

The impact of networks on value co-creation for women-owned businesses

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Abstract:

Researchers have called for more attention to the issues surrounding women entrepreneurs and their businesses that impact their success and the value co-creation it brings to stakeholders. This study examines the moderation effect of social networks on the relationships between women entrepreneurs' specific entrepreneurial skills sets in information technology, management, and securing funding, value co-creation and the effect on firm performance. Social network support is considered a proxy for value co-creation. Our findings show that IT skills are positively related to firm performance. Results showed a positive interaction effect of network support with management skills and with the ability to obtain financing on firm performance. Implications and future research are discussed.

Keywords: networks | value co-creation | firm performance | women entrepreneurs | developing economy | Poland

Article:

1 Introduction

Women-owned businesses are well recognised as important for economic growth, innovation, and job creation (Mari et al., 2016; Neill et al., 2015; Verheul et al., 2006). The number of women entrepreneurs is growing worldwide both in emerging as well as developing economies (Welsh et al., 2018). Almost half (42%) of entrepreneurs worldwide are women (GEM, 2012). Unfortunately, female entrepreneurs still face obstacles that often tend to be gender specific (Jennings and Brush, 2013). Idiosyncrasies unique to women entrepreneurs include context, such as family embeddedness (Aldrich and Cliff, 2003), and work-family balance (Rey-Marti et al., 2015), in which women are more often immersed (Hughes et al., 2012). That is why efforts to better understand issues related to women and entrepreneurship have become an important research domain (Jennings and Brush, 2013). Still, only 10% of all entrepreneurship studies are on women entrepreneurs (Jennings and Brush, 2013).

The Global Entrepreneurship Monitor (GEM) (Acs et al., 2008) gathers data yearly from participating countries on women entrepreneurs and their businesses. Studies on women

entrepreneurs in disciplines as varied as sociology and ethnography often use individual-level data, case studies, and qualitative techniques. Women entrepreneurs and their businesses have predominately been studied in developed countries rather than emerging countries (Aidis et al., 2007; De Vita et al., 2014; Welter et al., 2003, 2004), with a few exceptions (Ramadani et al., 2015; Ramadani et al., 2013; Ramadani et al., 2017a, 2017b). The objective of our study is to partially fill this gap in the literature by focusing on a developing country, namely Poland, with individual-level quantitative data. Poland transitioned to a free market economy in 1989 and thus provides a recent example of an economy that is in the emerging stages of development.

One of the areas most researched by scholars is identifying the factors that influence women to become entrepreneurs (Noguera et al., 2013). Value co-creation has been under-studied as it relates to entrepreneurs but particularly for women entrepreneurs (Emami and Dimov, 2016). However, research has confirmed that this is an important aspect for women as consumers and in business relationships (Desai, 2009; Huarng and Ribeiro-Soriano, 2014). Networking is known to spur innovation (Öberg, 2018; Pittaway et al., 2004). Despite this research, we still do not know enough about the determinants of women's entrepreneurial outcomes (e.g., firm performance). Women entrepreneurs' efforts to fully engage in entrepreneurial activities are still hampered by barriers that tend to be gender specific (Jennings and Brush, 2013). Researchers have urged that more attention be given to issues surrounding women entrepreneurs and their businesses, particularly in an international context in developing economies (Mari et al., 2016; Sullivan and Meek, 2012).

We investigate two factors, human and social capital, and their impact on women-owned business performance. Specifically, we examine Polish women's entrepreneurial skills (a human capital) and network support (social capital) in shaping firm performance. Network support is a proxy for value co-creation in our study. In value co-creation, each side shares its knowledge, skills, and abilities. This entrepreneurial value proposition is consummated through the give and take interaction in the form of networking (Normann, 2001). For a complete review of entrepreneurial networking, see Slotte-Kock and Coviello (2010). The networking group are stakeholders in the women's business success. Oftentimes the value proposition is determined by the beneficiary which is the consumer. Networking groups are known to be the business' customers and co-creators (Romero and Molina, 2011). Manolova et al. (2006) called for studies that examine the impact of human and social capital on firm performance. This study answers the call for more research on human and social capital on firm performance in the process of value co-creation in the less researched, recently emerging market domain.

