CITR
Center for Innovation and Technology Research

The impact of social factors on external financing of newly founded businesses

Anders Isaksson

Chalmers University of Technology
Department of Technology Management and Economics
E-mail: anders.isaksson@chalmers.se

A.M.M. Shahiduzzaman Quoreshi[1]

Blekinge Institute of Technology
Department of Industrial Economics
and
Swedish Agency for Growth Policy Analysis
E-mail: shahiduzzaman.quoreshi@bth.se
Phone: +46734223619

February 2015

---

[1] Corresponding author.

Abstract

This paper develops and tests a set of hypotheses that are designed considering the context in Sweden. The hypotheses encompass the social factors, e.g. gender, ethnicity, education, experience and motives, and the effect of these factors on use of external financing in newly formed businesses. Based on a pecking order financing assumption we propose that entrepreneurs choose external financing only if they do not have necessary internal funds. From this and given the context in Sweden we propose that socio-economic and structural factors limit the possibility to internal financing and, hence, increase the use of external financing. Data for the study is based on two surveys of newly registered companies in Sweden, performed in 2005 and 2006 comprising a total analyzable sample of 22601 firms. We employ Heckman selection two stage model to deal with eventual sampling bias that may arise due to unobserved observation. We find in contrary to many studies support for our hypotheses that native women and immigrants use external financing in greater extend compared to native men. Empirically, we also find that social factors like education, motive to start a business, previous experience and age of entrepreneurs together with size of the firms, industry and regions are statistically significant for the use of external financing at start-ups. The study suggest that there might be a need to shift focus from direct discrimination issues to structural issues.

Keywords: Entrepreneurship, External funding, ethnicity, gender, education, motive, experience

JEL Classifications: J24, J16, L26

1. Executive Summary

The interest in encouraging entrepreneurship and establishing of new business has increased significantly over the last decades. One of the driving forces behind this increased interest is the growing research on the relationship between entrepreneurship and economic growth and the vital contribution of new businesses in terms of job growth and economic innovation. It is found in several studies that access to bank loan or propensity to use bank loan at start-ups or established business may vary between different groups, male, female, immigrants and non-immigrants, and regions. In this paper, we argue that the reason behind varying in use of external finance (e.g. bank loan) should be evaluated under the light of the context. Discrimination and inequalities are often said to be stronger in undemocratic and countries with high level of corruption. Sweden is by several measures one of the most equal and democratic countries in the world. The country is one of the leading countries in the world when it comes to representation of women in national parliaments. In a country like Sweden, we may expect that women and immigrants are treated equally and hence there should not be any special barrier for these groups compared to native male to get funding from bank.

This paper develops and tests a set of hypotheses that are constructed considering the context in Sweden. The hypotheses encompass the social factors, mainly gender, ethnicity, education, experience and motives, and the effect of these factors on use of external financing in newly formed businesses. Based on a pecking order financing assumption we propose that entrepreneurs choose external financing only if they do not have necessary internal funds. From this and given the context in Sweden we propose that socio-economic and structural factors limit the possibility to internal financing and, hence, increase the use of external financing. Data for the study is based on two surveys of newly registered companies in Sweden, performed in 2005 and 2006 comprising a total analyzable sample of 22601 firms. We employ Heckman selection two stage model to deal with eventual sampling bias that may arise due to unobserved observation. We find in contrary to many studies support for our hypotheses that native women and immigrants use external financing in greater extend compared to native men. Empirically, we also find that social factors like education, motive to start a business, previous experience and age of entrepreneurs together with size of the firms, industry and regions are statistically significant for the use of external financing at start-ups. The study suggest that there might be a need to shift focus from direct discrimination issues to structural issues.

2. Introduction

The interest in encouraging entrepreneurship and establishing of new business has increased significantly over the last decades. One of the driving forces behind this increased interest is the growing research on the relationship between entrepreneurship and economic growth and the vital contribution of new businesses in terms of job growth and economic innovation (Praag & Versloot 2007; Audretsch 2007; Wennekers 2010). Entrepreneurship is also seen as part of the solution to reduce unemployment and to absorb the people entering the labor market for the first time. Hence, governments are expressing a steady interest in how to stimulate entrepreneurship and new business. One of the most important factors to start a business is access to capital (Cassar 2004). In Sweden and in most other countries, the largest source of external capital to finance an established business or to a new start-up business is bank loan (Cressy & Olofsson 1997; Berger & Udell 2005). But access to bank loan or propensity to use bank loan may vary between different groups, male, female, immigrants and non-immigrants, and regions. In a study on UK conducted on sample from 2003 Household Survey of Entrepreneurship, it is found that women, especially women with ethnic background, are less likely to seek external finance when launching a new business and these differences in access to finance are affecting adversely the transition into self-employment (Sena et al. 2010).

Sweden is by several measures one of the most equal and democratic countries in the world. For example, Sweden has been ranked number one in the world in UNDPs Gender Inequality Index, a composite measure reflecting inequality in achievements between women and men (UNDP, 2011). The World Economic Forum's Global Gender Gap Report ranks countries in the world according to their gender gaps, degree of inequality between women and men. Sweden together with the other Nordic countries, Finland, Iceland and Norway, have continuously been among the top ranked countries in the world (Hausmann, Tyson, & Zahid, 2011). Sweden is one of the leading countries in the world when it comes to representation of women in national parliaments. Discrimination and inequalities are often said to be stronger in undemocratic and countries with high level of corruption (Rothstein 2011; Swamy et al. 2001). Sweden has been ranked in the fourth place after Norway, Iceland and Denmark in The Economist's Democracy Index that measures the state of democracy in 167 countries (Economist Intelligence Unit, 2011). A fourth place ranking is also given to Sweden (after New Zealand, Denmark and Finland) in the Transparency Internationals Corruption Perceptions Index (Transparency International, 2011) that measures the perceived levels of public sector corruption in 183 countries and territories around the world. Hence, we may expect that the reason behind differences in access to finance or use of finance at start-ups between different groups in a country like Sweden may differ from other countries.

This paper investigates the differences in propensity to use of external finance, i.e. all kind of finance except owner's equity, between different groups and across the regions in Sweden. The hypotheses are based on the context in Sweden and the pecking order theory. In a country like Sweden, we may expect that women and immigrants are treated equally and hence there should not be any special barrier for these groups compared to native male to get funding from bank. We also know from previous studies that native male have higher income and wealth compared to native female and immigrants. Hence, we may expect that native women and immigrants compared to native male are more likely to use external financing (bank loan). The strength of this study is its large data set and methods employed for the estimation. The data for the study is based on two surveys, performed in 2005 and 2006, of newly registered companies in Sweden. The final response rate is 45 percent, giving us at total analyzable sample of 22601 firms. We employ Heckman two stage model in order to take account of eventual selection bias in the data. In the study we find support for our hypotheses that native women and immigrants use external financing in greater extend

compared to native men. Empirically, we also find that social factors like education, motive to start a business, previous experience and age of entrepreneurs together with size of the firms, industry and regions are statistically significant for the use of external financing at start-ups.

The paper is organized as follows. The theoretical framework is given in section 3. The description of the data set and some descriptive statistics are provided in next section. The model and estimation procedure are discussed in section 5. The results of this study are presented in section 6 and conclusions are drawn in section 7. An analysis on policy implications is presented in section 8. The last section discusses the limitation of the study and future study.

3. Theoretical framework

3.1 Financing the entrepreneurial firm

Access to finance is for most start-up firms an important element for succeeding. The newly started firm have basically two options in financing the firm, either with the entrepreneurs own resources (internal funds/owners' equity) or by getting finance from external resources. The most common external resource for financing a small firm is by lending necessary capital from a bank or some other financial institution (Berger & Udell 2005). How a firm finally is financed is a balance act between supply and demand issues. Demand issues are formed by the entrepreneurs' desire on how the person likes to be financed. This implies that the likelihood for a firm to be financed by external capital is highly related to the entrepreneur's aspiration to be financed by external capital. Previous research has indicated that social factors can explain the choice to apply for certain forms of funding. It is found that the probability for women to seek external financing is slightly lower than that of men (Sena et al. 2010). Another study shows that businesses in which women held majority ownership are found to be significantly less likely to seek equity capital (Orser et al. 2006). Gender differences in financial preferences are often explained by different forms of demand-side risk aversion(Carter et al. 2007; Carter et al. 2013). Demand-side risk aversion is based on the assumption that higher levels of risk aversion among women are transformed in their reluctance to assume the burden of business debt (Croson & Gneezy 2009; Huang and Kisgen 2013).

