

Context and Person Characteristics Associated with the Decision to Prepare a Business Plan

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This paper investigates factors that influence entrepreneurs' decisions to prepare business plans. Data is obtained from a survey administered to clients of the Arkansas Small Business and Technology Development Center and designed to address various aspects of financing options. Logistic regression analysis is used to develop descriptive models that identify factors and interactions between factors that are associated with the entrepreneur's decision to prepare a business plan, including greater amount of required start-up costs, financial self-efficacy, size of the business, adequacy of capital resources acquired from business financing, and others. These findings have implications for research related to the preparation of business plans and organizational performance. Mixed results in prior studies may be attributed to failure to control for context and person factors that may influence both performance and the decision to prepare a business plan.

Planning has long been regarded as a cornerstone of management (Gulick, 1937; Fayol, 1949; Koontz & O'Donnell, 1955). While there has been considerable debate in the management literature about the merits that formal planning activities, such as writing business plans, may bring for organizations and about whether there is a positive causal relationship between planning and organizational performance (see Gruber, 2007 for a recent review), less attention has been given to factors that lead entrepreneurs to engage in those formal planning activities.

A primary role of planning is to allow organizations and individuals to respond proactively to opportunities and threats presented by their uncertain environments (Chakravarthy, 1987; Hax & Majluf, 1996). Thus, the propensity of entrepreneurs to select to write a business plan may itself be influenced by the profile of the new venture, its business context, and characteristics of the individual entrepreneurs. For example, an entrepreneur with significant relevant experience may feel that writing a business plan is a costly use of time. In contrast, an entrepreneur that knows little about the market and has 'lower' entrepreneurial capabilities may feel that the paper exercise of writing a business plan is both informative and instructive. It is, therefore, likely that the entrepreneurial profile and situational context of ventures with business plans will vary systematically from those without business plans due to selection effects. As a result, a key issue for research seeking a link between preparation of a business plan and organizational performance is that it is easy to confuse the impact of business plans on performance with differences in performance due to selection effects (Burke, Fraser, & Greene, 2010).

The contribution of this paper is to identify characteristics of the financing context and the individual entrepreneur that impact the entrepreneurial decision as to whether to prepare a business plan in support of efforts to obtain funding. The second section reviews the literature and develops hypotheses related to factors influencing the preparation of business plans. The third section describes the research method employed for this study, the fourth section presents results, the fifth section discusses implications of these results and makes recommendations for future research, and practical implications of the paper are presented in the final section.

LITERATURE REVIEW

In new ventures just starting up, business plans may be of particular relevance since these companies do not yet have much experience that they could use as a substitute for planning. Alternatively, one may argue that sophisticated planning practices are less relevant in new ventures, given that these companies often operate in dynamic environments which demand quick action rather than extensive deliberation. The entrepreneurship literature is divided about the relative merits of planning activities with some authors stressing the possible benefits of planning (Block & MacMillan, 1985; Matthews & Scott, 1995; Shane & Delmar, 2004) and others warning against excessive planning (Bird, 1988; Carter, Gartner & Reynolds, 1996; Allinson, Chell & Hayes, 2000).

Furthermore, surprisingly little is known about the ways in which business plans are actually used in new ventures and to what extent they are considered useful by the entrepreneurs and managers themselves. In quantitative studies, business planning is often treated as a “black box” and approximated with often crude measures. While such an approach may be instructive for understanding broad patterns concerning the existence of a business plan, its level of detail, or the frequency of its modification, such an approach leaves somewhat unexplored the dynamics of business planning and the details of how and why plans are actually used (Gartner & Birley, 2002). For example, it has been demonstrated in a primitive entrepreneurial setting that the demand for planning arises from the need for control; that is, plans provide the basis for performance measures that promote accountability for results (Gstraunthaler & Hendry, 2011).

Business plans are a prevalent feature of new venture management and are encouraged by government agencies, education institutions, and consultants. They are frequently a core requirement when seeking financial support. There is also a widespread belief that writing a business plan will impact favorably on venture performance. For example, Bygrave and Zacharakis (2010) argue that the development of an entrepreneurial idea and a sound execution strategy for implementing that idea are the key means through which writing a business plan can enhance the performance of a new venture. Furthermore, they point out that most business plans require entrepreneurs to address various questions and employ analytical management techniques. This process allows entrepreneurs to develop and test their business strategy and subject it to market research (Gruber, 2007). And so, it is argued that business plans stimulate faster and better decision making because entrepreneurs can test their assumptions before expending valuable resources.