Since Poland is in a transition between efficiency and innovation-driven stages of economic development (Schwab, 2014), the country's fragile and dynamically changing institutions may significantly influence the study's results. Therefore, the research is positioned within the institutional economics framework (North, 1990), which offers a relevant and unique perspective for studying entrepreneurs in dynamic environments (Welter et al., 2003). Per institutional theory, stability and efficiency of institutions applies to developed and mature systems rather than to emerging and transition economies, which are characterised by uncertain, ambiguous, and turbulent institutional frameworks (Welter and Smallbone, 2011). Welter and Smallbone's (2011) extension of the institutional approach specifically applies to the environment of developing economies' and is utilised in this study. Their theoretical extension includes a two-

way relationship between institutions and entrepreneurial actions. This means that institutions influence entrepreneurs and at the same time entrepreneurs' actions lead to institutional changes. Also, these entrepreneurial reactions to challenging institutional conditions are heterogeneous, depending on the environmental conditions, the firm's characteristics, such as firm age and size, and the entrepreneur's background, which includes managerial skills, education level, networks, and other forms of social capital. Welter and Smallbone (2011) suggest that their extension of the institutional theory may be appropriate for a wider range of contexts, particularly the former Soviet Union republics and countries of Eastern and Central Europe (ECE).

We position our study not only in the institutional context of the emerging economy but also in the milieu of women entrepreneurs' family-related issues. Work and family are intertwined areas of life for most people but they may be especially interconnected for entrepreneurs, in general (Jennings and McDougald, 2007), and women business owners (Loscocco and Bird, 2012). That is why we supplement our analysis by specifically examining family moral support and marital status. These variables may confound the relationships between women entrepreneurs' managerial skills and their firm performance when they are moderated by social network support.

We structure our paper as follows. First, we describe the context of the developing country of Poland. Then, we present a rationale for considering personal skills and network support as important factors related to firm performance. Next, we propose the hypotheses and describe the methods and results. Lastly, we discuss the findings and implications for research, practice, and policy making.

2 The Polish context

Poland is one of the fastest growing economies in the European Union (EU) and the only one to avoid the 2009 recession (The World Bank, 2013). Women entrepreneurs play an important role in the economy. Most women-owned businesses are in professional services (72%), including the technology sector, followed by wholesale/manufacturing businesses (18%), and finance (9%) (Leven, 2008). In Poland, Small Medium Enterprise (SME) sector development is imperative for the country to grow. It is one of the most important contributors to Poland's economic growth and long-term stability. In 2011, SMEs constituted 99.8% of the total number of 1.78 million companies and generated 47.3% of the total GDP in Poland. In 2011, SMEs employed 6.3 million (70.2%) of the 9 million employed of the total workforce (PAED, 2013). The share of women entrepreneurs is growing systematically. In the fourth quarter of 2012, 3% of women were employers and 11% were self-employed (compared to 5% and 17% for men) (PAED, 2013). Most women-owned businesses are SMEs.

The image of entrepreneurship and entrepreneurs is high comparable to the rest of Europe except the social status of entrepreneurs. According to the GEM study (2013), public perception of entrepreneurship as a career choice is positive. Overall, the positive attributes of Polish entrepreneurs include high intentions and assessment of business knowledge (GEM, 2013). 54% of Poles surveyed believed their knowledge and capabilities were sufficient to run a business (GEM, 2013). Negative attributes include a high fear of failure (58.7%) (surpassed only by Greece at 72%), low capabilities in identifying business opportunities (20th place among 30

countries surveyed in the 2013 GEM study), relatively low numbers of established businesses by entrepreneurs, a low percentage of growth businesses, a high rate of business discontinuation, and a very high percentage of necessity-based businesses (GEM, 2013). They also are less interested in innovation (GEM, 2013). This is thought to be a result of the lack of social capital (GEM, 2013). Poland's general trust rating is one of the lowest in Europe, with only 19% of people trusting each other in 2012 compared to 9% in 1993 (GEM, 2013). This may come from a long history of Communist rule that did not teach creativity, self-support, or individual initiative skills. In the primary and secondary school levels, these skills are still not emphasised (GEM, 2013). Cultural values play a part in comparison to other European countries (Sagiv and Schwartz, 2007).