From a supply perspective, the suppliers of finance choose to finance the firms that fulfill relevant criteria. When businesses are being investigated for bank loan, objective and measurable factors usually affect the outcome. Historical performance or sales, track record of the entrepreneur, market competition, confirmed market price of comparable businesses etc. For a newly started business many of these measures are lacking. There is no historical performance, the management is inexperienced, the product is not tested on the market etc. For a loan officer or venture capitalist have to a much higher degree rely on subjective information, usually supplied by the applicants themselves, for instance in a business plan or budget. This leads to a gap of knowledge or information asymmetry. The higher degree of information asymmetry the more difficult it will be for the entrepreneur to get a fair value of her/his firm.

The paper (Myers & Majluf 1984) explains for several aspects of corporate financing behavior. It is found that the firms prefer internal sources of funding than that of external. The firms also prefer debt to equity if external financing is required. The pecking order theory (POT) has become one of the most influential theories explaining corporate financial decisions and behavior amongst small and medium sized enterprises (SMEs) (Cassar & Holmes 2003; Paul et al. 2007; Vanacker et al. 2010; Zoppa & McMahon 2002). The pecking order of demand for finance can be seen as a response to imperfect markets characterized by information asymmetry of which the corporate finance market in general and the entrepreneurial finance

market in particular can belong to. According to POT, companies prioritize internal sources of financing to external equity in accordance with the cost of financing. The hierarchical order of financial preferences reflects the relative costs of the various sources of finance. This means that firms have a particular preference order for financing due to different costs of financing due to the presence of information asymmetries between the firm and potential financiers. Higher expected returns to compensate the lack of information entail that outside equity finance is rejected against internal finance. The theory advocates a ranking of financing methods and states that debt financing is "driven by the internal financial deficit" (Shyam-Sunder & C Myers, 1999).

The main idea of this paper is that entrepreneurs in the first instance choose to finance their start-up with their own resources. If internal funds are not sufficient, the second option is to seek external financing. The authors in (Sena et al. 2010) reports that individuals owning a property are less inclined to seek external capital when starting a new business. This gives further support for the pecking order theory that the propensity to seek external financing does not seem to be driven by the possibility to get a loan application accepted, because of available collaterals, but rather because lack of internal capital. The recent immigrants often have lack of first-hand knowledge, experiences and capitals to start-up a business for their own. They need to accrue savings and establish credit creditability in order to get financing (Gebru 2009).

3.2 Structural discrimination and its effects on entrepreneurial finance

An underlying question when investigating the differences in how women and minority groups start and finance their businesses is if the observed differences are caused by some kind of direct or structural discrimination of these groups or if the detected differences are a consequence of "natural causes". The "natural" arguments are especially used when discussing gender differences, i.e., men and women are biologically different and therefore behave different in many aspects. Whether the average differences in behavior between men and women are a result of social influences or biological is widely debated issue that goes far beyond the scope of this paper. The issue is very controversial, since the results often have been used historically for political purposes. The debate is not so much on if there are biological differences between men and women, but on to what extent these differences affect our behavior. Some researchers suggest that the average differences, e.g. general traits, between men and women in particular have biological explanations while other researchers argue that it is primarily the result of social influence because of contextual factors. For instance, there is increasing empirical evidence that women and men differ in their decisions to trust and some argue that this is based on biological differences and others on context factors (Buchan et at. 2008; Foubert & Sholley 1996).

The results of these studies have to be viewed in the light of the empirical context. Sweden is by several measures one of the most equal and democratic countries in the world. For example, Sweden is ranked number one in the world in UNDPs Gender Inequality Index, a composite measure reflecting inequality in achievements between women and men (UNDP 2011). The World Economic Forum's Global Gender Gap Report ranks countries in the world according to their gender gaps, degree of inequality between women and men. Sweden, together with Finland, Iceland and Norway, has continuously been among the top ranked countries in the world (Hausmann et al. 2011). Sweden is one of the leading countries in the world when it comes to representation of women in national parliaments. Discrimination and inequalities are often said to be stronger in undemocratic and countries with high level of corruption (Swamy et al. 2001; Rothstein 2011). Sweden is ranked in the fourth place after Norway, Iceland and Denmark in The Economist's Democracy Index that measures the state of democracy in 167 countries (Economist Intelligence Unit 2011).

A fourth place ranking is also given to Sweden after New Zealand, Denmark and Finland in the Transparency Internationals Corruption Perceptions Index that measures the perceived levels of public sector corruption in 183 countries and territories around the world (Transparency International 2011).

In 2009 a new Discrimination Act is entered into force in Sweden and at the same time a new agency, the Equality Ombudsman, is established to supervise the compliance of the Act. The anti-discrimination act covers discrimination on grounds of gender, transgender identity or expression, ethnic origin, religion or other belief, disability, sexual orientation or age. However, even though Sweden can be said to be one of the most equal countries in the world on multiple scales there still exists a structural differences. Several of these factors may affect both the tendency to start a business and the financing of that business:

- Differences in education. Women do not usually study less than men, but different topics. Women are in general in minority in university subjects as engineering and information technology, subjects that both more often lead to higher salaries and are more entrepreneurial. As an example from European statistics do only 8,4 out of 1000 women take a degree in mathematics, science or technical faculties compared to 17,6 out of 1000 men.
- Educational differences among immigrants. The Swedish immigration has been dominated by displaced people from the countries, e.g. Iraq, Iran and Somalia that are in war. The people of these countries have in average lower education than that of Swedish. The quality of education and focus on the educations may differ from the Swedish too.
- Differences in career choices. Women and men are often over- or underrepresented in different work categories, male dominated vs female dominated occupations. The female dominated occupations are commonly in lower wage areas. Previously mentioned educational choices do obviously affect this segregation, but the reason behind reasons is much more complicated.
- Salary differences. Different career choices lead unavoidable also to differences in salary and life-time earnings. Personal wealth might be a factor affecting entrepreneurial finance. Besides salary gap that can be explained by career differences there is an unexplained salary gap.
- Home vs. work priorities. All over the world, women have traditionally been more involved in home related duties than men, even though that the classic "house wife" has become less common. Even in the very equal Sweden women tend to spend more time with house duties and raising their children than men.

3.3 Factors affecting external financing of business start ups

3.3.1 Ethnicity

Immigrant entrepreneurs are an important and growing part of the entrepreneurial society. The development and growth of many entrepreneurial regions are often explained by a high degree of immigrants (Hsu et al. 2007). Even in more general terms, immigrants are often overrepresented as entrepreneurs. There are several structural differences between immigrants and native born individuals in Sweden that can be assumed to affect the possibility for this group as a whole to generate internal funds for starting their own business. The labor market conditions for immigrants in Sweden have been worsened since mid-1970s (Ekberg 1999; Rooth 1999). Today the unemployment rate among immigrants is significantly higher compared to native born in Sweden. For example, a study from statistics Sweden shows that nearly 30 percent of the men and roughly 40 percent of the women are unemployed after living ten years in Sweden (SCB 2009). This can be compared to the average unemployment rate in Sweden that is somewhere between 5 to 9 percent during the same time period. Immigrants generally have lower employment rates in many industrialized countries around the world (Evans & Kelley 1986; Duncan & Trejo 2009; Fleischmann & Dronkers, 2010).

Another structural difference is that immigrants in general are over represented on low wage jobs. Rooth & Ekberg (2003) find that children born to immigrant families have lower annual earnings than children to native parents. Differences between native and foreign born have also been found in studies from other parts of the world (Carliner, 1980). Recent immigrants often lack first-hand knowledge, experience and capitals to start an economic activity on their own, since they need to accumulate savings and establish credit in order to obtain financing (Guerra 2012).