In contrast, Honig and Samuelsson (2008) and Honig and Karlsson (2004) question if written business plans are anything more than mimetic devices that, at best, serve to legitimize the new venture. Indeed, formal business planning by the small business sector has been characterized as unwarranted while recognizing that although planning does not necessarily lead to high performance, high performers are likely to use planning (Gibson & Cassar, 2005). Further, entrepreneurs often write business plans to answer external demands to gain symbolic legitimacy for their actions, after which there is a gradual disconnection of their day-to-day business activities from initial plans (Karlsson & Honig, 2009). In addition, planning may be formal or informal, structured or unstructured, formulative or intuitive with no significant difference in profitability performance of the firms (Baird, Lyles, & Orris, 1994).

Bhide (2000) suggests that the impact of business plans on new venture performance is unlikely to have a generically and consistently positive, negative, or negligible effect. Instead, he posits that the efficacy of business plans is governed by the context within which business plans are written. Some are written to raise loan finance with the purpose of reassuring lenders of the low risk and secure positive cash flow position of the venture; others are written to help a founding self-funded entrepreneur devise a market entry and growth strategy for a high risk innovative new product in an emerging uncertain market. Further, while writing a business plan may be useful for organizing thoughts and details of a venture, it

has been shown that neither the content nor the presentation of business plans predicts which businesses get funded (Kirsch, Goldfarb, & Gera, 2009). The effects of preparing or not preparing a business plan on performance are unlikely to always be the same in such widely varying contexts.

Thus, the efficacy of written business plans may be context specific - potentially likely to have a positive impact in more predictable, stable markets but less so in more uncertain markets where entrepreneurs are introducing highly innovative products and services (Bhide, 2000). This discussion suggests that contexts and venture profiles influence the amount of information available to an entrepreneur and how a business plan might help increase this influence.

DEVELOPMENT OF HYPOTHESES

Capital acquisition is one of the most important and challenging issues facing small firms (Ang, 1992). Key specific contexts related to the initial financing requirements for the business operations include the amount of initial investment required to begin operations of the business and the percent of start-up funds obtained from outsiders. As the required investment increases, especially investment obtained from outside sources, the pressure to justify and safeguard that investment through formal planning processes is likely to increase.

- H1: Preparation of a business plan is positively associated with initial investment.
- H2: Preparation of a business plan is positively associated with the proportion of outside investment.

Other contextual considerations expected to impact the formal planning decision involve the likely sources of personal financial contribution by the owner(s) at start-up, sources of outside financing (including both debt and equity capital sources), the projected sufficiency of start-up funds, and the extent of investor involvement in the activities of the business. Small businesses rely on private capital markets, while larger firms are financed through public markets. Information on small businesses is much less readily available than information on larger firms, thus the private capital markets are characterized by complex contracts managed by specialized financial intermediaries (Berger & Udell 1998). In contrast, bootstrap capital can complement or reduce dependence on traditional sources of capital, allowing firms to leverage assets through informal arrangements (Ebben & Johnson, 2006; van Auken, 2003; Bhide, 1992). It is likely that those businesses with greater reliance on more formal financial arrangements will be more likely to prepare a business plan in support of those financing efforts than those businesses that arrange for financing using less formal bootstrapping arrangements. However, there is no expectation that the formal arrangements associated with debt financing will result in different formal planning frequencies than equity financing.

- H3: Preparation of a business plan is positively associated with the formality of financing arrangements.
- H4: Preparation of a business plan is not associated with debt financing or with equity financing, either alone or in combination

In addition, individual characteristics of the owner-entrepreneur, including knowledge of financial issues and gender may have an impact on the extent of formal planning that is undertaken. A recent study to delineate capital budgeting processes in small firms noted that a majority of small business owners did not have financial expertise due to their educational background (Danielson & Scott, 2006). Furthermore, there is some consensus that cognitive processes play a critical role in social behavior and thought (Bandura, 2001; Krueger, 2005). The role of perceived self-efficacy, an individual's judgment of their capability to attain a designated type of performance, is such that it mediates the relationship between knowledge and human action (Bandura 1986). Whereas high entrepreneurial self-efficacy produces strong probabilities of entrepreneurial activity (Boyd & Vozikis, 1994; McGee *et al.* 2009), it is

expected that perceived level of financial knowledge by the entrepreneur is related to their efforts to execute formal financial planning. Related, research suggests that women have lower entrepreneurial self-efficacy than men (Chen, Greene, & Crick, 1998; Bandura, 2001). However, there is no expectation that the personal characteristic of gender is associated with the propensity to prepare a business plan, even when controlling for differences in self-efficacy.