Growth in women-owned businesses in Poland continues to rise since the fall of communism in 1989 and into the transition period that followed. EUROSTAT data from 2009 and 2010 reported women entrepreneurs are 34.4% of the total population of entrepreneurs, which didn't fluctuate from the ten years following the fall of communism (PAED, 2011). The EUROSTAT report with 2010 data shows about 35% of all business owners are women, which ranked sixth among all EU countries (PAED, 2011). The OECD Factbook listed the percentage of self-employed women in Poland at 20.4% (PAED, 2011). In 2011, the percentage of female-owned businesses among all self-employed businesses in Poland was 35.1%, occupying 12th place among European countries (Tarnawa, 2012).

The growth in women-owned businesses has risen despite laws passed in the 1960s and 1970s that kept women from certain higher paying careers and responsible primarily for household duties and raising children (Bliss and Garratt, 2001). The discrimination against women in the workforce continues both directly and indirectly (Bliss and Garratt, 2001), and in the formal as well as in the informal workforce (Borowska and Branka, 2010). This led to the establishment of the Polish Association of Women Entrepreneurs (PAWE), the Federation of Business and Professional Women Clubs, the National Women's Information Center (OSKa), and the International Women's Forum (IWF), among others (Bliss and Garratt, 2001). These support organisations were badly needed since there was little formal support for entrepreneurship and women entrepreneurs have different needs (Bliss and Garratt, 2001).

The Global Entrepreneurship Monitor Report (GEM, 2012) identifies Poland as one of few European countries where women are more likely to perceive opportunities to launch a business than men. Although women are better educated than men in Poland, they self-assess their knowledge and skills in setting up and running a business at a lower level than men (PAED, 2013). This is attributed to a greater fear of failure among women than men that hampers their confidence to start a business (GEM, 2013). Men have higher growth aspirations for their businesses, while women's growth aspirations remain flat. Women and men look at launching a business as an opportunity at about the same level. However, women start necessity-based businesses less frequently than men (GEM, 2012).

Challenges that Polish women entrepreneurs face include constantly changing tax laws, instability in market regulations and enforcement, lack of time for rest and recreation, private life, and for the family (Rollnik-Sadowska, 2010). Gundry and Ben-Yoseph (1998) found a lack of business knowledge, the status in society dealing with family matters, and work

responsibilities as obstacles. Leven (2008) and Lituchy and Reavley (2004) also found training and knowledge to be a problem. There is limited assistance from non-governmental agencies and there are no major Polish government agencies or policies solely focused on women-owned businesses (Leven, 2008). The GEM study (2013) found that government policy is not conducive to new enterprises or their support. Klonowski (2010) came to the same conclusions and added that the SME sector programs were incorrectly targeted, especially at the businesses that needed more financial help. Access to capital, knowledge about business, and cultural attitudes were identified as key obstacles for women, while creating a new economy and securing financing were named as opportunities (Gundry and Ben-Yoseph, 1998; Lituchy and Reavley, 2004). This is often a deficit in developing economies, where the lack of financial capital and the infrastructure to get access to capital is low (Hitt et al., 2000). Strategic alliances can sometimes bring equity capital to the table (Klich, 1998). Many are suspect of foreign capital infusion into Poland (Nikodemska-Wolowik, 2006). This is where strategic alliances are valuable that may lead to equity capital (Klich, 1998).