Proposition: Immigrant entrepreneurs have, in comparison with native born entrepreneurs, less possibility to finance their start-ups with self-generated funds. Hence, they are more likely to use external finance.

Following the proposition we test our hypotheses as follows

$H1_0$: There is no difference between native and immigrant entrepreneurs in use of external financing at start-ups.

$H1_1$: Immigrant entrepreneurs use more external financing than that of native entrepreneurs.

This implies in order to support our proposition that the null hypothesis ($H1_0$) need to be rejected in favor of the alternative hypothesis ($H1_1$).

3.3.2 Gender

Most of the studies have shown that the likelihood of engaging in entrepreneurship is higher for men than that of women. It is likely that the men are involved in entrepreneurial activities more than twice as large as those of women (Neck et al. 2002). Audretsch (2003) highlights that female entrepreneurship is growing significantly in both Europe and the United States but there exist significant differences between male and female entrepreneurship in the U.S. and Europe. It is shown that the female new entrepreneurs have higher education compared to male new entrepreneurs (Cowling & Taylor 2001). Verheul and Thurik (2001) demonstrate that the new female entrepreneurs use less start-up capital. It shows that there is no difference in type of initial capital between female and male entrepreneurs. On average, the proportion of equity and bank loans is the same for men and women. Fay and Williams (1993) conduct two experiments and conclude that women can be discriminated when seeking start-up capital. Carter (2000) and Marlow (2002) argue that access to finance is challenging for business owners and it is additional disadvantageous for women entrepreneurs. In a detailed study, Carter *et al.* (2007) scrutinize the criteria and processes used by bank loan officers in assesing application and their results suggest that gender is remained to be an important factor but it is often a hidden variable within bank lending.

Proposition: Female entrepreneurs have, in comparison with male entrepreneurs, less possibility to finance their start-ups with self-generated funds. Hence, they are more likely to use external finance.

Following the proposition we test our hypotheses as follows

$H2_0$: There is no difference between female and male entrepreneurs in use of external financing than that of male entrepreneurs.

$H2_1$: Female entrepreneurs use more external financing than that of male entrepreneurs.

3.3.3 Education

Looking at how education affect financing of a newly started business one argument can be that highly educated people to a higher extent start knowledge intensive firms that can be categorized as firm with a high human to capital ratio, e.g. consultancy firms with rather low degree of capital need. On the other hand one can speculate that highly educated people to a higher extent starts more advanced and capital demanding businesses than those of the average educated population. However, if industry specific factors are

controlled for, one argument can be that highly educated entrepreneurs are more skilled in communicating, e.g. ability to produce better business plan, budgeting that increase their possibilities to get external financing.

Proposition: Entrepreneurs with low (high) education have, in comparison with higher (lower) educated entrepreneurs, less (higher) possibility to finance their start-ups with self-generated funds depending on which effect dominates as discussed above. Hence, the one group is more likely to use external finance than that of other.

Following the proposition we test the following hypotheses:

H3$_0$: There is no difference between entrepreneurs with lower respective higher education in use of external financing at start-ups.

H3$_1$: There is difference between entrepreneurs with lower respective higher education in use of external financing at start-ups

3.3.4 Motive

Motive, or the reason why, to start a business might also have an effect on decisions or plans on how that business are going to be financed. Many studies have been trying to identify how motive to start a business affect the preceding entrepreneurial behavior. Many scholars have used theory of planned behavior (Ajzen, 1991) to research the link between attitudes and behavior (Krueger & Carsrud, 1993; Liñán & Chen, 2009). Abbasian (2003) identifies that many women start business due to, among other things, unemployment, lack of good job opportunities, discrimination on work places, realizing own plans and ambitions. Motives to start a business can be categorized broadly in two groups; necessity and opportunity driven entrepreneurs (Block & Sandner, 2009). Risk tolerance is another factor that has impact on entrepreneurship. The individuals with higher risk tolerance have a higher probability to become self-employed (Grilo & Irigoyen 2006; Grilo & Thurik 2005).

One problem when analyzing effects of motives is that they are complex, diffuse and often intervene in each other. For instance, a person with a great idea (opportunity) might not decide to start a business until (s)he faces unemployment (out of necessity). There are several reasons why motive to start a business might affect external financing. One reason is based on the argument that entrepreneurs with necessity driven motives might not have the same risk propensity and willingness to "go big". Rather it can be argued that necessity driven motives, as opposite to opportunity driven motives, to a larger extent leads to more cautious start-ups and a higher degree of lifestyle-oriented businesses. Hence, the necessity driven entrepreneurs are more risk averse than the opportunity driven.

Proposition: Necessity driven entrepreneurs have, in comparison with opportunity driven entrepreneurs, less possibility to finance their start-ups with self-generated funds. Hence, they are more likely to use external finance for start-up business.

Following the proposition we test the hypotheses as follows:

H4$_0$: There is no difference between the necessity and opportunity driven entrepreneurs in use of external financing.

H4$_1$: Necessity driven entrepreneurs use more external financing than that of opportunity driven entrepreneurs.

3.3.5 Experience

The experience of the entrepreneur is often highlighted as a very important factor for succeeding business (Stuart et al 1990; Cope & Gerald 2000). Experience can both be industry specific, e.g. working in an industry or more general entrepreneurial experience, e.g. previous start-up knowledge or preferable both. Experience might also affect size and aspiration of the firm. For example an entrepreneur with previous experience as a business owner might have more "go-big-plans" and thus larger capital demands. Hence, this leads us to our final hypothesis.

Proposition: Entrepreneurs with previous entrepreneurial or industry experience have less possibility to finance their start-ups with self-generated funds. Hence, they are more likely to use external finance for start-up business.

Following the proposition we test our hypotheses as follows:

$H5_0$: There is no difference between Entrepreneurs with or without previous entrepreneurial or industry experience in use of external financing at start-ups.

$H5_1$: Entrepreneurs with previous experience use more external financing than entrepreneurs with no previous entrepreneurial or industry experience.

3.3.6 Other factors

There are of course a lot of other factors that can affect both the start-up process in general, but also the financing decision in particular. In this study, these factors are used as control variables when testing the hypotheses. One of the most obvious is probably the size of the start-up, e.g. assets, number of employees, sale forecasts etc. Age of entrepreneur may also affect how a start-up is financed. This might to some extent also be correlated with previous factors as education and experience. Older entrepreneurs have often more experience and education than that of young entrepreneurs. Conversely, people approaching pension age might me less attractive to financer. Hence, a curve-linear relationship may lead to favor mid-aged to the expense of the "too old" and "too young". Finally, ease of access to finance might be also affected by the geographical distance to capital providers, industry clusters, universities etc. An entrepreneur starting a business in a metropolitan area might have easier access to a larger supply of capital providers compared to a start-up in more peripheral regions.

4. Data

The data come from two surveys on registered start-up companies in all industries in Sweden except Agriculture, Forestry and estate activities, in 2005 respective 2006. The data are collected by Statistics Sweden on assignment of Swedish Agency for Growth Policy Analysis. In order to speed up start-up process, entrepreneurs choose to buy inactive registered firms. The idea of the paper is to investigate how the start-up capital is financed. Hence, the companies that have undergone changes of ownership or name changes are also included in this population. Out of this population, consisting of new firms, a sampling frame (targeted population) is created with the so-called newly active firms. Actual starting year of the businesses is also taken into account for those cases it differs from the year of registration. The samples are stratified with respect to industry and county. Companies, whose founders are younger than 17 years are removed from the sample. The number of companies start up 2005 and 2006 are 43932 respective 44386. The sample sizes for these years are about 25000 for each year. The response rate for all start-ups was just under 80 percent, however with rather large partial nonresponse. The final response rate (after all adjustments) is 45 percent for the dependent variable external financing (FINANCING), giving us at total analyzable sample of 22601 firms.