H5a: Preparation of a business plan is positively associated with the self-assessment of financial knowledge.

H5b: Preparation of a business plan is not associated with gender, neither directly or in interaction with self-efficacy.

Research on entrepreneurship suggests that other control variables should be considered, including business size and complexity (van Gelderen, Frese, & Thurik, 2000; Andersen, 2000; Madsen, 2007) and planning effectiveness. For example, the outcome of the capital acquisition process with regard to adequacy of funds obtained may systematically differ with hypothesized relationships (Carter & van Auken, 2007), such that they may be moderated by the effectiveness of financial planning processes employed whether they be deployed through preparation of a business plan or through less formal means. Furthermore, business plans are considered unnecessary by the business owners who believe their business concepts are too simple to warrant the preparation of business plans (Mazzarol, 2001; Perry, 2001; Gibson & Cassar, 2002)

METHODOLOGY

SURVEY QUESTIONNAIRE

An email survey was administered to small business entrepreneurs identified and selected from the client pool of the Arkansas Small Business and Technology Development Center (ASBTDC). The ASBTDC provides a broad variety of consulting services to different client groups, from entrepreneurs in the planning stage to small companies that have been in business for many years. The survey population included 1,303 going-concern companies that had been in operation for at least two years, having valid email addresses and receiving any type of counseling services from the center.

To promote and encourage participation in the survey, all email communications, three sets of messages prepared by the researchers, were sent directly from ASBTDC to the selected client survey population. The first message was sent one week before the survey was made available to potential respondents. The second message was sent when the survey became available and requested that the clients complete the survey. The third message was sent the following week as a reminder that the survey was on-line and available for completion.

As required by Institutional Review Board guidelines, potential survey respondents were assured of confidentiality and anonymity, noting that participation was strictly voluntary. No incentives were offered by the researchers or ASBTDC for participation in the survey. The researchers are unaware of the identities of the respondents and are not knowingly involved with any respondents to this study.

MEASURED VARIABLES

The survey instrument was designed to address various aspects of financing within small businesses including the availability and use of outside debt or equity funds and owner attitudes toward various financing options. Survey questions corresponding to dependent, independent, and control variables employed to test the hypotheses of this study are listed in the Appendix.

The dependent variable, Business Plan, is a dichotomous yes/no variable indicating whether the respondent prepared a business plan or not. Responses for Initial Investment (amount of start-up funds), Outside Funds (percentage of start-up funds from outside sources), Self-Efficacy (self-rated level of financial knowledge), and Adequacy of Financing (whether additional funds were needed after start-up) were coded as numerical categorical variables as described in the Appendix. Responses for Formality (use of arm's-length financing agreements), Debt Financing, and Equity Financing are dichotomous variables coded as 1=Yes if any one or more of the listed conditions are answered as *Yes* by a respondent, otherwise as 0=No if all listed conditions are answered as *No*. Company size as a surrogate for organizational complexity is measured as the number of full-time employees (Gibson & Cassar 2005); however, because of the positive skewness of the employment data, the variable LogSize is represented as the natural log of the number of full-time employees.

RESULTS

DESCRIPTIVE STATISTICS

A total of 154 usable survey responses were collected from the 1303 survey population, resulting in an 11.8% response rate. Descriptive statistics for relevant variables are presented in Table 1. Business plans were prepared for 103 of the 154 responding businesses (67%). Respondents included 89 males and 65 females. There is no significant difference between gender with regard to the decision as to whether to prepare a business plan ($\chi^2=0.261, p=0.609, df=1$). In addition, there are 78 businesses with one founder, 55 with two founders, 12 with three founders, and 10 with four or more founders (mean=1.7, median=2). This result is generally consistent with a recent national survey in which small business firms had an average of three owners with a median of one (Mach & Wolken, 2006). The median initial investment by these entrepreneurs is in the range of \$10000 - \$50000. Formal financing arrangements, as defined by the formality variable (see Appendix), were made by 117 respondents.