Entrepreneurs need to innovate to create value. Innovation and entrepreneurship are complementary (Zhao, 2005). To successfully innovate, entrepreneurs need the right mind and skill set (Freel, 2014). In addition to the ability to obtain capital, innovative behaviours require human capital and knowledge (technical and managerial skills) (Lawson and Samson, 2001). Roomi et al. (2009) found that women-led small businesses are inhibited by, a lack of access to, and control over resources. Resources include capital, physical facilities, information and technology skills, and qualifications and experience.

Poland is currently in the transition stage between efficiency and innovation-driven economies (Schwab, 2014). Efficiency-driven countries are increasingly using efficient production practices for large markets and economies of scale. The innovation-driven stage is characterised by knowledge-intensive activities. In this stage, the share of manufacturing to services decreases; and there is a greater emphasis on innovation to generate national wealth. The transition from one stage to the other generates institutional turbulence which affects economic processes overall, and entrepreneurial activities particularly.

3 Theoretical framework and the development of hypotheses

As women-owned businesses operate in multi-dimensional, multi-layered gendered environments, we use the gender-dependent 5M model (Brush et al., 2009) within the institutional economics theory (North, 1990). Brush et al. (2009) recognised the need for a unique gender-based framework for the study of women entrepreneurship. Their 5M model integrates the vital “3Ms” (Money, Management, and Markets) that entrepreneurs typically need to launch and grow their businesses (Bates et al., 2007) and adds the “2Ms” unique to women’s entrepreneurship: Motherhood and Macro/Meso environments. The Motherhood component addresses the woman’s family and domestic background (e.g., family-work balance, family moral support), while the national level policies, culture, laws, and economy define the Macro environment (e.g., gender-based differential treatment in acquiring funds). Regional and local level dimensions (e.g., women’s social networks) relate to the Meso environment.

We place the 5M model within the institutional economics framework. There is growing evidence that entrepreneurial processes may be influenced by national institutional environments (Simon-Moya et al., 2014; Dana et al., 2008). Broad ties between entrepreneurship, economic development, and institutions are likely to shape entrepreneurial activities in a country (Acs et al., 2008). Institutional Theory has been used as the basis in previous entrepreneurship studies in the context of developing economies, either focused specifically on women entrepreneurs (Aidis et al., 2007), or from a gender-neutral perspective (Ahlstrom and Bruton, 2017; Danis et al., 2010).