4.1 Variables and Descriptive Statistics

Like all other variables, the external financing is coded into dichotomy outcome, NOFIN (0) and YESFIN (1), for latent observations where the numbers 0 represent that the entrepreneurs do not use any external financing while the numbers 1 represent that the entrepreneurs use external financing at start-ups. There are 5693 firms (25 percent of the sample) that use external financing at start-ups (see Table 1). The external financing includes bank loan, loan from family and friend, government support and other sources. In average, 76 percent of the finance at start-ups come from own equity while 24 percent of the total capital is financed from other sources (see Table 2). Own equity is, by far the most frequent source of finance at start-up, used by 90 percent of the firms in the sample (see Table 3). It is also obvious that bank loan is the most popular source of external finance, used by 19 percent of the firms.

Table 1
Descriptive statistics on dependent variable external financing (use of debt).

Category	Number	Percent
NOFIN (0)	16908	75%
YESFIN (1)	5693	25%
Total	22601	100%

Table 2
Descriptive statistics of the use of different sources at start-up. Numbers are percentage of the total start-up capital.

Source	Minimum	Maximum	Mean	Std. Deviation
Own equity	0	100	76	37
Family and friends	0	100	3	14
Government support	0	100	6	20
Bank loan	0	100	13	29
Other	0	100	2	12

Table 3
Frequency table on sources of finance.

Source	Number	Percent of total sample
Own equity	20358	90%
Family and friends	1573	7%
Government support	3046	13%
Bank loan	4269	19%
Other	720	3%

4.1.1 Independent variables

A summary statistics on independent variables ETHNICITY, Gender of top management (GENDER), Education background (EDUCATION), Motives to start a business (MOTIVE) and Previous experience (EXPERIENCE) are given in Table 4. ETHNICITY indicates whether the entrepreneur is born outside Sweden (coded 1) or in Sweden (coded 0). The entrepreneurs who are born outside Sweden are called immigrant and the entrepreneurs who are born in Sweden are called native throughout the paper. In total 13 percent of the firms are started by immigrants. The survey data are collected indicating whether the newly founded companies are owned and managed by only women, only men or both women and men. The

Table 4
Descriptive statistics on independent variables (the dichotomous code used for the regressions are given within parenthesis in column Group).

Variable	Nr.	Category	Frequency	Percent	Group	Percent
ETHNICITY	1	Born outside Sweden	2 885	13%	IMMIGRANT (1)	13%
	2	Born in Sweden	19 716	87%	NATIVE (0)	87%
		Total	**22 601**	**100%**		**100%**
GENDER	1	Female	6 818	30%	FEMALE (1)	30%
	2	Male or mixed	15 783	70%	MALE (0)	70%
		Total	**22 601**	**100%**		**100%**
EDUCATION	1	Before higher secondary	2 648	12%		
	2	Higher Secondary	9 904	44%	LOW_ED (1)	56%
	3	After higher secondary (<3 Years)	4 209	19%		
	4	After higher secondary (>= 3 years)	5 494	24%		
	5	Other	346	2%	HIGH_ED (0)	44%
		Total	**22 601**	**100%**		**100%**
MOTIVE	3	Because of unemployment	2 738	12%	NECESSITY (1)	12%
	1	to work independently	6722	30%		
	2	Realize my ideas	7310	32%		
	4	Product / service needed in the market	2680	12%		
	5	Earn a lot of money	1475	7%		
	6	Other	1676	7%	OPPORTUNITY (0)	88%
		Total	**22 601**	**100%**		**100%**
EXPERIENCE	1	Employed in same industry	7363	33%		
	3	Owners of a business	7540	33%	YES_EXP (0)	66%
	2	Employed in another industry	2080	9%		
	4	Unemployed	2714	12%		
	5	Student	1978	9%		
	6	Pensioner or homeworker	317	1%		
	7	Other	609	3%	NO_EXP (1)	34%
		Total	**22 601**	**100%**		**100%**

variable GENDER is coded into dichotomy outcome where the numbers 1 indicate that the companies are owned and managed by women and the numbers 0 indicate that the companies are owned and managed by only men or both women and men. There are 5942 firms that are started by female native entrepreneurs which corresponds 87 percent of the total female entrepreneurs. There are five categories in the survey data set that indicate the educational background of the entrepreneurs. The entrepreneurs with higher secondary education or below are classified as low education and coded into 1 in the data set. The all other three categories, after higher secondary with less than three years of university education, after higher secondary with more than three years of university education or other, are included in the high education group and coded into 0 in the data set. The other variables are coded in a similar fashion.

4.1.2 Control variables

A descriptive statistics of the control variable AGE, INDUSTRY, RGION and SIZE are presented in

Table 5. The variable AGE, REGION and SIZE are coded in a similar fashion like in Table 4. The variable AGE represents 3 age groups. 1: Young entrepreneurs (younger than 35 years), 2: mid-age (35-64 years) and 3: old people (65 years and older) (see

Table 5). The reasons for this grouping is that Sixty-five years is the retirement age in Sweden and that the 35-64 year group represents the age-group with the highest disposable income in Sweden (Statistics Sweden, 2012). In our analysis we analyze the mid-age group versus the young and old. This follows also our pecking order theory approach. Based on the location (address) of the business, code 0 represents METROPOLITAN regions that include Stockholm, Gothenburg, Malmö while code 1 includes all other regions. Respondents are asked to estimate the firm's turnover in the first year of operation. Six categories are given. We transformed the six categories into two groups, low turnover < 300 SEK, and high turnover >299 SEK.

Table 5
Descriptive statistics of control variables.

Variable	Nr	Category	Frequency	Percent	Group	Percent
AGE	1	Younger than 35	8 582	38%		
	3	older than 64 year	384	1.4%	NOT_MID (1)	38%
	2	35 - 64 year	13700	60.6%	MID (0)	62%
		Total	**22 601**	**100%**		**100%**
INDUSTRY	1	SNI 10-37. 40. 41	2446	11%	SNI 10	11%
	2	SNI 45	3202	14%	SNI 45	14%
	3	SNI 50-52. 55	4753	21%	SNI50	21%
	4	SNI 60-64	1437	6%	SNI 60	6%
	5	SNI 65-74	5750	25%	SNI 65	25%
	6	SNI 80. 85. 90. 92. 93	5013	22%	SNI 80	22%
		Total	**22 601**	**100%**		**100%**
REGION	1	Stockholm	2769	12%		
	2	Gothenburg	2079	9%		
	3	Malmö	1 926	9%	METRO (0)	30%
	4	Other	15827	70%	NOMETRO (1)	70%
		Total	**22 601**	**100%**		**100%**
SIZE	1	29 kSEK and less	6165	27%		
	2	30-99 kSEK	4725	21%		
	3	100-299 kSEK	4474	20%	SMALL (0)	68%
	4	300-499 kSEK	2194	10%		
	5	500-999 kSEK	2588	11%		
	6	>=1 million SEK	2455	11%	LARGE (1)	32%
		Total	22 601	100%		100%

The firms according to the Swedish Standard Industrial Classifications (SNI) are grouped into six branch groups. The first group (SNI 10) can be classified as manufacturing, mining and technical services industries and activities. With technological security here means electricity, gas, steam and water supply. Second group (SNI 45) includes construction. The third group (SNI 50) consists of industries that can be summarized in terms of trade, repairs, hotels and restaurants. Transport, storage and communications are

collected in the fourth group (SNI 60). The fifth group (SNI 65) includes financial intermediation and real estate related activities and business services. The last group (SNI 80) includes various types of community services such as education and healthcare, social services, and more. This industry group also includes personal services.

Table 6

Sample divided on GENDER and ETHNICITY.

			GENDER		
			MALE	FEMALE	TOTAL
ETHNICITY	NATIVE	Count	13774	5942	19716
		% within Ethnicity	70%	30%	100%
		% within Gender	87%	87%	87%
	IMMIGRANT	Count	2009	876	2885
		% within Ethnicity	70%	30%	100%
		% within Gender	13%	13%	13%
	TOTAL	Count	15783	6818	22601
		% within Ethnicity	70%	30%	100%
		% within Gender	100%	100%	100%

5. Model / Estimation

The dependent variable of this study contains dichotomy outcomes, 1 and 0. Hence, a binomial choice model is useful. The most common binomial choice model is the logit model (Green 2003). This model uses a vector of covariates x to predict the probability of a specific outcome for any of the various groups, y. If we are instead interested in how the characteristics of the categories affect individual's likelihood of being in them, then a conditional logit model is appropriate to employ. A multilevel logistic regression is another approach that is used when the data are nested. A spectrum of binary choice model is discussed in (So & Kuhfeld 1995; Ai & Norton 2003; McFadden et al. 1977; Abbasian & Yazdanfar 2013). Another alternative is the Probit model introduced by Bliss (1935). The parameters in both Logit and Probit models are interpreted in terms of probability. The one advantage of using logit model over the probit is that the parameters in Logit can also be interpreted as odds ratio. The advantage of using Probit model is that the underlying distribution is normal which may have some advantage concerning estimation procedure.