Table 1. *Descriptive Statistics (N = 154)*

Variable	Mean	Standard Deviation	Minimum	Median	Maximum	Skewness
Business Plan	0.67	0.47	0.0	1.0	1.0	-0.7
Initial Investment	2.89	1.47	1.0	3.0	6.0	0.2
Outside Funds	3.25	2.19	1.0	3.0	6.0	0.1
Formality	0.76	0.43	0.0	1.0	1.0	-1.2
Self-Efficacy	2.03	0.88	1.0	2.0	4.0	0.2
Gender	0.58	0.50	0.0	1.0	1.0	-0.3
LogSize	0.84	1.04	0.0	0.7	4.5	1.4
Adequacy	2.12	0.81	1.0	2.0	3.0	-0.2
Debt Financing	0.51	0.50	0.0	1.0	1.0	-0.1
Equity Financing	0.24	0.43	0.0	0.0	1.0	1.2

Given that data consists primarily of dichotomous and categorical variables, Spearman rank order correlations are presented in Table 2. Preparation of a Business Plan is positively correlated with the dollar amount of Initial Investment ($p=0.010$) and with the percentage amount of Outside Funds obtained from outside sources ($p=0.067$) but negatively correlated with Debt Financing ($p=0.099$). Dollar amount of Initial Investment is positively correlated with the percentage amount of Outside Funds ($p<0.001$), Gender ($p=0.002$), and LogSize ($p<0.001$). Outside Funds is also positively correlated with Gender ($p=0.092$) and LogSize ($p=0.017$). Debt Financing is negatively correlated with Equity Financing ($p<0.001$) while Financing Formality is highly correlated with Equity Financing ($p<0.001$) because of their similar construction where Formality is based on all equity financing plus formal debt arrangements. Interestingly, there is also a positive correlation of Financing Adequacy with Self-Efficacy ($p=0.004$).

These results suggest that entrepreneurs who consider themselves more knowledgeable about financial matters are on average more likely to obtain adequate financing. Finally, Gender is positively associated with LogSize ($p=0.056$) indicating male entrepreneurs in this sample operated businesses with more full-time employees (mean=6.6) than female entrepreneurs (mean=3.1); a two-tailed t -test of this difference indicates it is significant ($p=0.032$).

Table 2. Spearman Correlation Coefficients

Variable	Business Plan	Initial Investment	Outside Funds	Financing Formality	Self-Efficacy	Gender	LogSize	Adequacy	Debt Financing
Initial Investment	0.211**								
Outside Funds	0.125	0.480***							
Formality	-0.073	-0.013	0.018						
Self-Efficacy	-0.006	0.080	-0.022	0.024					
Gender	0.041	0.255**	0.151#	-0.050	0.058				
LogSize	-0.043	0.358***	0.177*	0.043	-0.033	0.155#			
Adequacy	0.000	0.078	0.046	-0.050	0.252**	0.002	-0.018		
Debt Financing	-0.134*	-0.028	0.008	0.060	0.034	-0.096	-0.042	-0.033	
Equity Financing	0.105	0.040	-0.051	0.316***	0.012	0.050	-0.032	-0.045	0.303***

Notes: # $p < 0.100$; * $p < 0.050$; ** $p < 0.010$; *** $p < 0.001$.

TESTS OF HYPOTHESES—BASIC MODEL

Logistic regression is used to model the relationship between a dichotomous response variable and a set of explanatory variables. Throughout this paper, reported results for logistic regression analyses include Nagelkerke R^2 (NR^2) which is defined as $R^2/\max R^2$ and can achieve the value of one. Its interpretation as a reliability measure is not the same as for OLS R^2 but nonetheless represents approximate variance in the outcome accounted for by the independent variables. (Hosmer & Lemeshow, 2000).

The Basic Model for these tests is specified as:

$$\text{Business Plan} = \beta_1 \text{Initial Investment} + \beta_2 \text{Outside Funds} + \beta_3 \text{Formality} + \beta_4 \text{Self-Efficacy} + \beta_5 \text{Financing Equity} + \beta_6 \text{Financing Debt} + \epsilon$$

Results for this analysis are presented in Table 3. While the overall Basic Model is marginally significant based on the likelihood ratio test ($p=0.089$; $NR^2=0.13$), Initial Investment is the only significant variable in this Basic Model ($p=0.025$). The positive coefficient for this result indicates that the greater the amount of the entrepreneur’s own resources invested initially into the business, the more likely that entrepreneur is to prepare a formal business plan. Despite the correlation among these key variables, multicollinearity is not considered to be a threat to regression results because all of the variance inflation factor (VIF) values associated with this regression model are less than 1.5, which is lower than the critical value of 10.