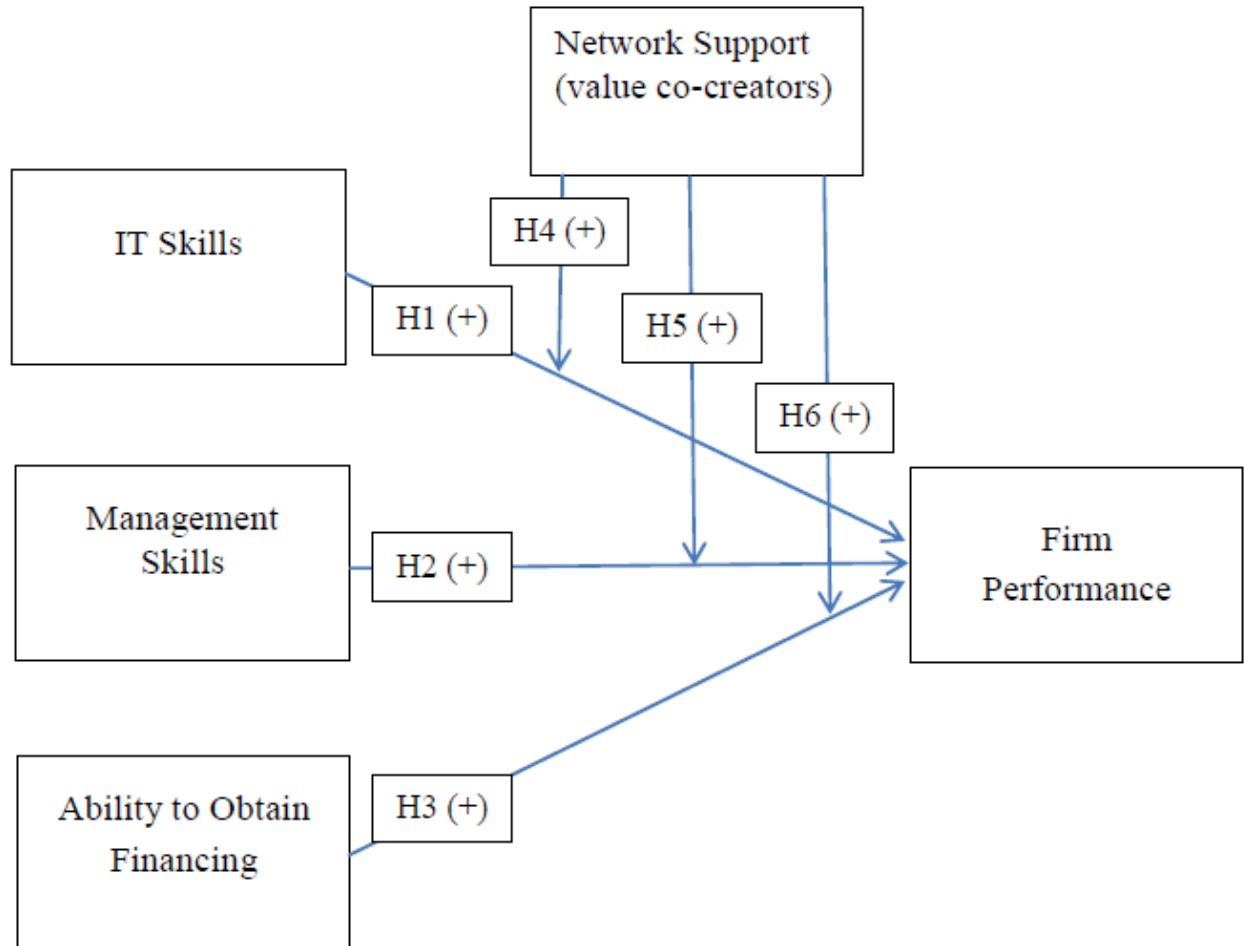


Figure 1. The study design

In our study, we concentrate on two factors that are known to shape entrepreneurial outcomes: entrepreneurial skills (a human capital component) and network support (a social capital component) that is a proxy for co-creation (Manolova et al., 2006, 2014). Research that examines the impact of human capital on the firm's growth in the context of developing economies is still scarce, although it is particularly relevant (Batsakis, 2014). Researchers highlight the importance of the abilities of entrepreneurs as they can influence firm performance (Prasad et al., 2013). Specifically, we consider three kinds of skills – information technology (IT) skills and management skills (Management components of the 5M model), and ability to obtain financing (the Money component). Social dynamics, such as network ties (the Meso environment), are

relevant and can interact with human capital factors to influence women's entrepreneurial actions and firm performance. Studies demonstrate that the lack of skills, financial resources, and networks constitute a "triple bind" that impedes women's entrepreneurship (Nissan et al., 2012) and, therefore, are important factors determining female-led firms' performance.

Figure 1 shows our theoretical model which suggests relationships between entrepreneurial skills and firm performance as well as a moderation effect of network support on these relationships.

