

The Role of Experience in Entrepreneurial Optimism

-- Evidence from Early-Stage Firms

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Abstract

This study empirically examines the role of industry experience, entrepreneurial experience and MBA education in entrepreneurial optimism. By using data of early-stage firms in Province of British Columbia in Canada, I find that entrepreneurs benefit from entrepreneurial experience. With knowledge of starting up a new business from previous experience, entrepreneurs become more realistic about the future of current projects. Contrary to results of existing literatures, this paper argues that entrepreneurs tend to make more optimistic forecast if some management team members have industry experience. However, if both founders and non-founders have industry experience, entrepreneurs become relatively realistic because of the interaction between management team members.

Keywords: entrepreneurial optimism, optimistic, management team, industry experience, entrepreneurial experience

I. Introduction

Optimism is a fundamental and influential part of entrepreneurship. Many researches have been developed around entrepreneurial optimism and reveal two noteworthy things. Firstly, most entrepreneurs tend to be overoptimistic about their firms' future. According to the survey conducted by Cooper, Woo, and Dunkelberg (1998), when being asked about the probability of their own firms' success, 81% of 2,994 entrepreneurs said more than 70%, and 33% even chose 100%. But when being asked about the odds of success of any business like theirs, only 39% entrepreneurs chose 70% or higher. Entrepreneurs' overoptimism is understandable because entrepreneurs must believe in the success of their projects. Or else they would stay employed, rather than launching a new business. The prevailing overoptimism is not a serious problem until further studies state that entrepreneurs' judgments and corporations' following performance are negatively influenced by overoptimism. Overoptimistic entrepreneurs tend to make irrational decisions based on limited information and firms may fail because of entrepreneurs' unrealistic expectations of chances and risks (Hmieleski & Baron, 2009; James & Gudmundsson, 2011; Shane & Venkataraman, 2000).

Since negative effects of overoptimism have been recognized, it is important for the society to study the factors which affect entrepreneurial optimism and then find effective ways to reduce the negative influence of overoptimism. In this paper, I use data of early-stage corporations to study the relation between entrepreneurial optimism and entrepreneurs' experience, including industry experience,

entrepreneurial experience, and MBA education. The data shows that most entrepreneurs are overoptimistic about their firms' performance, which is consistent with the findings of existing researches. Entrepreneurial experience helps founders to be more realistic about the future of their current projects. The influence of MBA background is not obvious. Contrary to results of existing literatures, this paper argues that industry experience leads to more optimistic forecast. Furthermore, if both founders and at least one of other management team members have industry experience, founders become relatively realistic due to their interaction with the management team.

This study has two contributions. Firstly, it uses business plans and financial statements, instead of self-report survey data, to measure optimism. Past studies about entrepreneurial optimism relied on survey data. They either directly use entrepreneurs' subjective reports of expectation from surveys or use the difference between survey data of self-report expectation and the actual accounting performance as dependent variable to analyze entrepreneurial optimism. However, survey data is not reliable for being answered in a casual way and being highly affected by subjective influences. Compared to surveys, data from business plans is much more reliable because business plans require serious consideration and management teams' discussion. The second contribution of this paper is that it uses data from a special, private dataset to examine the influence of three types of experience on entrepreneurial optimism. The data well represents early-stage small businesses in Province of British Columbia in Canada.

The rest of this paper has another four sections. The second section reviews existing literatures about measures and determinants of entrepreneurial optimism. The third section introduces data, variables, and model used in this study. The fourth section discusses hypotheses and results of the study. The fifth section concludes the study, states limitations, and suggests future research directions.

II. Measures and determinants of entrepreneurial optimism

This section addresses two main questions related to my study: how to measure entrepreneurial optimism and what factors influence it. While reviewing current literatures, I briefly explain the measure method of entrepreneurial optimism used in my study.

Measures

Optimism.

In existing entrepreneurial optimism literatures, two typical methods are used to measure optimism: directly using entrepreneurs' self-report results or comparing entrepreneurs' subjective reports with related corporations' actual performance.

