

Women Personal Network and Financial Profitability : Case of Tunisian Small Firms

Author Details : Hayet Ben Said - CEFI research lab (Economic Growth and International Finance).
High School for Economic and Commercial Sciences of Tunis (ESSECT)

Abstract

Many studies deal with the role of the female personal network in the success of the business. However, only a few examine the relationship between women's network and the profitability of the firm. The current article aims to identify what mark the network of women entrepreneurs and whether the network affects the success of the firm. For that, based on 41 very small firms, we examine the effects of the network on the financial profitability of the firm. The estimation of an equation using the least ordinary square suggests that the characteristics of the female network such as the informal and homophilic character do not affect the success of the firm. While the size of the network and the involvement of women in the network affect the profitability of the firm. In the light of this study, we advance that even if the female network differs from that of the male, the variables which are related to the network and which affect the profitability of the firm do not depend on the gender.

Keywords: Female entrepreneurship; characteristics of the female personal network; profitability of the firm; 41 very small firms; ordinary least square method.

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Introduction

The political and economic crisis in Tunisia has negatively affected the real household income, which has led women to become more involved in the business world in order to provide their basic needs. Moreover, woman entrepreneur is today considered as the sources of economic growth and job creation (Fazalbhooy, 2014). In fact, 47.7% of all businesses created in the United States were done by women. In France, 30% of all businesses created was founded and managed by women (Orban, 2001). In Algeria, this rate is 1.7% and in Cameroon, it stands at 53% (Zouiten, 2004). While in Tunisia, we have only 3% of the population who are women entrepreneurs. Indeed, and despite the increased participation of women at different levels of éducation, they face many barriers that prevent them from embarking on the business world. Undoubtedly, the network is one of the most important barriers that women face. Women's participation in networks is low in relation to men (Granovetter, 1985; Aldrich and Zimmer, 1985; Burt, 2000 and Gasse, 2005). The network which is a set of contact impacts the decision to undertake a company, the firm's performance, and sustainability. For that, the women network has received much attention in recent years because it is considered as one of the main conditions of the success of a new business start-up. Many studies (Granovetter, 2004; Verstraete and Saporta, 2006; Simen, 2013) has focused on the importance of women network. Women network allows the entrepreneur to build up a social capital that is useful for her nascent business. It also favors access to information, funding, skills and other intangible resources. Although the role of the network is not new to the development of entrepreneurship most research has been devoted to male networking, remains descriptive and their results converge only on certain aspects. In other words, a little attention has been paid to women network. Our interest in the women entrepreneur network stems from the fact that the success of her business depends on the characteristics of her networks (Bulte, 2003). A better understanding of the entrepreneur's profile, incentives and relations with the environment enables legislators and educators to put in place the necessary mechanisms to better support entrepreneurs and promote women's entrepreneurship. In particular, in this study, we are interested in the characteristics of the entrepreneur's personal network because, as Reynolds (1991) point out, "the main proof of the importance of social networks is that most entrepreneurs set up their business at home ". Our research focuses on two main questions, the first is what marks the personal women entrepreneurs network and the second is whether the network affects the profitability of their Business. The aim of this work is to highlight the characteristics of the women entrepreneurs network that ensure the success of their business. This paper is organized as follows. First and based on the field of female entrepreneurship, we have mobilized the theoretical framework of network analysis, its characteristics and its effects on the success of women's business. The theoretical study is used to determine some attributes of the women entrepreneurs network. As for the empirical study, it also allows us to verify the effect of these attributes on the profitability of the firm. To do this, we first present our sample, which is made up of 41 very small firms (women are more present in smaller firms) and the variables studied. Then, we try to verify some hypothesis derived from the theoretical

study and presented in the descriptive analyses. Finally, we attempt to generalize the results from the descriptive analysis by moving to econometric study and discussion of results.

2 Literature review

Examination of the research work on the network as a relationship structure that connects the entrepreneur (called ego) with other people (named alter) enabled us to identify the attributes of women network and their effects on the company profitability. We propose to focus on these attributes and their effect on the profitability of the firm.