IT skills (Management component of the 5M model) are an essential and a key step in taking advantage of emerging economic opportunities (Camuffo et al., 2012). Powell and Dent-Micallef (1997) show a positive relationship between IT and firm performance. IT enhances business operations through facilitating effective and efficient use of resources and enabling cost-effective market expansion through reaching out to customers. A small business can access global markets using technology (e.g., online sales). IT can also enhance operations through accurate record keeping and controls. In a study of Chinese women entrepreneurs, Shi (2005) found that IT skills have been a valuable force in improving performance of their new ventures. IT skills constitute one of the components of an entrepreneur's general education, which was found to be positively related to firm performance in several women entrepreneurship related studies in the context of developing economies (Prasad et al., 2013). Formal institutions with stringent rules and regulations lack stability in developing countries, and force entrepreneurs to react quickly to changing institutional environments (Ahlstrom and Bruton, 2017). These changes may be particularly difficult for women entrepreneurs by constraining their formal integration into the emerging market economy (Aidis et al., 2007, Welter et al., 2003). Women who operate in developing countries have less access to sources of information than men. For example, access to informal networks and business connections that are less open and available to women (Aidis et al., 2007; Diaz-Garcia and Brush, 2012; Iakovleva et al., 2013). Successful adaptation to such changes may be achieved, among other ways, through women entrepreneurs' IT skills, to overcome gender-related impediments. Therefore, IT skills are expected to be positively related to Polish women entrepreneurs' firm performance.

Hypothesis 1: IT skills are positively related to Polish women entrepreneurs' firm performance.

Management skills (a component of the 5M model) comprehensively encompass expertise and abilities associated with finances, relationships with people, marketing, sales, idea generation, organising and planning, and general oversight (Hisrich et al., 2006). Entrepreneurs can develop these skills (Alvarez and Barney, 2004), through collecting information (Walsh, 1995), personal events, education, and work experiences (Shane and Venkataraman, 2000), as well as through exposure to entrepreneurial activities within their community (Chang et al., 2009). Management skill sets can be a valuable means for entrepreneurs to combine resources when they develop and operate their ventures (Alvarez and Busenitz, 2001). It can shape critical entrepreneurial actions through information processing and decision making (Alvarez and Busenitz, 2001). Woman entrepreneur's accumulated skills can lead to entrepreneurial success in the form of firm performance (Camuffo et al., 2012; Mari et al., 2016; Prasad et al., 2013; Rey-Marti et al., 2015). Conversely, research has found that the lack of management skills and functional business skills are obstacles in running a business (Lerner and Haber, 2001). Women entrepreneurs in

developing countries have, in general, limited business experience, and are constrained by the unavailability of training in basic business skills (De Vita et al., 2014). These impediments affect women entrepreneurs in developing countries more than their male counterparts (Bliss and Garratt, 2001; Nissan et al., 2012; Prasad et al., 2013). This leads women-led businesses within less developed institutional environments to have fewer opportunities to grow and perform compared to men (Aidis et al., 2007; De Vita et al., 2014). Therefore, when women entrepreneurs in developing countries acquire relevant management skills, this gives them a competitive advantage and improves the performance of their firms. Thus,

Hypothesis 2: Management skills are positively related to Polish women entrepreneurs' firm performance.

The ability to generate external funds (Money component of the 5M model) is important for business growth in developing economies because financial resources are scarce (Lafuente and Rabetino, 2011; Manolova et al., 2006). Studies have confirmed that the gender-based differential treatment in borrowing exists despite being illegal (Hughes et al., 2012; Manolova et al., 2006; Wu and Chua, 2012). Wu and Chua (2012) found that when the borrower is a woman, the loan costs are significantly higher compared to her male counterpart. Gender effects persist and are a major challenge for women entrepreneurs (De Vita et al., 2014; Verheul et al., 2006).

The evolving institutional environment observed in developing countries (Ahlstrom and Bruton, 2017) restricts women entrepreneurs' access to external funding (Welter et al., 2003). For example, Iakovleva et al. (2013, p.328) report that "formally, for bankers, motherhood is 'a concern'".

Women report feeling more constrained than men by a lack of capital (Aidis et al., 2007). When women entrepreneurs who operate in developing countries overcome funding obstacles and obtain external financing, they are expected to further develop and grow their businesses through investing into fruitful projects (Lafuente and Rabetino, 2011). This can lead to a better firm performance. Therefore,

Hypothesis 3: Ability to obtain financing is positively related to Polish women entrepreneurs' firm performance.