It is to be noted that the response of the survey comprises information for whose entrepreneurs who have already started firms. The persons who want to start a firm but cannot start due to lack of finance are not included in the survey. Moreover, the response rate is about 45 percent after taking account of partial response. Hence, the estimated parameters can be biased and this problem can be seen in light of omitted variable (Heckman 1976, Heckman 1979). A simple consistent two stage estimator method for correction the biased effect is proposed by the author and widely accepted. Hence, we adopt the Heckman selection model to correct the selection bias. The model to be estimated can be written

$$y = f\left(x_i, x_{i,j}\right) \qquad i, j = 1, \dots, n \qquad (1)$$

where y is dependent variable FINANCING and x_i are independent variables, ETHNICITY, GENEDER, EDUCATION, MOTIVE, EXPERIENCE, AGE, INDUSTRY, REGION and SIZE. The interaction variable

$x_{i,j}$, where $i \neq j$, are the product of two independent variables, $x_i * x_j$. The Heckman selection model is a two-step Probit model. The first step of the model can be written

$$\Pr(y = 1 \mid x_i, x_{i,j}) = \Phi(\beta_1 x_1 + \beta_2 x_2 + \beta_{12} x_{1,2} + \beta_3 x_3 + \beta_4 x_4 + \beta_{34} x_{3,4} + \cdots) \qquad (4)$$

or

$$\Pr(y = 1 \mid X) = \Phi(X\beta) \qquad (5)$$

where y represent financing with external loan, $y = 1$ if the respondent use any external financing at start-up and $y = 0$ otherwise. The X is a vector of explanatory variables and the β is a vector of unknown parameters that are to be estimated and the Φ represents the cumulative distribution function of the standard normal distribution. The estimation from the model can be used to predict the probability of using external financing at start-ups. The predicted probabilities on individuals can be used in the second stage to correct the selection biased. Consider the following equation

$$F^* = Z\gamma + \varepsilon \qquad (6)$$

where F^* denotes the entrepreneurs that are not observable if the respondent does not start a business. The Z is a vector of explanatory variables which comprises all the vectors in X or a subset of X. The γ is a vector of unknown parameters and the ε is a vector of errors with standard normal distribution. The conditional expectation for using external finance at start-ups

$$E[F \mid Z, y = 1] = Z\gamma + E[\varepsilon \mid Z, y = 1]. \qquad (7)$$

If the conditional expectation of ε is zero, the regression function of the selected subsample, i.e. (4) is the same as (7) which is the population regression function. Assuming the error terms having joint normal distribution, we can in line with Heckman (1979) write

$$E[F \mid Z, y = 1] = Z\gamma + \rho\sigma_\varepsilon \lambda(X\beta). \qquad (8)$$

The ρ is the correlation between unobserved determinants of propensity to use external financing at start-ups and unobserved determinants of factors ε. The σ_ε is the standard deviation of ε and the λ is the inverse Mills ration evaluated at $X\beta$. The equation can be estimated by replacing β with the Probit estimates from the first stage. Employing the estimates form the first stage, the λ is constructed which is used as a regressor in the second stage. This can be estimated by standard software, e.g. Stata. Note that the marginal effect estimates and their corresponding standard errors of the Probit need special consideration when interaction variables, $x_{i,j} = x_i * x_j$, are used as independent variable in the regression. The standard statistical program may not take account of this matter (Ai & Norton 2003).

Note that all the variables in our model are binary and the interaction terms $x_{i,j}$ are included. For example, for the second stage of Heckman Probit model $F(u)$, the normal cumulative distribution function is

15

$$F(u) = \Phi\left(\gamma_1 x_1 + \gamma_2 x_2 + \gamma_{12} x_{1,2} + \sum_{i=3}^{n} \gamma_i x_i + \overline{X\beta}\right)$$

$$= \Phi(\gamma_1 x_1 + \gamma_2 x_2 + \gamma_{12} x_{1,2} + X\gamma + \overline{X\beta}).$$

The $\overline{X\beta}$ is the predicted value for $X\beta$ from step 1. The interacted variables, x_1 and x_2, are both dummy variables and hence, the interaction effect of $x_{1,2}$ can be written

$$\frac{\Delta^2 F(u)}{\Delta x_1 \Delta x_2} = \Phi(\gamma_1 + \gamma_2 + \gamma_{12} + X\gamma + \overline{X\beta}) - \Phi(\gamma_1 + X\gamma + \overline{X\beta}) - \Phi(\gamma_2 + X\gamma + \overline{X\beta})$$
$$+ \Phi(X\gamma + \overline{X\beta}). \tag{9}$$

The marginal effect for x_1 is

$$\frac{\Delta F(u)}{\Delta x_1} = \Phi(\gamma_1 + \gamma_2 x_2 + \gamma_{12} x_2 + X\gamma) - \Phi(\gamma_2 x_2 + X\gamma). \tag{10}$$

The marginal effect for γ_k, for $k = 3, \dots, n$, is

$$\frac{\Delta F(u)}{\Delta x_k} = \Phi\left(\gamma_1 x_1 + \gamma_2 x_2 + \gamma_{12} x_{1,2} + \gamma_k + \sum_{\substack{i=3, \\ k \neq i}}^{n} \gamma_i x_i + \overline{X\beta}\right)$$

$$-\Phi\left(\gamma_1 x_1 + \gamma_2 x_2 + \gamma_{12} x_{1,2} + \sum_{\substack{i=3, \\ k \neq i}}^{n} \gamma_i x_i + \overline{X\beta}\right) \tag{11}$$

where the summation Σ includes all variables with index $i = 3, \dots n$ except $i = k$. Collecting all the marginal effect from (9)-(11) into a vector $\hat{g}(\hat{\gamma})$ and estimated covariance matrix of Probit regression coefficients into $\hat{V}(\hat{\gamma})$, the covariance matrix of $\hat{g}$ can according to Green (2003) be estimated by

$$\hat{V}(\hat{g}) = \hat{G} diag(\hat{V}(\hat{\gamma}))\hat{G}' \tag{12}$$

where $\hat{G} \equiv \hat{G}(\hat{\gamma})$ is a matrix comprising elements $\partial g(\hat{\gamma})/\partial \gamma'$. The ith row of $\hat{G}(\hat{\gamma})$ contains the vector of the partial derivatives of the ith function with respect to γ'.

6. Result

The results from descriptive statistics and regression analysis are presented in Table 7 through Table 10. The 42.6 percent of immigrant use external financing while the corresponding number for the natives is 34 percent. This implies that the immigrants use external financing in average 1.25 (42.6/34) times more than that of the natives (see Table 7). The 36.7 percent of the female entrepreneurs use external financing while the corresponding number for the male entrepreneurs is 34.4 percent. This implies that the female entrepreneurs use external financing in slightly larger extend than that of the male entrepreneurs. The 38.2 percent of the entrepreneurs with low education use external financing while the corresponding number for the entrepreneurs with high education is 31.3 percent. The necessity driven entrepreneurs use external financing in larger extend than that of the opportunity driven entrepreneurs (see Table 7). The entrepreneurs with no previous experience use external financing in slightly larger extend than that of the entrepreneurs with previous experience. For our control variables we can also see that there is almost no difference between age groups in the use of external financing, while there is a significant difference between small and large firms (large firms use more external financing). Looking at just the single correlation between

variables we can see that FINANCING is positively and significantly correlated to all the independent variables except EXPERIENCE and AGE. The correlation coefficients are very low (below 0.1) for all the variables except for the variable SIZE. Analyzing how the GENDER and ETHNICITY are correlated to other variables we can see that that there is no correlation between ETHNICITY and GENDER. There is positive and significant correlation between ETHNICITY and MOTIVE which implies that immigrant entrepreneurs are more often necessity driven. The negative correlation between ETHNICITY and AGE implies that the immigrant entrepreneurs are relatively more mid-aged. Similarly, the negative correlation between ETHNICITY and REGION indicates that immigrant entrepreneurs are more concentrated to metropolitan areas. GENDER on the other hand is positively correlated to EXPERIENCE (female entrepreneurs are less experienced) and negatively correlated to EDUCATION (more educated) and SIZE (smaller start-ups).