2.1 The personal network of women entrepreneurs

Most early theories of a personal network were concerned with its effect on the creation and survival of the company. Aldrich and Zimmer, (1985) and Coviello et Munro, (1997) argued that the network is a set of contacts related by links based on trust and reputation. However, recent studies outlined by Loane and Bell (2006) ; Julien et al., (2006) ; Taddei (2009) ; Gosse et Sprimont (2010); Keramidas et al, (2012) suggest that the network connects individuals in contexts of close geographical, organizational, personal, and professional proximity. For that, we talk about territorial network, communal network, business network and informational network. These networks which connect entrepreneurs to the holders of tangible and intangible resources provide information, reduce transaction costs and support business growth. This personal network can be formal or informal. That is why, the personal network was the field of economist and sociologist's interest (O'Donnell et al., 2001).

2.2 The role of the personal network

The personal women entrepreneurs network forms a relational capital that allows them to obtain the material, immaterial and relational resources essential to the creation and the perpetuation of their company. The role played by material resources as a necessary means to promote for entrepreneurship was pointed out by Shaw (2006). The latter identifies material resources including financial resources (bank loans), access to materials, equipment, and other facilities, etc. While, immaterial resources provide access to information related to the market, customers, competitors, best practices, industry trends, advice, and so on. As for relational resources, they promote legitimacy and reputation allowing access to new social circles.

2.3 Attributes of the entrepreneur's personal network and business growth

In the following, we are interested in what marks the entrepreneur's personal network and their effect on the profitability of the company. Let us talk about informality, homophily, small size and strong links which constitute the main features of women's network.

2.3.1 Women's network: Informal character

The sociocultural context in which the woman entrepreneur is born and grows affects her behavior much more than man (Bauer, 1993). In this context, she is naturally more apt to establish strong and Emotional Relationship with actors in her environment (Hanna and Walsh, 2002; Hampton et al., 2009; and Llussa, 2010; Werbel et Danes, 2010; Martinez et Aldrich, 2011). She includes the spouse, family, relatives, and intimate acquaintances to whom she gives her trust (Boni-Le Goff 2010).

The entrepreneur's informal network affects the growth of the company. This network allows the entrepreneur to finance from her family (especially the husband), relatives or friends (Nelton 1986, Coleman 2000). Recently, Simen (2013) shows how women in some African countries form associations to meet their funding needs because it is difficult for them to institutionalize their networks. In addition to tangible and intangible resources, the informal network provides to her the emotional support, legitimacy and the professional recognition that she needs (Constantinidis, 2010).

Despite the richness of this informal network, the latter is not always sure. For example, Renzulli et al. (2000) consider that a strong participation of parents in the network has a negative impact on the decision to create business and on the functioning of the company. Davidson (2003), in a qualitative analysis of social support figures for the emerging entrepreneur, recognizes that the spouse may hinder his wife's decision to start her business. Additionally, in his qualitative study, Jack (2005b) shows that strong links in the personal

network (in particular the family) can constrain the entrepreneur's actions (conflicts over goods supplied, limited competences of family members, Etc.). In addition, Birley, (1985) found that formal sources (banks institutions, etc.) can provide richer information and advice than informal ones. Recent studies outline by Drakopoulou Dodd et al., (2014) suggest that the relationship between informal links and the company performance can take the U-shape, beyond a certain threshold, this type of link negatively affects the growth of the company. From this body of research, it seems clear that informal network which forms an essential compound of women network can hinder their business in the long run because they need tangible and intangible resources which can be provided not only by the informal network and which are necessary to the evolution of the business.

2.3.2 Women network and homophily

Homophily is the tendency to interact more with people who resemble us: same age, sex, level of education, geographical, ideological, social and political affiliation, etc. (Borgatti et Foster, 2003). Chaganti (1986); Wells (1998); Boni – Le Goff, (2010), showed that homophily facilitates learning and exchange on professional and sometimes even private issues. They considered that the network which consists only of women allow the transmission of tacit knowledge, simplify coordination and reduce the transaction costs. However, Aldrich et Hansen (1985); Schutjens et Stam (2003) considered that a low diversification of the network can have a negative effect on the performance of the company due to a lack of diversity of ideas and resources necessary for the survival of the company. So we can emphasize that the heterogeneity of the network seems to be vital especially for women entrepreneurs in the construction of their business.