Strategic decisions and actions of entrepreneurs, based on both individual and external factors, may have long-term and hard-to-change effects on how ventures perform over time (Chrisman and McMullan, 2000). Therefore, additional insights are needed on the interplay between individual factors (i.e., human capital) and external sources (i.e., social capital) that may influence venture performance and success (Aldrich and Cliff, 2003). We provide a theoretical background and foundation between Polish women entrepreneurs' skills (i.e., IT, management, and ability to obtain financing) and network support in determining firm performance.

Successful entrepreneurship requires networking (Hanson and Blake, 2009), the Meso component of the gender-driven 5M model. Utilising support networks constitutes a social resource that can further entrepreneurial skills through lowering risk, enabling access to opportunities, and providing motivation (Peredo and Chrisman, 2006). Entrepreneurs can attain

synergies by obtaining and consolidating information and resources through external knowledge and support rather than limiting themselves to their own inadequacies (Chang et al., 2009). Obtaining new knowledge by observing behaviors, actions, and consequences of others, in addition to direct experiences, can be critical for entrepreneurial learning (Holcomb et al., 2009).

Therefore, social capital available to women entrepreneurs through networks is critical for venture development and growth (De Vita et al., 2014; Hanson and Blake, 2009; Manolova et al., 2006; Noguera et al., 2015; Prasad et al., 2013; Urbano et al., 2010). Through support networks, women entrepreneurs can further develop their skills and direct those skills toward successful entrepreneurial endeavours. For example, successful role models usually participate in women entrepreneurs' networks (Aidis et al., 2007; Welter et al., 2004). While observing and/or interacting with those accomplished role models, women entrepreneurs can model behaviour and avoid mistakes by learning from others (Kobeissi, 2010). Within the context of a supportive network, women entrepreneurs can learn from the failures of other entrepreneurs (Urbano et al., 2010).

Resource mobilisation is facilitated by social networks, particularly in developing countries (Danis et al., 2010; Prasad et al., 2013). Network relationships allow entrepreneurs to access human and financial capital more efficiently and effectively (Danis et al., 2010). Networking is more relevant and plays an instrumental role in environments where institutions are weak and trust in institutions is low; features characteristic of developing economies (Danis et al., 2010; Prasad et al., 2013). Networking plays an important role in an entrepreneur's ability to operate within challenging environments (De Clercq et al., 2010) and positively impacts growth (Danis et al., 2010).

Studies demonstrate differences between female and male business networks (Aidis et al., 2007). Networks are gendered social interactions which are an organising element in social life (Hanson and Blake, 2009). Women's and men's networks differ (Hanson and Blake, 2009). Women have fewer diverse network relationships than men, which limits their abilities to identify fruitful business opportunities (Noguera et al., 2015). Women also tend to have fewer higher-level contacts in their networks compared to men, and this limits growth opportunities (Aidis et al., 2007). Network ties increase women entrepreneurs' ability to access resources, including external financing and attract customers (De Vita et al., 2014; Manolova et al., 2006, 2014). Thus, we expect that the interplay between network support as co-creators and IT, management, and financing skills will be positively related to Polish women entrepreneurs' firm performance.

Hypothesis 4: Network support as value co-creators will positively moderate the relationship between IT skills and Polish women entrepreneurs' firm performance.

Hypothesis 5: Network support as value co-creators will positively moderate the relationship between management skills and Polish women entrepreneurs' firm performance.

Hypothesis 6: Network support as value co-creators will positively moderate the relationship between ability to obtain financing and Polish women entrepreneurs' firm performance.

4 Methods

4.1 Sample

A self-administered questionnaire was adapted from Hisrich et al. (2006). The 48-item survey was translated and back-translated into Polish using the procedure by Earley (1987). Additionally, the survey was pre-tested and adjustments made to adapt to local cultural conditions. We used field collection and mail survey distribution that included an invitation to participate with a link to the survey in Polish. Data collection took place from April to September 2013. One hundred and twelve out of 184 questionnaires returned were usable for a 61% response rate.