Table 7
Use of external finance by category

VARIABLE	CATEGORY	% FINANCE	N FINANCE	N TOTAL
ETHNICITY	IMMIGRANT (1)	**42,6%**	1230	2885
	NATIVE (0)	34,0%	6706	19716
GENDER	FEMALE (1)	**36,7%**	2501	6818
	MALE (0)	34,4%	5435	15783
EDUCATION	LOW_ED (1)	**38,2%**	4792	12552
	HIGH_ED (0)	31,3%	3144	10049
MOTIVE	NECESSITY (1)	**44,1%**	1207	2738
	OPPORTUNITY (0)	33,9%	6729	19863
EXPERIENCE	NO_EXP (1)	**35,6%**	4683	13158
	YES_EXP (0)	34,4%	3253	9443
AGE	NOT_MID (1)	35,0%	3005	8590
	MID (0)	**35,2%**	4931	14011
SIZE	SMALL (0)	30,7%	4715	15364
	LARGE (1)	**44,5%**	3221	7237

Table 8
Correlation matrix of variables in the study.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) FINANCING	1.00								
(2) ETHNICITY	0.06**	1.00							
(3) GENDER	0.02**	0.00	1.00						
(4) EDUCATION	0.07**	-0.02**	-0.11**	1.00					
(5) MOTIVE	0.07**	0.08**	0.00	0.00	1.00				
(6) EXPERIENCE	0.01	0.02**	0.22**	-0.04**	0.03**	1.00			
(7) AGE	0.00	-0.04**	-0.01	0.06**	-0.09**	0.108**	1.00		
(8) REGION	0.06**	-0.11**	0.01	0.04**	0.00	0.04**	-0.04**	1.00	
(9) SIZE	0.14**	0.00	-0.23**	0.10**	0.03**	-0.33**	-0.09**	-0.04**	1.00

**. Correlation is significant at the 0.01 level (2-tailed).

There are 13 independent variables, GENDER, EDUCATION, ETHNICITY, MOTIVE, EXPERI-ENCE, AGE, REGION, SIZE, EXAGE (EXPERIENCE*AGE), EXSIZ (EXPERIENCE*SIZE), ETMOT (ETHNICITY*MOTIVE), ETREG (ETHNICITY*REGION), exclusive industry dummy used in regression. We are interested to test the hypotheses for the first five variables. The other independent variables are control variables. A two-stage Heckman selection model for sample bias is estimated. The marginal effect is estimated according to the description in section 5 (see Table 9 and Table 10). Since the variables are dummy in character, we need to interpret the coefficients and the signs of coefficients carefully. We need to pay additional attention since the interaction terms are added. If a coefficient is statistically significant, we deduce that the null hypothesis is rejected and there is support for alternative hypothesis.

The results show that all the five independent variables, ETHNICITY, GENDER, EDUCATION, MOTIVE, EXPERIENCE, are significant at 5 percent level (see step 2 in Table 9). Note that the variable EDUCATION and ETHNICITY turns out insignificants in step 1. Hence, the estimation method matters and the employing of the logit or probit model would not be appropriate here. The coefficients for variables ETHNICITY, GENDER and MOTIVE have positive signs. This implies that our corresponding null hypotheses are rejected and we get support for our alternative hypotheses that female and immigrant entrepreneurs use more external financing than that of native entrepreneurs and the necessity driven entrepreneurs use more external financing at start-up than that of opportunity driven. The magnitude of these variables on the external financing are to be assessed by the marginal effect parameters of the corresponding variables. The coefficient for the marginal effect of ETHNICITY (dydETHNICITY in Table 10) is 0.02 which suggests that if the population would comprise one more immigrant instead of a native, the probability of using external financing would increase by 0,02 percent when effects of all other variables are kept constant. Similarly, the coefficient for marginal effect of GENDER implies that the probability of using external finance would increase by 0,012 percent if the population would contain one more female instead of male. The corresponding marginal effect of MOTIVE is 0.034 percent. The significant and negative signs for EDUCATION and EXPERIENCE indicate that the entrepreneurs with lower education use less external financing than that of entrepreneurs with higher education and entrepreneurs with no previous entrepreneurial or industry experience use less external financing than entrepreneurs with such experience. The marginal effect of EDUCATION is -0,009 which suggests that if the population would comprise one more entrepreneur with lower education instead of entrepreneur with higher education, the propensity of using external financing would decrease by 0,009 percent. The corresponding marginal effect of EXPERIENCE is 0.079 percent.

The variables AGE and REGION are significant and negative while SIZE is significant and positive. This implies that age of entrepreneurs, place where a business starts up and the size of a company have significant effect on using external financing. We find that the entrepreneurs in metropolitan areas use external financing in greater extent than those of other areas and the entrepreneurs who start large business use external finance in greater extent than those who start small business. The entrepreneurs in age group 35-64 years use external finance in greater extent compared to the other. The results all together support the pecking order theory that the entrepreneurs want to use their own money first at start-up firms. Those who have lack of own financing use eternal financing in greater extend.

Table 9
Heckman two stage estimation of External Financing.

	Step 2		Step 1	
	Coefficient	Std. Err.	Coefficient	Std. Err.
ETHNICITY	0.087*	0.037	0.082	0.048
GENDER	0.066*	0.022	0.064*	0.030
EDUCATION	-0.049*	0.019	-0.047	0.026
MOTIVE	0.188*	0.030	0.178*	0.041
EXPERIENCE	-0.337*	0.025	-0.321*	0.052
AGE	-0.189*	0.021	-0.182*	0.035
REGION	-0.237*	0.022	-0.229*	0.034
SIZE	0.151*	0.028	0.144*	0.038
INDUSTRY 2	-0.289*	0.034	-0.272*	0.054
INDUSTRY 3	-0.078*	0.030	-0.073	0.044
INDUSTRY 4	0.022	0.042	0.019	0.057
INDUSTRY 5	-0.561*	0.029	-0.542*	0.059
INDUSTRY 6	-0.388*	0.031	-0.369*	0.054
EXAGE	-0.486*	0.030	-0.462*	0.061
EXSIZ	0.126*	0.040	0.115*	0.055
ETMOT	-0.072	0.069	-0.075	0.089
ETREG	0.144*	0.055	0.141	0.073
Mills lambda	1.288*	0.062		
rho	1.000			
sigma	1.288			
Number of obs.	22601	Wald Chi^2	226.64	
Censored obs.	16908	Prob > Chi^2	0.00	
Uncensored obs.	5693			

Table 10
Marginal effect of Heckman estimation for Bank loan

	Corrected		Not-corrected	
	Coefficient	Std. Err.	Coefficient	Std. Err.
dydETHNICITY	0.020*	0.008	0.169*	0.061
dydGENDER	0.012*	0.003	0.129*	0.037
dydEDUCATION	-0.009*	0.002	-0.096*	0.033
dydMOTIVE	0.034*	0.006	0.366*	0.051
dydEXPERICE	-0.079*	0.002	-0.658*	0.057
dydAGE	-0.054*	0.002	-0.371*	0.041
dydREGION	-0.035*	0.002	-0.466*	0.040
dydSIZE	0.016*	0.005	0.295*	0.047
dydINDUSTRY 2	-0.045*	0.004	-0.560*	0.064
dydINDUSTRY 3	-0.013*	0.004	-0.151*	0.054
dydINDUSTRY 4	0.003	0.009	0.041	0.071
dydINDUSTRY 5	-0.085*	0.002	-1.103*	0.066
dydINDUSTRY 6	-0.061*	0.003	-0.757*	0.062
dydEXAGE	-0.110*	0.001	-0.947*	0.068
dydEXSIZ	0.129*	0.008	0.241*	0.068
dydETMOT	-0.027	0.030	-0.147	0.113
dydETREG	0.015*	0.015	0.284*	0.091