When the first method is adopted, two groups of researchers use different questions to get score for optimism. The first uses generalized individual optimism/pessimism assessments. For example, Hmieleski and Baron (2009) use six-item Life Orientation Test-Revised, which was designed by Scheier, Carver, and Bridges (1994), to measure entrepreneurs' optimism. Measurements include positive ("In uncertain times, I usually expect the best") and negative ("If something can go

wrong for me, it will”) statements. Interviewees choose one answer from 1 (“strongly disagree”) to 7 (“strongly agree”). This method only offers information about entrepreneurs’ perception of general events. The second group uses questions which are more linked to business. One example is the survey conducted by Koellinger, Minniti and Schade (2007). Interviewees report whether they believe they have necessary skills to start a business, whether they think good opportunities for starting a business exist, etc..

Aforementioned questions do not offer information about whether the results are different from interviewees’ expectations. Therefore, some researchers use the difference between subjective reports and objective results to represent entrepreneurs’ optimism. For example, Landier and Thesmar (2006) use a binary variable (development expectation – 1 (if growth rate \geq 3%)) to measure entrepreneurial optimism. They get entrepreneurs’ expectation about firms’ development from questionnaires. If an entrepreneur answers that the firm will develop, “development expectation” is 1. And then they use the accounting data for the following three years, if the firm does not survive or its sales growth rate is less than 3%, the dependent variable equals 1, which means optimistic bias exists.

Forecast Error.

The methods used in entrepreneurial optimism literatures all depend on surveys. However, survey data has many flaws. Firstly, questionnaires are usually answered in a short time and in an unofficial way, so results are not precise. Secondly, results are not reliable because answers of survey are highly affected by subjective influences.

Thirdly, surveys are usually finished by one person per firm. Since a firm is often managed by a team, other members might have different opinions.

Literatures about management forecast performance provide possible solutions to make up for shortcomings of survey data. The absolute forecast error percentage (AFE), which was used by Chan, Sit, Tong, Wong and Chan (1996) to measure the accuracy of earnings forecast made by initial public offering (IPO) candidates, is one of the feasible choices. AFE is defined as follows:

$$AFE = \frac{|\text{Actual Earnings} - \text{Forecast Earnings}|}{\text{Forecast Earnings}} * 100\%$$

AFE uses information from prospectus and financial statements. Both documents are official, so the data are much more reliable than survey data. Prospectus represents the consensus of all management team members, so it gives more accurate information. Chan et al. focus on studying the relative deviation between actual earnings and the forecasts, so they do not need the sign of difference. In my study, the numerator is changed to forecasted revenue minus realized revenue to reflect entrepreneurs' optimism. The sign is kept to reflect whether entrepreneurs' expectation is optimistic or not.

Cassar and Gibson (2007) use revenue forecast error (FE_R) and growth forecast error (FE_G) to measure small firms' forecast rationality. Two forecast errors are defined as follows:

$$FE_R = 2 * \frac{\text{Actual revenue} - \text{forecast revenue}}{\text{Actual revenue} + \text{forecast revenue}} * 100\%$$

$$FE_G = \text{Actual growth rate} - \text{forecast growth rate}$$

FE_R does not have reasonable support theory yet, but it is helpful to reduce the

influence of asymmetry of the forecast error distribution. FE_G can be revised to represent entrepreneurial optimism. In this study, because of limited number of observations, growth rate difference is not used.

Determinants

The determinants of entrepreneurial optimism can be divided into two categories: entrepreneurs' characteristics and project characteristics.

Entrepreneurs' characteristics consist of experience and demographic factors. Demographic factors simply consist of age and gender, which are usually used as control variables in existing literatures. Experience mainly includes industry experience, entrepreneurial experience and education. People with industry experience means this person has work experience in the same field as that of the current firm. Entrepreneurial experience means that the person has started a firm before the current one.