2.3.3 Women networks: small size

Most studies argued that the size of the personal network affects the success of the company. Concerning size, Aldrich et al. (1987) estimated that in average, 17 contacts affect the growth of the firm. While, for Hansen (1995), an effective network is the one that is composed of 2 to 19 members. Greve and Salaff (2003) showed that while the idea matures, the network is small (on average 8 contacts), it becomes maximum (on average, 14.7 contacts) during the preparation phase of the project and then decreases during the start-up of the company (on average, 12 contacts). However, no study has been able to determine the optimal size of a network because it depends on several factors such as the size, the sector of activity and the life cycle of the company. Furthermore, Carter et al., (2007); Hampton, et al., (2009); Drakopoulou Dodd and Keles, (2014) considered that, on average, women entrepreneurs have a small network compared to men. Indeed, a high level of networking does not necessarily imply superior performance. We can talk about a threshold effect beyond a number of contacts, the women networks become counterproductive as has been shown in the work of Watson (2006).

2.3.4 Women's involvement network

The strength of the network links depends on two criteria: the frequency of the interaction (at least twice per week) and its duration (Granovetter 1973 and Krackhardt 1992). On the other hand, weak links are characterized by a low degree of affection and are established with casual acquaintances (Dubini and Aldrich, 1991). Starr et MacMillan, (1993); Ostgaard et Birley (1996); Uzzi, (2000); Jenssen et Greve, (2002); Reagans et McEvily (2003); Batjargal et Liu, (2004) showed that strong links favor the growth of the young company. Indeed, these links generate benefits through the transmission of tacit knowledge, information exchange, and reliable financing. However, Jack (2005) demonstrates that diversified networks which are formed by weak and strong relationships are essential and more productive for women entrepreneurs to have diverse access to different types of resources.

We present in what follows the table which resumes the configuration of the women's personal networks and its effects on the company growth.

Table 1 Network attributes and company success

Network attributes	Impact on business success
Informal	Lanbrecht (2003) and Simen (2013)
Homophily	Simen (2013); Kamdem et al (2011); Boni – Le Goff, (2010); Barry et al (2009; Borgatti and Foster (2003).
Small network size	Carter et al., (2007); Hampton et al., (2009); Drakopoulou Dodd and Keles (2014)
Involvement in network	Ostgaard and Birley (1996); Reagans and McEvily (2003); Inkpen and Tsang (2005)

The contribution of this study consists of testing the statements that have been advance. For this, the next step is to compare these statements with the field data.

3 Methodologie

3.1 Data collected

The current investigation involved data collected and the variables that constitute our model to measure the effect of women's network attributes on the financial profitability of the company.

The database which is used corresponds to a representative sample of loans granted to very small enterprises (VSE). During this phase, reports which were dealing with a sample of investment credit, granted to these VSE (type ex-nihilo) during 2009-2013 were consulted.

In addition, given the precise nature of the information sought, a questionnaire and even meetings with the beneficiaries of investment credit were conducted in order to clarify certain notions and to explain our approach.

3.2 Model Variables

The impact of women's network attributes on the financial profitability of the company is estimated using quantitative and qualitative explanatory variables which are related to the entrepreneur's business and her personal network.

3.2.1 The dependent variable: the financial profitability ratio

The financial profitability ratio which is a performance indicator reflects the company's ability to make a profit from the resources invested (Hoarau 2008). It determines the return on equity and the ability of the company to make the capital incurred by the shareholders profitable. This is also what is called the rate of profit.