7. Conclusions

The hypotheses of this paper are constructed with regard to the context of Sweden and pecking order theory. The fundamental assumption is that in a country like Sweden, we may expect that women and immigrants are treated equally and hence there should not be any special barrier for these groups compared to native male to get funding from bank. Empirically, we find in contrary to many other studies support for our hypotheses that Female entrepreneurs are more likely to use external financing. Our results do also support the hypothesis that immigrant entrepreneurs use external financing in greater extent than that of native entrepreneurs. The result indicates that those who have post-secondary education are less likely to use external finance at start-up firms compared to those who have secondary education or less. Moreover, we find evidence that entrepreneur with previous experience use external financing to a lesser extent than persons with no previous experience. It also turns out that age and motive do matter in choosing of external financing at start-ups. Finally, we also find that region and size may matter for the choices of external finance. The findings all together support the pecking order theory that the entrepreneurs want to use their own money first at start-up firms. The hypothesis and the results are summarized in Table 11.

Table 11: Summary of hypotheses

	Hypothesis
H1	The effect of ethnicity on external financing **H1$_1$**: Immigrant entrepreneurs use more external financing than that of native entrepreneurs (support*)
H2	The effect of gender on external financing **H2$_1$**: Female entrepreneurs use more external financing than male entrepreneurs (support*)
H3	The effect of education on external financing **H3$_1$**: Entrepreneurs with low education use less external financing than entrepreneurs with high education (support*)
H4	The effect of motive to start a business on external financing **H4$_1$**: Necessity driven entrepreneurs use more external financing than opportunity driven entrepreneurs (support*)
H5	The effect of experience on external financing **H5$_1$**: Entrepreneurs with no previous entrepreneurial or industry experience use less external financing than entrepreneurs with such experience. (support*)

* = significant at the 0.05 level

For our control variables we also find support that age (non-mid age use more financing*) and that size have an effect (large use more*) on external financing.

1)   8. Implications

This study has several important implications. First, from a policy perspective the study suggests that there might be a need to shift focus from direct discrimination issues to structural issues. The effect on discrimination in the society has been of major concern for policy makers around the globe for a long time. In entrepreneurial finance it is often argued that entrepreneurs are being discriminated by the banking sector due to their gender or ethnic origin leading to political action towards the financing industry, e.g. in terms of anti-discrimination acts. The general trend in the society towards corporate social responsibility (that includes issues as gender and ethnic diversity) can also be assumed to have affected the financial sector.

Gender and ethnicity have an effect on how firms are financed. Our evidence points towards the opposite direction than many previous studies. We argue that immigrant and female entrepreneurs differ in their financial behavior due to structural differences in the society which leads to a lower possibility for these groups to finance their firm with internal funds. Furthermore, there is a general "truth" that the firms in early stage face a large hurdle to acquire external funds. Hence, one explanation why women in general start fewer businesses is that they lack necessary internal funds and are not able to borrow. The same explanation is applicable for the immigrants.

One important contribution to the research area is that it is important to consider the context of the study. One context factor is place, e.g., in what country, region or cultural context is being studied. For instance, if the reasons for differences in financial behavior between ethnic groups or between genders can be explained by ethnic- or gender-specific institutions or different form of discrimination, then it is important to highlight the context (Estrin & Mickiewicz. 2011). Another consideration that our study highlights is that the rapid changes in the society towards higher levels of social responsibility also have an effect on ethnic or gender-specific behavior in the society. In other words, to ground propositions on research made decades ago in another cultural context has to be taken with caution, e.g., the behavior of financial institutions in US thirty years ago might not be directly translated to Sweden today. This also is an indication that there is a need for a continuous stream in this research to capture the rapid developments that are occurring. More research is needed both from new cultural contexts and with international comparisons. There is also a need for replications of older studies to understand or to test societies' transitions.

2) 9. Limitation and Further Research

It is argued that the financing choices are influenced by the personal wealth of the entrepreneur (Avery et al. 1998; Berger and Udell 1998). This study has limitation to control the factor directly due to lack of data availability. The factor has impact on the demand and supply of external financing (Storey, 1994; Cressy, 1996; Coleman, 1998). The personal wealth of the entrepreneurs may be correlated to the variable EDUCATION, EXPERIANCE and AGE. Hence, the effect of this omitted variable is not obvious. However, this issue is taken into account through rigorous econometrics method. As discussed earlier that the data are collected from a population that has started a firm. There is no data on the entrepreneurs who has wanted to start a firm, but cannot due to lack of finance or other reason. Hence, we may expect selection bias in the population. However, this problem is addressed by employing Heckman estimation. The authors intend to follow up the firms after three years. A study on survival of the firms are of interest.

10. Acknowledgement

Reference

Abbasian, S. (2003). Integration Through Self-Employment - A Study of Female Immigrant Entrepreneurs in Sweden. Geografiska regionstudier nr 52, Pp 236 Uppsala. ISBN: 91-506-1719-2.

Abbasian, S. & Yazdanfar, D., 2013. Exploring the financing gap between native born women- and immigrant women-owned firms at the start-up stage. *International Journal of Gender and Entrepreneurship*, 5, pp.157–173. Available at: http://ezp.waldenulibrary.org/login?url=http://search.proquest.com?url=http://search.proquest.com/docview/1368560769?accountid=14872\nhttp://sfxhosted.exlibrisgroup.com/waldenu?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&genre=article&sid.

Ai, C. & Norton, E.C., 2003. Interaction terms in logit and probit models. *Economics Letters*, 80, pp.123–129.

Ajzen. I. (1991). The theory of planned behavior. Organizational behavior and human decision processes. 50(2). 179-211.

Audretsch, D.B., 2007. Entrepreneurship capital and economic growth. *Oxford Review of Economic Policy*, 23(1), pp.63–78.

Avery, R.B., Bostic, R.W., Samolyk, K.A., 1998. The role of personal wealth in small business finance. J. Bank. Finance 22 (6–8), 1019–1061.

Berger, A.N., Udell, G.F., 1998. The economics of small business finance: the roles of private equity and debt markets in the financial growth cycle. J. Bank. Finance 22 (6–8), 613–673.

Berger, A.N. & Udell, G.F., 2005. Small business and debt finance. In *Handbook of entrepreneurship research*. Springer, pp. 299–328.

Block. J.. & Sandner. P. (2009). Necessity and opportunity entrepreneurs and their duration in self-employment: evidence from German micro data. Journal of Industry. Competition and Trade. 9(2). 117-137. Springer.

Buchan, N. R., Croson, R. T. A., & Solnick, S. (2008). Trust and gender: An examination of behavior and beliefs in the Investment Game. Journal of Economic Behavior & Organization, 68(3-4), 466–476.

Carter S (2000). Gender and enterprise, In: Carter, Sara and Jones-Evans, Dylan (ed.) Enterprise and Small Business. Principles, Practice and Policy. Financial Times prentice Hall. Pearson Education, 166-181.

Carter, S. et al., 2013. Diversity and SMEs. , ERC White (3), pp.1–37. Available at: http://enterpriseresearch.ac.uk/wp-content/uploads/2013/12/ERC-White-Paper-No_3-Diversity-final.pdf.

Carter, S. et al., 2007. Gender, entrepreneurship, and bank lending: the criteria and processes used by bank loan officers in assessing applications. *Entrepreneurship Theory and Practice*, 31(3), pp.427–444.

Cassar, G., 2004. The financing of business start-ups. *Journal of Business Venturing*, 19(October 2002), pp.261–283.

Cassar, G. & Holmes, S., 2003. Capital structure and financing of SMEs: Australian evidence. *Accounting and Finance*, 43, pp.123–147.

Carliner, G. (1980). Wages, earnings and hours of first, second, and third generation American males. Economic Inquiry, 18(1), 87–102.