For industry experience, many empirical studies agree that more industry experience leads to less optimistic expectation (Fraser & Greene, 2006; Hyytinen, Lahtonen, & Pajarinen, 2012; Landier & Thesmar, 2006). For entrepreneurial experience, Landier and Thesmar (2006) find that entrepreneurial experience is positively related to entrepreneurial optimism. Ucbasaran, Westhead, Wright and Flores (2010) claim that with business failure experience, entrepreneurs become less optimistic. The influence of education is also inconclusive. Landier and Thesmar (2006) argue that educated entrepreneurs have more career choices and require higher

payback, so they must be more optimistic about the success of current projects.

Hyytinen, Lahtonen and Pajarinen (2012) state that education is negatively associated with entrepreneurial optimism.

Project characteristics include novelty and development stage of projects and are often used as control variables in regressions. For example, if the project comes from a new idea, entrepreneurs should have more optimistic expectation since a new idea lacks of existing reference. Development stage of projects is usually measured by firm age, revenue level, etc. (Landier & Thesmar, 2006;).

III. Model and Data

This section starts with the brief introduction of model and related definitions of variables, followed by data descriptions and variables' statistical summaries.

Model and variable definitions

Multiple linear regression is applied in this study. The model is:

$$\text{Projection Error} = \alpha + \beta * \text{experience variables} + \gamma * \text{control variables} + \varepsilon$$

Projection Error measures the difference between the entrepreneurs' expectation and realization. If entrepreneurs' expectations consistently deviate from realizations in one direction, the entrepreneurs have biased forecast. Then the difference between forecast and realization can represent entrepreneurs' optimism level fairly well.

Three types of experience are included in the study to examine the influence of experience on entrepreneurial optimism. Industry experience and entrepreneurial experience have the same meaning as those in existing literatures. For education, I

only test the influence of MBA background. Most of education experience bears no relation to business and their effects on entrepreneurial optimism are mixed, so I do not retest the influence of education level. MBA is directly related to business management and can be taken by people from any fields, so it is worthy attention.

Two control variables are adopted in the study. One carries information about development stage of firms, the other catches the influence of long time range on forecast.

Variables of this study are conducted as follows:

Projection Error is used to represent the entrepreneurs' expectation bias of their projects' future performance. Its strength has been explained in literature review. This dependent variable is a continuous variable and defined as:

$$\text{Projection Error} = \frac{\text{Forecasted revenue} - \text{Realized revenue}}{\text{Forecasted revenue}} * 100\%$$

Experience variables are three groups of dummies. Each group includes two distinct variables and one interaction item. All variables start with "F" measure the characteristics of founders; variables start with "NF" measure the characteristics of non-founder management team members.

Entrepreneurial experience variables consist of F_entrepreneurial, NF_entrepreneurial and their interaction F_entrepreneurial*NF_entrepreneurial. If at least one founder has started a business before the current firm, F_entrepreneurial equals one. Similarly, if at least one non-founder member has started a business before the current firm, NF_entrepreneurial equals one. The interaction term equals one when at least one founder and at least one non-founder have entrepreneurial

experience.

Industry experience variables include $F_industry$, $NF_industry$ and $F_industry * NF_industry$. Follow similar rules, $F_industry$ equals one when at least one founder has work experience in the same field as that of current firm. $NF_industry$ equals one when at least one non-founder has industry experience. The interaction term equals one when at least one founder and at least one non-founder have industry experience.

MBA experience variables include F_MBA , NF_MBA and $F_MBA * NF_MBA$. The definitions follow previous experience variables except to change the criteria to whether founders and non-founders have MBA background.

Conception measures the development stage of firms. If the product or service of the corporation is still under research and development or the corporation only has an idea, Conception equals one.

Projection Window is defined as the difference between the fiscal year of realized revenue and the fiscal year when the forecast was made.

Data sources and descriptive statistics

Data sources.

The data comes from two private sources which are related to the Equity Capital Program. The program aims to promote capital investments in early stage companies and was implemented by the Ministry of Competition, Sciences and Enterprise in the province of British Columbia. The first source is business plans of small firms. Business overview section in business plans provides information about industry and

development stage. Management team section provides data about entrepreneurs' characteristics. Financial projections give forecasted financial information, like revenue and cash flow. Under the Equity Capital Program, small businesses need to submit business plans to the government and investors to attract investment. If these firms get funds, they must submit annual financial statements to the government or venture capital corporations. These financial statements are the second source which provides realized financial results.