3.2.2 Independent variables

3.2.2.1 Variables related to the firm and its environment

The variables that were chosen are related to certain characteristics of the firm and are decisive for its evolution. We can cite the age of the firm, the sector of activity and the debt ratio. Indeed, the age of the firm affects its profitability. Adair & Adaskou (2011) consider that the age of the company is negatively correlated with its agency cost because of its experience and its good reputation which sends a positive signal to the partners especially the investors. As for the sector of activity, Dune et al (1989), Baldwin et al (1997) show that the profit rates realized by firms depend on the different branches and sectors of industry. In addition, in 2007, a survey of large manufacturing firms was conducted by the National Institute of Statistics and Economic Studies (INSEE), in order to determine the effect of sector activities on indicators of the company's profitability. The results show that the choice of the sector affects profitability. Given its importance to the firm, the debt ratio has been the subject of several studies. Weill (2008); Margaritis and Psillaki (2010) have demonstrated the role of this ratio in the performance of the company. The effect of

indebtedness on firm profitability depends on countries, firms, sectors, periods, the choice of indicators of both profitability and indebtedness. Margaritis and Psillaki (2007), Baum et al. (2007) and Margaritis and Psillaki (2010) found a positive effect of indebtedness on the profitability of the firm. On the other hand, Zeitun and Tian (2007) showed a negative influence.

3.2.2.2 Variables related to the entrepreneur's personal network

We use the previous theoretical development to determine the measurements of variables related to the entrepreneur's personal network. We can cite the size of the network, its nature (formal or informal), the diversification or homogeneity of the network and the degree of involvement of the entrepreneur in the network.

3.3 Descriptive analysis

Using SPSS (Statistical Process Social Science) software, we carried out a descriptive study of the explanatory variables. A normality test verifies whether actual data follow a normal law or not. Several tests can study the normality of the explanatory variables. We can cite: the Shapiro-Wilk test and the Kolmogorov-Smirnov test. In our case, all explanatory variables follow the distribution of the normal distribution according to the Shapiro-Wilk test as shown in the following table:

Table 2 Detailed results of normality test.

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistiques	ddl	Sig.	Statistiques	ddl	Sig.
Marital status	0,472	42	0,000	0,529	42	0,000
Entrepreneur's age	0,123	42	0,109	0,919	42	0,006
Number of children	0,231	42	0,000	0,801	42	0,000
Entrepreneur's previous activity	0,460	42	0,000	0,549	42	0,000
Experienced entrepreneur	0,375	42	0,000	0,630	42	0,000
Informal character of women's networks	0,338	42	0,000	0,637	42	0,000
Size of the network	0,227	42	0,000	0,839	42	0,000
Resource requirements	0,460	42	0,000	0,624	42	0,000
Firm's activity sector	0,164	42	0,006	0,923	42	0,007
Financial profitability ratio	0,297	42	0,000	0,485	42	0,000
Age of the firm	0,168	42	0,004	0,909	42	0,003

3.3.1 Univariate and bivariate statistical analyses

3.3.1.1 Univariate analysis

Explained variable: financial profitability ratio

The financial profitability ratio (operating profit - income taxes) / (equity + financial debt) which measures the ability of the company to achieve an outcome using all its means is on average 0.903. This value is explained by the important debts which represents 84% of the firm's assets and which is transformed on investment. It is also explained by the low profitability of these capital invested since the firms are relatively young (5 years old). 50% of women entrepreneurs work in the secondary sector (industry), compared with 28.6% in the tertiary sector (service) and 21.4% in the primary sector (agriculture). Entrepreneurs have on average 34 years old, 76, 2% of them are married and 64.3% of them have children. 73.8% of women entrepreneurs have already been trained, compared with 26.2% who have been housewives. 33.3% of women entrepreneurs justify their involvement in the network by their need for material resources compared to 35.7% who justify their involvement by their need for relational resources; 23.8% justify their involvement by their need for intangible resources. However, 7.1% have no justification for their involvement. 80% of women entrepreneurs belong to a small network. 75% of women entrepreneurs belong to an informal network and 89.5% to a homophilic network.