Table 3. *Basic Model: Logistic Analysis of Maximum Likelihood Estimates**Panel A: Parameter Statistics*

Parameter	DF	Standard Estimate	Wald Error	Chi-square	Pr>ChiSq
Intercept	1	0.5110	0.7847	0.4241	0.5149
Initial Investment	1	0.3654	0.1551	5.5472	0.0185
Outside Funds	1	0.0680	0.0940	0.5234	0.4694
Formality	1	-0.5322	0.4589	1.3451	0.2461
Self-Efficacy	1	-0.0366	0.2182	0.0282	0.8666
Gender	1	-0.0928	0.3769	0.0606	0.8056
LogSize	1	-0.2565	0.1827	1.9718	0.1603
Adequacy	1	-0.0747	0.2275	0.1079	0.7426
Debt Financing	1	-0.4423	0.3866	1.3091	0.2526
Equity Financing	1	0.5338	0.4931	1.1718	0.2790

Note: Probability modeled is Business Plan=1 (Yes)

Panel B: Likelihood Ratio Test and Related Model Statistics (DF=9)

Statistic	Value
Chi-Square	15.146
Pr>ChiSq	0.087
Nagelkerke R ²	0.130
-2 Log L	180.435
Max VIF	1.460

TESTS OF HYPOTHESES—ENHANCED MODEL

When logistic regression is used, the fundamental estimation problem for this study is reduced to the following question: Given that a business planner belongs to some pre-specified planning population, what is the probability that the planner will prepare a business plan? No assumptions need to be made regarding prior probabilities of business plan preparation and/or the distribution of predictors. The statistical significance of the different predictors is obtained from large sample theory, but the choice of those predictors should be based on their predictive relevance (Menard, 2010).

Model selection is a fundamental task in data analysis, widely recognized as central to good inference. Purposeful selection combines subject measure knowledge with statistical significance considerations. There is no perfect “supermodel” which is good for all purposes, and even in the same study one might need at least *two* types of models: one for description/interpretation and another for prediction (Menard, 2010). The review of the literature above suggests that various interactions among key variables should be considered. Therefore, the Basic Model is enhanced by recognizing and evaluating the interactive effects of various combinations of those key variables including: Initial Investment x Outside Funds, Self-Efficacy x Adequacy of financing capital acquired (as a proxy for planning effectiveness), Self-Efficacy x Gender, Adequacy x Gender, Outside Funds x Gender, LogSize x Adequacy, and LogSize x Formality. Table 4 presents the results for this analysis. The overall model has increased in significance ($p=0.028$, $NR^2=0.26$). Significant factors associated with business plan preparation include Adequacy with a negative coefficient ($p=0.039$) and the positive interactions of Self-Efficacy x Adequacy ($p=0.034$) and LogSize x Formality ($p=0.080$).

Table 4. *Enhanced Model: Logistic Analysis of Maximum Likelihood Estimates*

Panel A: Parameter Statistics

Parameter	DF	Standard Estimate	Wald Error	Chi-square	Pr>ChiSq
Intercept	1	4.0772	1.7836	5.2254	0.0223
Initial Investment	1	0.3218	0.2684	1.4378	0.2305
Outside Funds	1	-0.1961	0.2389	0.6741	0.4116
Formality	1	-1.0387	0.6268	2.7460	0.0957
Self-Efficacy	1	-1.0328	0.7099	2.1166	0.1457
Gender	1	-2.5495	1.4751	2.9873	0.0839
LogSize	1	0.3444	0.7908	0.1896	0.6632
Adequacy	1	-1.3686	0.6673	4.2058	0.0403
Debt Financing	1	-0.7524	0.4801	2.4559	0.1171
Equity Financing	1	0.1463	0.6499	0.0507	0.8219
Debt_x_Equity Financing	1	1.3860	1.3157	1.1098	0.2921
Init Inv_x_Outside Funds	1	0.0353	0.0702	0.2530	0.6150
Self-Efficacy_x_Adequacy	1	0.5539	0.2884	3.6688	0.0548
Self-Efficacy_x_Gender	1	0.2545	0.4830	0.2775	0.5983
Adequacy_x_Gender	1	0.5196	0.5000	1.0799	0.2987
Outside Funds_x_Gender	1	0.2604	0.1909	1.8597	0.1727
LogSize_x_Adequacy	1	-0.3036	0.3293	0.8503	0.3565
LogSize_x_Self-Efficacy	1	-0.2985	0.2470	1.4609	0.2268
LogSize_x_Formality	1	0.6996	0.4066	2.9609	0.0853