The dataset has information of 281 firms. But because financial projection is not mandatory, only 50 firms include this part in their business plans. Among them, 33 firms have both financial projections and annual reports. After dropping records that actual revenue data is missing or forecasted revenue is zero, I have 70 observations from 29 firms since some firms have more than one year data. To include the control variable Conception into the regression, six observations from three firms need to be removed for missing value of Conception. Eventually, 64 observations from 26 firms are used in regressions. The summary of all variables which appear in regressions is available in Appendix A.

Projection Error and entrepreneurial overoptimism.

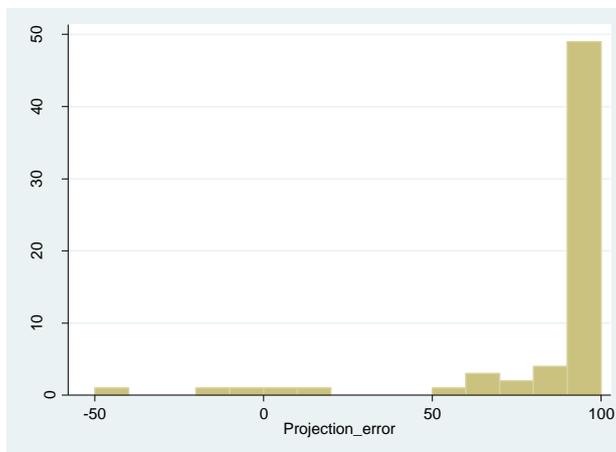
Among 26 firms, 24 firms (67 obs.) constantly make positive projection bias. Table 1 shows that when 37 realized revenues are less than one hundred thousand Canadian dollars, 53 forecasted revenues are higher than one million dollars. Furthermore, 51 differences are larger than one million dollars, which means that most of the projections made by entrepreneurs are highly unrealistic. Figure 1 comes

to the same conclusion. The distribution of Projection Error is highly skewed toward right boundary, which means that most realized revenues are less than ten percent of related forecasted revenue. Overall, both absolute and relative values provide evidence for entrepreneurs' prevailing overoptimism, which is consistent with the finding of current literatures.

Table 1. Distributions of realized revenue, forecasted revenue and their difference

	Realized Revenue	Forecasted Revenue	Forecasted Revenue - Realized Revenue
<=\$100,000	37	1	5
between \$100,000 and one million	18	10	8
>one million	9	53	51
Total number of observations	64	64	64

Figure 1. Distribution of Projection Error

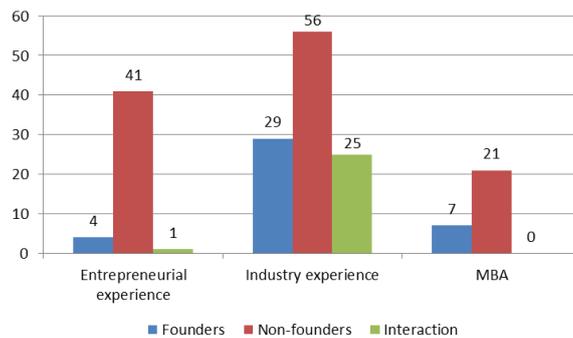


Experience variables.

Majority of firms have at least one management team member who has industry experience. Only a few founders have entrepreneurial experience, and not many management team members have MBA background. The distribution of experience variables indicate that some coefficients in the following regressions might be driven

by a few observations. According to figure 2, the interaction items $F_MBA * NF_MBA$ and $F_entrepreneurial * NF_entrepreneurial$ will not be included in regressions because they either has no non-zero observations or has only one non-zero observation.

Figure 2. Distribution of experience variables



IV. Empirical analysis

Hypotheses development

Entrepreneurial experience.