It is apparent that firms are moderately old, heavily indebted, operate in the industrial sector and are located in the interior regions. On the whole, the entrepreneurs are relatively young, mostly married and with children. They have been employees and they are experienced. Analysis revealed a considerably higher percentage of women entrepreneurs who prefer the informal and homophilic network. As can be seen, they belong to a small network, are weakly involved in the network and justify their involvement by their need for relational and material resources.

3.3.1.2 Bivariate analysis

Variables related to the attributes of entrepreneur's personal network

Based on the assumption that the personal network of the entrepreneur affects the profitability of the firm and on the result of the univariate analysis we propose to test the following hypotheses.

Hypothesis 1: the informal network is correlated with the financial profitability of the firm

Hypothesis 2: the size of the network with the financial profitability of the firm

Hypothesis 3: the involvement in the personal network is correlated with the financial profitability of the company

Hypothesis 4: The homophilic character of the personal network is correlated with the financial profitability of the firm

The results of the bivariate analysis are summarised in the following table :

Table 3 Results of the bivariate analysis

Financial Rate of Return		Informal network	Network size	Entrepreneur involvement in the network	Homophilic character of the personal network	Need for material and relational resources
	F	6,217	5,176	2,942	13,225	10,092
	Sig	0,017	0,028	0,080	0,001	0,000
	N	42	42	42		

It is evident from the results that overall, the attributes of the network that are related to its informal nature, small size and the homophilic character are correlated with the financial profitability of the company. It research: that the needs of relational and material resources are correlated with the financial profitability of the firm. However, the low involvement of women entrepreneurs in the network explains the weak correlation between their involvement and the financial profitability of their firm.

The results of the bivariate analysis allowed us to highlight a number of points corresponding to the hypotheses posed and reflecting a behavior of the studied population that will serve us in the multivariate analysis. However, no results can be affirmed. The research on this subject is not finished. In the following, we try to explain the financial profitability of the company based on the variables describing the attributes of entrepreneur's network. To do this, we move on to econometric study.

3.4 Multivariate analysis: characteristics of entrepreneur's network and profitability of the firm

As discussed previously, certain attributes of the entrepreneur's network are correlated with the financial profitability of the firm. Adapted from Johannisson (1996) and Drakopoulou Dodd and Patra (2002) who had measured the impact of the personal network on entrepreneurial success, we first present the model to be estimated, then we move on to the analysis and interpretation of the results.

3.4.1 Model and results: presentation

Consider the following model:

$$Y_i = \alpha_0 + \alpha_1 RDE_i + \alpha_2 REI_i + \alpha_3 TAR_i + \alpha_4 HOR_i + \alpha_5 BRM_i + \alpha_6 IMP_i + \epsilon_i ;$$

Y_i : Financial profitability ratio ;

RDE_i : Debt ratio ($\frac{\text{total liabilities}}{\text{total assets}}$);

REI_i : Informal character of the entrepreneur's personal network (qualitative variable, = 1 if the network is informal and 0 if not);

TAR_i : Size of the network (qualitative variable, = 1 if the network is small, 2 if medium and large);

HOR_i : The homophilic character of the entrepreneur's network (qualitative variable, = 0 if the network is diversified and 1 if it is homophilic);

BER_i : Resource requirements (qualitative variable, = 1 if the need is in intangible resources, 2 if the need is in material resources, 3 if the need is in relational resources and 4 if the need is in all types of resources);

IMP_i : Involvement of the entrepreneur in the network (qualitative variable, 1 weakly involved in the network, 2 for moderately involved and 3 for strongly involved);

ε_i : Error term.

We assume that residuals are not correlated with independent variables and that they follow a logistic distribution or normal distribution. The estimation method used is the least ordinary square.