Note: Probability modeled is Business Plan=1 (Yes)

Panel B: Likelihood Ratio Test and Related Model Statistics (DF=18)

Statistic	Value
Chi-Square	30.327
Pr>ChiSq	0.034
Nagelkerke R ²	0.249
-2 Log L	165.254
Max VIF	17.100

However, VIF values are greater than 10 for five terms in this model (two main effect terms and three interaction terms). The typical effect of multicollinearity is to understate and obscure significance of independent variables by increasing the standard errors of their coefficients (Menard, 2010). One indicator for such effects is that none (or few) of the individual coefficients is statistically significant, yet the overall model is significant, which is the case here. Interpretation of the significant relationships in this Enhanced Model reveals insights into the mixed results of research concerning the relationship between preparation of a business plan and company performance. The negative relationship in the main effect of Adequacy on business plan preparation suggests that a significant number of businesses for which no business plan is prepared may have found or developed access to sufficient capital before it became necessary to prepare and present a formal business plan. Furthermore, the interaction effect of Adequacy and Self-Efficacy (see Table 5, Panel A) suggests that entrepreneurs with high Self-Efficacy who prepare business plans are more likely to obtain adequate financial resources with their business plan while those with low Self-Efficacy are less likely to obtain adequate financial resources.

Adequacy was not significantly different between entrepreneurs with high/low Self-Efficacy when they did not prepare a business plan. Related, businesses that do not enter into formal financing arrangements and do not prepare a formal business plan tend to have more full time employees than other businesses (Table 5, Panel B).

Table 5. *Interaction Effects in the Enhanced Model*

Panel A: Adequacy x Self-Efficacy

Self -Efficacy	Mean Adequacy(n)	
	BP=0	BP=1
=1,2	2.03(31)	1.81(72)
=3,4	1.90(20)	2.48(31)

Panel B: LogSize x Formality

Formality	Mean LogSize (n)	
	BP=0	BP=1
=0	1.41(10)	0.62(27)
=1	0.79(41)	0.87(76)

TESTS OF HYPOTHESES—REFINED MODEL

The final step toward developing a descriptive model of factors associated with preparation of a business plan utilizes backward selection, a model-building technique commonly employed with logistic regression analysis (Menard, 2010). The evaluation of the relationships among the terms in the Enhanced Model is refined to eliminate variables that do not demonstrate a significant relationship with business plan preparation in any combination with other variables. Table 6 presents the outcome of this analysis. The overall model has increased in significance although it has decreased in predictive reliability ($p=0.008$, $NR^2=0.22$). While multicollinearity is still present in this Refined Model, VIF values are less than 6.0 for all variables except the interaction term Self-Efficacy x Adequacy.

Table 6. *Refined Model: Logistic Analysis of Maximum Likelihood Estimates*

Panel A: Parameter Statistics

Parameter	DF	Standard Estimate	Wald Error	Chi-square	Pr>ChiSq
Intercept	1	2.7828	1.2154	5.2427	0.0220
Initial Investment	1	0.4239	0.1580	7.2023	0.0073
Outside Funds	1	-0.0806	0.1463	0.3033	0.5818
Formality	1	-0.9069	0.6153	2.1725	0.1405
Self-Efficacy	1	-0.7461	0.4880	2.3380	0.1263
Gender	1	-0.9250	0.6584	1.9739	0.1600
LogSize	1	-0.2257	0.4624	0.2383	0.6254
Adequacy	1	-1.0493	0.4663	5.0638	0.0244
Debt Financing	1	-0.6594	0.3887	2.8772	0.0898
Self-Efficacy_x_Adequacy	1	0.4947	0.2165	5.2215	0.0223
Outside Funds_x_Gender	1	0.2542	0.1793	2.0111	0.1562
LogSize_x_Self-Efficacy	1	-0.3763	0.2194	2.9403	0.0864
LogSize_x_Formality	1	0.7253	0.4173	3.0207	0.0822

Note: Probability modeled is Business Plan=1 (Yes)

Panel B: Likelihood Ratio Test and Related Model Statistics (DF=12)

Statistic	Value
Chi-Square	26.833
Pr>ChiSq	0.008
Nagelkerke R ²	0.220
-2 Log L	168.748
Max VIF	12.300

Initial Investment continues to reflect a significantly positive main effect ($p=0.022$). Significantly negative variables include Adequacy ($p=0.024$) and Debt Financing ($p=0.090$). In addition to the significant interaction effects previously identified in the Enhanced Model, Self-Efficacy x Adequacy ($p=0$). and LogSize x Formality ($p=0.082$), another significantly negative interaction effect identified is LogSize x Self-Efficacy ($p=0.086$). At high levels of Financial Self-Efficacy, business plans are prepared for smaller firms while no business plan is prepared for firms that are larger than average (Table 7, Panel A). Whether this propensity is time related or is rooted in some other cause, these entrepreneurs of larger firms appear to have the confidence to proceed without preparing a business plan.