Many studies argue that entrepreneurs can benefit from previous start-up experience. Cassar (2012) states that entrepreneurs not only learn knowledge from the experiences of creating new business but also improve their judgements and evaluation ability by reflecting on past venturing activity. Ucbasaran, Westhead, Wright and Flores (2010) emphasize that entrepreneurs with business failure experience would become less optimistic. Based on prevailing view in existing literatures, I propose the first hypothesis that entrepreneurial experience leads to less optimistic forecast.

Industry experience.

Most current literatures claim that with entrepreneurs more industry experience

are less optimistic (Fraser & Greene, 2006; Hyytinen, Lahtonen & Pajarinen, 2012; Cassar, 2012). They argue that with expertise in a certain industry, entrepreneurs know what they are doing and can get more information about the trends of the industry. However, starting a new business is full of uncertainty and totally different from working as an employee. When entrepreneurs have industry experience but no business experience, they tend to overestimate their ability while overlooking outside information. Therefore, I propose the second hypothesis that industry experience leads to more optimistic forecast.

MBA education.

Hyytinen, Lahtonen and Pajarinen (2012) say that “having more education is associated with less optimistic expectations”. But Landier and Thesmar (2006) state that educated entrepreneurs are more optimistic because they “overattribute their academic success to their own ability” and then overestimate their probability of success as entrepreneurs. Current literatures all talk about general education, which usually are not directly related to business. This study particularly examines the role of MBA education. MBA teach people knowledge and skills about business strategy and management, but it does not provide real experience. Consequently, people become more optimistic because they believe they know more than before, regardless whether they really understand business. Based on these reasons, my third hypothesis is that MBA education leads to more optimistic forecast.

Regression results and analysis

Table 2 reports experience variables. The results of all coefficients are available in Appendix B. Consistent with the first hypothesis, founders with entrepreneurial are much more realistic about their firms' performance. They learn from previous experience, understand the process of firms' development, and form reasonable expectations. However, non-founders' entrepreneurial experience does not contribute to forecast accuracy. It suggests that the knowledge gained from entrepreneurial experience cannot be directly taught by others.

Table 2 Projection Error and experience

Equation	1	2
Dependent Variable	Projection Error	
F_entrepreneurial	-50.32*** (14.36)	-32.14*** (10.58)
F_industry	110.89*** (29.88)	96.66*** (13.40)
F_MBA	-0.94 (10.40)	3.48 (8.38)
NF_entrepreneurial	-0.14 (5.81)	1.15 (2.27)
NF_industry	77.46*** (24.78)	76.54*** (8.90)
NF_MBA	8.94 (5.48)	9.63* (5.02)
F_industry*NF_industry	-107.47*** (31.09)	-93.31*** (15.45)
Fiscal Year Dummies		Included
# of Obs.	64	64
Adj. R ²	0.782	0.720

Note: (1) In equation 1, standard errors clustered by firms are reported in parentheses. The time span of the dataset begins in 2000 and ends in 2008. To separate the influence of macro-economy on firms' actual performance, a series of fiscal year dummies are introduced in equation 2. (2) * means coefficient is significant at 10%, ** at 5% and *** at 1%. (3) Because OLS regression does not well fit the skewed distribution of Projection Error, the coefficient of F_industry is larger than 100% (the boundary of Projection Error). Among 29 cases which F_industry=1, 25 have non-zero interaction item and 2 have non-zero F_entrepreneurial, so the estimation of coefficient does not cause serious problem.

Consistent with the second hypothesis, when either founders or non-founders have industry experience, entrepreneurs make more optimistic forecast. Another two interesting things are shown in the table. When only founders have industry experience, related forecasts are more optimistic, which might be because founders are overoptimistic about their own expertise. However, when founders and non-founders both have industry experience, entrepreneurs' forecasts become relatively realistic. This result indicates that non-founders could help founders to consider more before making decisions.

The influence of MBA is not quite consistent with the third hypothesis. Founders' MBA experience does not change anything. Non-founders' MBA experience does cause more optimistic forecast, but the effect is very small.