Coleman, S., 1998. Access to capital: a comparison of men and women-owned small businesses. Frontiers of Entrepreneurship Research. Babson College, Babson Park, MA, pp. 152–164.

Cope, Jason, and Gerald Watts. "Learning by doing–an exploration of experience, critical incidents and reflection in entrepreneurial learning."International Journal of Entrepreneurial Behaviour & Research 6.3 (2000): 104-124.

Cowling, M. & Taylor, M., 2001. Entrepreneurial Women and Men: Two Different Species? *Small Business Economics*, 16, pp.167–175.

Cressy, R., 1996. Commitment lending under asymmetric information: theory and tests on U.K. startup data. Small Bus. Econ. 8 (5), 397–408.

Cressy, R. & Olofsson, C., 1997. The Financial Conditions for Swedish SMEs: Survey and Research Agenda. *Small Business Economics*, 9, pp.179–194. Available at: http://www.scopus.com/inward/record.url?eid=2-s2.0-0031513524&partnerID=40&md5=e4851676cf6c87111e17145fb8c5a10c.

Croson, R. & Gneezy, U., 2009. Gender Differences in Preferences. *Journal of Economic Literature*, 47, pp.448–474.

Duncan, B. & Trejo, S. (2009). Immigration and the US labour market.

Economist Intelligence Unit. (2011). Democracy index 2011. London: Economist Intelligence Unit.

Economist Intelligence Unit, 2011. Democracy index 2011: Democracy under stress. , pp.1–48.

Ekberg, J., 1999. Immigration and the public sector: Income effects for the native population in Sweden. *Journal of Population Economics*, 12, pp.411–430.

Estrin, S. & Mickiewicz, T. (2011). Institutions and female entrepreneurship. *Small Business Economics*, (37), 397–415.

Evans, M. D. R., & Kelley, J. (1986). Immigrants' work: Equality and discrimination in the Australian labour market. *Journal of Sociology*, 22(2), 187–207.

Fay M., and L. Williams (1993). "Gender bias and the availability of business loans", Journal of Business Venturing, 8 (4).

Fleischmann, F., & Dronkers, J. (2010). Unemployment among immigrants in European labour markets: an analysis of origin and destination effects. Work, Employment & Society, 24(2), 337–354.

Foubert, J.D. & Sholley, B.K., 1996. Effects of gender, gender role, and individualized trust on self disclosure. , 11, pp.277–288.

Gebru, G.H., 2009. Financing preferences of micro and small enterprise owners in Tigray: does POH hold? *Journal of Small Business and Enterprise Development*, 16, pp.322–334.

Greene, W. H., 2003. Econometric Analysis, 5th edn, Prentice-Hall, Upper Saddle River.

Grilo, I. and Irigoyen, J.M., 2006. Entrepreneurship in the EU: to wish and not to be, Small Business Economics 26(4), 305-318.

Grilo, I. and Thurik, A.R., 2005. Latent and actual entrepreneurship in Europe and the US: some recent developments, International Entrepreneurship and Management Journal 1(4), 441-459.

Guerra, G., 2012. *Determinants of immigrant self-employment rates and self-employment transitions.* University of Lugano, Switzerland.

Hausmann, R., Tyson, L.D. & Zahidi, S., 2011. *Global Gender Gap Report*, Available at: http://www3.weforum.org/docs/WEF_GenderGap_Report_2010.pdf.

Heckman, J.J., 1979. Sample Selection Bias as a Specification Error Author (s): James J . Heckman. , 47(1), pp.153–161.

Hsu, D.H., Roberts, E.B. & Eesley, C.E., 2007. Entrepreneurs from technology-based universities: Evidence from MIT. *Research Policy*, 36, pp.768–788.

Huang. J and Kisgen, D. J (2013). Gender and corporate finance: Are male executives overconfident relative to female executives? Journal of Financial Economics. Volume 108, Issue 3, June 2013, Pages 822–839.

Krueger. J. N. F. & Carsrud. A. L. (1993). Entrepreneurial intentions: applying the theory of planned behaviour. Entrepreneurship & Regional Development. 5(4). 315-330. Taylor & Francis.

Liñán. F. & Chen. Y. W. (2009). Development and Cross-Cultural Application of a Specific Instrument to Measure Entrepreneurial Intentions. Entrepreneurship Theory and Practice. 33(3). 593-617. Wiley Online Library.

Marlow S (2002). Women in self employment: "A part of, or apart from, theoretical construct". Int. J. Entrepreneurship Innov., 3(2): 83-91.

McFadden, D., Train, K.E. & Tye, W.B., 1977. An application of diagnostic tests for the independence from irrelevant alternatives property of the multinomial logit model. *Transportation Research Record*, pp.39–46.

Myers, S.C. & Majluf, N.S., 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13, pp.187–221.

Neck, H.M. et al., 2002. United States of America. , p.2014.

Orser, B.J., Riding, A.L. & Manley, K., 2006. Women entrepreneurs and financial capital. *Entrepreneurship Theory and Practice*, 30(5), pp.643–665.

Paul, S., Whittam, G. & Wyper, J., 2007. The pecking order hypothesis: does it apply to start-up firms? *Journal of Small Business and Enterprise Development*, 14, pp.8–21.

Praag, C. Van & Versloot, P., 2007. What Is the Value of Entrepreneurship? *Small Business Economics*, 29(3014), pp.351–382. Available at: http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:What+is+value+of+entrepreneurship?#2.

Rooth, D. O. (1999). Refugee Immigrants in Sweden-educational investments and labour market integration.

Rooth, D. O., & Ekberg, J. (2003). Unemployment and earnings for second generation immigrants in Sweden. Ethnic background and parent composition. Journal of Population economics, 16(4), 787–814.

Rothstein, B. (2011). The Quality of Government: Corruption, Social Trust, and Inequality in International Perspective. Chicago: University Of Chicago Press.

SCB, 2009. Integration – utrikes födda på arbetsmarknaden [Integration - foreign born persons and the labour market]. Örebro: Statistics Sweden.

Sena, V., Scott, J. & Roper, S., 2010. Gender, borrowing patterns and self-employment: some evidence for England. *Small Business Economics*, 38(4), pp.467–480. Available at: http://www.springerlink.com/index/10.1007/s11187-010-9272-9 [Accessed July 25, 2012].

Shyam-Sunder, L., & C Myers, S. (1999). Testing static tradeoff against pecking order models of capital structure. Journal of financial economics, 51(2), 219–244.

So, Y. & Kuhfeld, W.F., 1995. Multinomial Logit Models. *SUGI 20 Conference Proceedings*, pp.1227–1234.

Statistics Sweden. 2012. Disponibel inkomst per konsumtionsenhet för individer efter ålder samt förändringar i procent. http://www.scb.se/Pages/TableAndChart____28883.aspx [accessed 2012-07-10]

Storey, D.J., 1994. The role of legal status in influencing bank financing and new firm growth. Appl. Econ. 26 (2), 129–136.

Stuart, R. W. and Pier A. A., 1990. Impact of entrepreneurial and management experience on early performance. Journal of Business Venturing, 5.3, 151-162.

Swamy, A. et al., 2001. Gender and corruption. *Journal of Development Economics*, 64, pp.25–55.

Transparency International. (2011). Corruption Perceptions Index. Berlin: Transparency International (http://www.transparency.org).

UNDP. (2011). Human Development Report 2011. New York: United Nations Development Programme [http://hdr.undp.org/en/reports/].

Vanacker, T.R., Manigart, S. & Zahidi, S., 2010. Pecking order and debt capacity considerations for high-growth companies seeking financing. *Small Business Economics*, 35, pp.53–69.

Verheul, I. and A.R. Thurik, 2001, Start-up capital: does gender matter? Small Business Economics 16, 329-345.

Wennekers, A.R.M., A. J. van Stel, M.A. Carree and A.R. Thurik (2010), The relation between entrepreneurship and economic development: is it U-shaped? *Foundations and Trends in Entrepreneurship*, 6(3), 167-237

Zoppa, A. & McMahon, R.G.P., 2002. Pecking Order Theory and the financial structure of manufacturing SMEs from Australia's Business Longitudinal Survey. *Small Enterprise Research*, 10(February 2015), pp.23–42.