Concerning the interaction of Outside Funds x Gender ($p = 0.156$), male entrepreneurs are more likely to prepare a business plan when seeking greater proportion of outside funding and do not prepare a business plan at lower proportions of outside funding (Table 7, Panel B). Although this interaction is not significant at $p<0.10$ in the Refined Model, Outside Funding x Gender interaction is significant ($p=0.085$) in a model that is further refined in which the two interaction terms with LogSize are eliminated. In contrast, there is no difference in proportion of outside funding sought by female entrepreneurs who prepare a business plan and those who do not. These differences may be related to previously observed gender differences in risk aversion (Cassar, 2004; Robb & Coleman, 2009; Hendon & Bell, 2011).

Table 7. *Interaction Effects in the Refined Model*

<i>Panel A: LogSize x Self-Efficacy</i>			
		<u>Mean LogSize(n)</u>	
	Self -Efficacy	BP=0	BP=1
	=1,2	0.86(10)	0.85(27)
	=3,4	0.98(41)	0.70(76)

<i>Panel B: Outside Funding x Gender</i>			
		<u>Outside Funding (n)</u>	
	Gender	BP=0	BP=1
	= F	1.41(10)	0.62(27)
	=M	0.79(41)	0.87(76)

COMPARISON OF MODELS

Logistic models are compared based on the difference between the models' log-likelihood values such that $\chi^2 = -2[LL(\text{Model}_A) - LL(\text{Model}_B)]$ (Menard, 2010). Tables 3, 4, and 5 report the respective values for -2 (Log Likelihood), so that the χ^2 value of the comparison can be made directly. However, models must be nested in order to be compared; that is, that all components of the smaller model must be in the larger model. Therefore, valid comparisons can only be made for the Enhanced vs. Basic Models ($\chi^2=15.18$, $df=9$, $p=0.086$) and for the Enhanced vs. Refined Models ($\chi^2=3.94$, $df=6$, $p=0.745$). The Basic Model is not nested within the Refined Model and so there is no valid statistical comparison for the two.

The significant difference between the Enhanced and Basic Models indicates that the interaction variables added to the regression model significantly increase its predictive power. The lack of significant difference between the Enhanced and Refined Models indicates that the variables and interaction terms removed do not significantly affect the predictive power.

DISCUSSION

This paper has identified characteristics of the financing context and the individual entrepreneur that are associated with the entrepreneurial decision as to whether to prepare a business plan in support of efforts to obtain funding. Logistic regression is used to develop a descriptive model of those characteristics. Limitations of this method include testing hypotheses by reliance on correlations which is a necessary but not sufficient condition for causality, omitted variables, and achieved measurement reliability of measured variables.

Results indicate that the preparation of business plans by start-up companies is positively associated with the amount of initial investment by the principle founding entrepreneur and negatively associated with adequacy of the amount of initial financing. The greater the amount of the entrepreneur's own resources invested initially into the business, the more likely that entrepreneur is to prepare a formal business plan. However, a significant number of businesses for which no business plan is prepared may have found or developed access to sufficient capital before it became necessary to prepare and present a formal business plan.

It is interesting to note that entrepreneurs with high self-confidence in their financial knowledge who prepare business plans are more likely to obtain adequate financial resources with their business plan while those with low self-confidence are less likely to obtain adequate financial resources. Similarly, when entrepreneurs have high self-confidence in their financial knowledge, business plans are prepared for smaller firms (those with below-average number of employees) while no business plan is prepared for firms that are larger than average, but size of the company is unrelated to whether a business plan is prepared when entrepreneurs lack self-confidence in their financial knowledge. That is, entrepreneurs of larger firms appear to have developed the self-confidence to proceed without preparing a business plan.

Results also indicate that larger-than-average businesses (those with an above-average number of employees) that do not enter into formal financing arrangements tend not to prepare business plans.

Finally, male entrepreneurs are more likely to prepare a business plan when seeking greater proportion of outside funding and do not prepare a business plan at lower proportions of outside funding. However, there is no relationship between proportion of outside funding and business plan preparation for female entrepreneurs.

