	97.43 (283.84)	.15*	−.16*	−.32**	.25**	.21**	−.18**	.35**	.04	−.12	.04	−.02	.08	−.15*	−.24**	−.11	.53**	−.06			
19	Human resource slack variability	.02 (.04)	.06	.02	.04	.21**	−.11	.01	−.03	−.06	−.13	−.17*	−.09	.01	−.06	.15*	−.09	−.04	.02	.11		
20	VBS	5.66 (.94)	.09	.01	−.00	.15*	.05	−.11	.01	.22**	.21**	.30**	−.06	−.02	.24**	.18**	−.09	.02	−.02	.11	−.08	

* $p < .05$; ** $p < .01$ (two-tailed)

Table 4 Measure and items

Value-based selling* (AVE = .58; CR = .73)			
	First-order construct	Loadings	95% Confidence intervals
1. Our competitive edge is based on understanding customers' business.	A1	.78	.384–.970
2. Our selling strategy is based on offering measurable business value to customers.	A2	.45	.250–.732
3. In our company we spend much time with the customer to create a shared understanding of the solution.	B1	.74	.430–.960
4. Our company treats customers as partners.	B2	.65	.366–.953

* Seven-point Likert-type scale, with 1 = "strongly disagree" and 7 = "strongly agree" as anchors

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