The econometric analysis was carried out using the SPSS 23 software and gave the following results:

Table 4 Estimation results

Variables	Coefficients	Wald (t-value)	Probabilités
Constant	-1,464	-3,213	0,003
<i>RDE</i>	0,164	1,905	0,035
<i>REI</i>	0,274	1,674	0,103
<i>TAR</i>	0,337	1,975	0,056
<i>HOR</i>	0,274	1,510	0,140
<i>BER</i>	0,229	2,255	0,031
<i>IMP</i>	0,164	1,905	0,055
R ² ajusté	0,656	-	-
F	12,185		0,000

3.4.2 Discussion

The main purpose of this work was to test the specificities of women's network and if these specificities affect the success of the firm. It is apparent that 65% (R² =65%) of the variance in the dependent variable (here the financial profitability of the firm) is explained by the combination of independent variables. Indeed, the firm's debt ratio explains positively ($\alpha_1 = 0.164$) and significantly ($p = 0.035$) its financial profitability. In our case, debt is used to increase the firm's capacity to invest, hence the impact of this debt on the return on equity invested. So, debts have created a financial leverage effect. These results are in line

with those of Weill (2008); Margaritis and Psillaki (2010). These results nevertheless suggest that the informal character of women network has no effect ($\alpha_2 = 0,274$; $p = 0.103$) on the financial profitability of the firm. This result was confirmed by the work of Drakopoulou Dodd e.a (2014). Drakopoulou Dodd e.a (2014) show that the relationship between the informal character of network and firm's growth takes the form of the U- curve. In other words, the informal character of the network which consists of family, friends, and acquaintances may not have an impact on the financial viability of the business, particularly if these relations do not entirely meet the needs of the entrepreneur. The size of the network seems to have a positive effect ($\alpha_3 = 0.056$) and significant ($p = 0.056$) on the financial profitability of the firm. Indeed, despite the low involvement of entrepreneurs in the network, the size of the network affects profitability, this is consistent with results obtained in Aldrich et al. (1987), (1989); Drakopoulou Dodd and Patra (2002); Greve and Salaff (2003) studies. The entrepreneur's involvement in the network positively affects ($\alpha_6 = 0.164$) and significantly ($p = 0.055$) the financial profitability of the firm. This intuitive result was confirmed by the work of Granovetter (1973, 1982), Krackhardt (1992), Dubini and Aldrich (1991), and Burt (1992). Although 89.5% of women entrepreneurs belong to a homophilic network as it is mentioned in the univariate analysis, the homophilic character has no effect ($\alpha_4 = 0,274$; $p = 0.140$) on the financial profitability of the firm. This result was confirmed by Schutjens and Stam (2003) who consider that a diversification of the network can have a positive effect on the profitability and the growth of the firm.

4 Concluding remarks

Prior work has documented the importance of the network on the profitability of the firm. In particular, Granovetter (2004), Verstraete and Saporta, (2006) and Simen, (2013) report the importance of women network. Nevertheless, according to Granovetter (1985), Aldrich and Zimmer (1986), Burt 2000 and Gasse (2005), women's participation in networks is low in relation to men.

Despite this fact, research on entrepreneurship has not focused on the particularities of women network.

In this study we identified the characteristics of the women's personal networks and their effects on the success of the business.

We found that in virtually all cases, the financial profitability and the success of the firm depend on the financial variable such as the debt ratio. they depend also on the size of the network, the involvement of women in the network and on the network capacity to meet their needs (tangible, intangible and relational resources).

This study, therefore, indicates that the particularities of women network such as the informal and homophilic character as outlined in the literature review do not affect the success of the firm. While characters like the size of the personal network and the involvement of entrepreneurs in this network to meet their need and which do not depend on gender affect the success of the firm. In the light of this study, we can advance that even if the feminine network differs from that of male, this difference does not affect the profitability and the success of the company.

Most notably, this is the first study to our knowledge to investigate the role of qualitative variables which may mark the women network and can affect the success of their firm. However, some limitations are worth noting. Although our hypotheses were supported statistically, the sample size (41 observations) is limited and it does not allow us to locate our findings over a large confidence interval. Our results are encouraging and should be validated in a large cohort of women. Besides, future work should include a comparative study of both sexes to better understand the particularities of the network of each of them to measure the effect of these particularities on the success of the firm and on the promotion of entrepreneurship in Tunisia.

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