V. Conclusion

Using a novel dataset of early-stage small businesses in B.C., the study investigates the role of industry experience, entrepreneurial experience and MBA education in entrepreneurial optimism. The distribution of projection error shows that majority of entrepreneurs are overoptimistic about their firms' performance. Founders with entrepreneurial experience are more realistic about the future of their current firms. In contrast, founders become more optimistic when they have work experience in the same field as their current projects'. Another notable finding is that besides founders, if other management team members have industry experience, founders would make relatively realistic estimations of their own businesses' following

performance. This result suggests that non-founder members have more objective expectations which help founders to consider things from other angles.

The main limitation of this study is the small sample size. The magnitude of coefficients would change with the increase of observations. Additional possible limitations are the regression method, limited geographic location and the potential endogenous relationship between experience and entrepreneurial optimism. Because the distribution of Projection Error is highly skewed toward the 90%-100% interval, the OLS regression cannot fit precisely. The signs of coefficients of variables which related to main conclusions are still valid because the absolute values of these coefficients are large enough to keep sign's direction stable. Since sample firms are incorporated in B.C., the results of this study might not be generalized to all small businesses across the country. This paper does not cover discussion about endogenous relation between entrepreneurial optimism and peoples' past choice of experience for two reasons. The influence of optimism on experience is inconclusive yet. Regressions used in this study include experience information of more than one people, which makes the endogenous relationship more complicated and immeasurable.

This study indicates that the interaction between founders and other team members with same industry experience could be good for entrepreneurs to be more realistic. Further studies could examine the influence of management team members on entrepreneurial optimism from other aspects. Furthermore, since objective opinion from management team has positive influence on entrepreneurs' judgement, future

research can explore whether the entrepreneurial optimism level changes for investors' third-party opinion after venture capital's involvement.

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Appendix A

Summary Statistics of Variables

Variable	# of Obs.	Mean	Std. Dev.	Min	Max
Dependent Variable					
Projection Error	64	86.729	30.090	-45.543	100
Explanatory Variables					
F_entrepreneurial	64	0.063	0.244	0	1
F_industry	64	0.453	0.502	0	1
F_MBA	64	0.109	0.315	0	1
NF_entrepreneurial	64	0.641	0.484	0	1
NF_industry	64	0.859	0.350	0	1
NF_MBA	64	0.328	0.473	0	1
F_entrepreneurial*NF_entrepreneurial	64	0.016	0.125	0	1
F_industry*NF_industry	64	0.391	0.492	0	1
F_MBA*NF_MBA	64	0.000	0.000	0	0
Control Variables					
Conception	64	0.438	0.500	0	1
Projection Window	64	1.609	1.329	0	5

Note: variables start with "F" measure the characteristics of founders; variables start with "NF" measure the characteristics of non-founder management team members.

Appendix B

Determinants of Projection Error

Equation	1	2
Dependent Variable	Projection Error	
F_entrepreneurial	-50.32*** (14.36)	-32.14*** (10.58)
F_industry	110.89*** (29.88)	96.66*** (13.40)
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NF_industry	77.46*** (24.78)	76.54*** (8.90)
NF_MBA	8.94 (5.48)	9.63* (5.02)
F_industry*NF_industry	-107.47*** (31.09)	-93.31*** (15.45)
Conception	15.82*** (4.39)	11.25** (4.98)
Projection Window	3.16** (1.21)	-1.83 (2.58)
Constant	-0.92 (24.01)	8.17 (8.14)
Fiscal Year Dummies		Included
# of Firms	26	26
# of Obs.	64	64
Adj. R ²	0.782	0.720

Note: (1) In equation 1, standard errors clustered by firms are reported in parentheses. The time span of the dataset begins in 2000 and ends in 2008. To separate the influence of macro-economy on firms' actual performance, a series of fiscal year dummies are introduced in equation 2. (2) * means coefficient is significant at 10%, ** at 5% and *** at 1%. (3) Because OLS regression does not well fit the skewed distribution of Projection Error, the coefficient of F_industry is larger than 100% (the boundary of Projection Error). Among 29 cases which F_industry=1, 25 have non-zero interaction item and 2 have non-zero F_entrepreneurial, so the estimation of coefficient does not cause serious problem.