Future research investigating the link between preparation of business plans and organizational performance should consider the characteristics of the context and the individual entrepreneurs that may impact performance whether or not a business plan is prepared. For example, the greater the amount of the entrepreneur's own resources invested initially into the business, the more likely that entrepreneur is to prepare a formal business plan. However, a significant number of businesses for which no business plan is prepared may have found or developed access to sufficient capital before it became necessary to prepare and present a formal business plan. Furthermore, entrepreneurs confident in their financial knowledge who prepare business plans are more likely to obtain adequate financial resources with their business plan but these business plans are typically prepared for smaller firms, whereas they are less likely to prepare a business plan for firms that are larger than average. Systematic differences in capitalization of the firms and in capabilities of the entrepreneur are likely to be important moderators of relationship between business plan preparation and firm performance and may have given rise to mixed results of prior research efforts that have explored that relationship.

PRACTICAL IMPLICATIONS

These findings suggest that knowledge required and garnered through the business-planning process serves as motivation, and perhaps peace of mind, to pursue an entrepreneurial endeavor for a financially-committed entrepreneur. In addition, the business plan serves as a guide for the entrepreneur seeking equity investment a little more than when seeking debt or traditional bank financing.

Collectively, entrepreneurs seem to need a guide or “crutch” early in the venture formation process to reinforce the start phase of business development. Those entrepreneurs beyond the early funding stage, somewhat surprisingly, seem to view the business plan as a less important document or exercise. Their focus seems to be on attracting capital and once the role for the document in the debt seeking process is diminished, the entrepreneur no longer relies upon the business plan as a guide for the business venture.

Finally, characteristics of the entrepreneur and the business planning context that are related to the preparation of business plans may also be related to successful organizational performance. These complex sets of interrelationships may explain the mixed results of prior research that investigated links between business plan preparation and organizational performance.

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APPENDIX—SURVEY QUESTIONS

Dependent Variable:

BUSINESS PLAN Did you write a business plan? (Dichotomous variable: 0=No; 1=Yes)

Independent Variables:

H1: INITIAL INVESTMENT How much did it cost you to start your business? (Categorical variable; values of 1-6 as follows)

1. Less than \$5,000
2. \$5,000-\$10,000
3. \$10,001-\$50,000
4. \$50,001-\$200,000
5. \$200,001-\$500,000
6. Greater than \$500,000

H2: OUTSIDE FUNDS What percent of the total money required to start your business did you obtain from outside sources? (Categorical variable; values of 1-6 as follows)

1. Zero
2. Less than 10%
3. More than 10% but less than 25%
4. More than 25% but less than 50%
5. More than 50% but less than 75%
6. Greater than 75%

H3: FORMALITY What type(s) of financing have you received over the life of your business? (Dichotomous variable: 0=No to all of the following; 1=Yes to any of the following)

- a. Equity from outside investor (not family or friends) OR
- b. Debt from outside investor (not family, friends, or lending institution) OR
- c. Bank loan (commercial or personal) OR
- d. Strategic partner financing OR
- e. Venture capital OR
- f. SBIR/STTR

H4: DEBT FINANCING What type(s) of financing have you received over the life of your business? (Dichotomous variable: 0=No to all of the following; 1=Yes to any of the following)

- a. Debt from outside investor (not family, friends, or lending institution) OR
- b. Credit cards OR
- c. Second mortgage OR
- d. Personal bank loan OR
- e. Commercial bank loan OR
- f. Supplier financing OR
- g. SBIR/STTR

H4: EQUITY FINANCING What type(s) of financing have you received over the life of your business? (Dichotomous variable: 0=No to all of the following; 1=Yes to any of the following)

- a. Equity from outside investor (not family or friends) OR
- b. Equity from family or friends OR
- c. Venture capital

H5: SELF-EFFICACY Before you attempted to acquire money to start your business, how would you rate your level of financial knowledge? (Categorical variable; values of 1-4 as follows)

- 1. Novice
- 2. Knowledgeable
- 3. Competent
- 4. Expert

Control Variables:

SIZE-COMPLEXITY How many full-time employees work in your business? (Integer variable)

ADEQUACY Have you sought additional funds since you opened your business that you did not originally plan to borrow? (Categorical variable; values of 1-3 as follows)

- 1. I did not have enough capital and had to scale back the business
- 2. I needed more money and I was able to secure it.
- 3. No unexpected borrowing or investment has been needed.