Respondents ranged from 20 to over 60 years of age. The largest age group was 30–39 years (34%), followed by 40–49 years (25%). 61% of the respondents were married, 24% single, and 15% were separated, divorced, or widowed. A majority (61%) had completed graduate studies and 5% held a doctorate degree. Only 32% of the respondents reported their businesses as a family business. More than half (55%) started their business alone, while 25% started either with a spouse, with another family member (3.5%) or with a non-family member (14%). Three-fourths of business owners (75%) own more than 50% of their business. More than three quarters (77%) of the respondents ranked the spouse as their biggest moral supporter in the business venture. More than one out of three (37%) Polish women entrepreneurs felt that emotional stress was their biggest personal problem, followed by time management (24%), influence of business on family relationships (21%), personal relationships (21%), family stress (20%), loneliness (19%), and poor/lack of support (16.5%).

More than a half (55%) of the respondents had higher annual incomes than the national average, while 35% of those who answered the survey earned two and a half times more than the national average per person and 20% had incomes four times or greater than the national average. More than half of the respondents (51.3%) have been in business longer than five years. Slightly more than half (55.5%) of the respondents targeted local markets during the start-up phase, while 44.5% started their business outside of local markets. One half (50%) of the respondents indicated using their own savings initially or during the first six months of operations and 16–20% at later stages. Only 14.1% of the respondents borrowed from family members during the launch stage of their business. Almost all respondents (98.1%) said that they were equally treated in obtaining funding for their business.

4.2 Measures

Dependent variable:

We used the woman entrepreneur's current annual business revenue as a proxy for performance (*firm performance*); above (= 1) or below (= 0) the average annual income per self-employed family in Poland (60,719.40 PLN) (Panek and Czapinski, 2013, p.41). Business revenue is among the most frequently used and validated indicators of firm financial performance (Diaz-

Garcia and Brush, 2012; Mari et al., 2016). Business revenue is used as a measure of firm performance in other studies (Diaz-Garcia and Brush, 2012; Mari et al., 2016).

Independent variables:

Information technology (IT) skills; self-rated as good or excellent (= 1) or poor or fair (= 0).

Management skills (MS) (financial, dealing with people, marketing, sales, idea generation, organisation and planning, and general management); self-rated as good or excellent (= 1); or poor or fair (= 0) (Hisrich et al., 2006).

Ability to obtain financing (AOF) (from the government and banks); whether the respondent did (= 1) or did not (= 0) obtain such external funding (Baum and Silverman, 2004).

Moderator variable:

Network support (NS); whether the respondent was (= 1) or was not (= 0) aided by networks in her business venture.

Control variables:

We included different aspects of human and business capital, namely *business experience* (Management component of the 5M model) (coded 1, when the business has been in operation for more than three years, and 0 otherwise), *education* (coded 1, when the entrepreneur has at least a bachelor's degree, and 0 otherwise), *scope of business* (Marketing component of the 5M model) (coded 1, when the business is currently operating at least at the national level, and 0 otherwise), and *own savings* (Financial component of the 5M model) (coded 1, when the entrepreneur had her own savings available to start the business, and 0 otherwise).

We also controlled for the relevance of *family moral support* (Motherhood component of the 5M model) (coded 1, when such support was acknowledged by the respondent, and 0 when it was not).

Finally, we included *marital status* (coded 1, when the entrepreneur is married, and 0 otherwise), and *age* (coded 1, when she is at least 40 years old, and 0 otherwise). The choice of the cut-off levels for the categorical variables was based on their frequency distributions.

5 Analyses and results

To test our hypotheses, we conducted binary logistic regressions. Our approach is based on the moderation analysis procedures suggested by Baron and Kenny (1986). Dana and Dana (2005) urged using different methodologies in entrepreneurship research. Descriptive data including zero-order correlations are presented in Table 1 and the results of the binary logistic regressions are found in Table 2.

Table 1. Descriptive indicators and correlation matrix

Variable	Value ^a	1	2	3	4	5	6	7	8	9	10	11	12
1. Firm performance	54.5	1											
2. IT skills	45.0	0.04	1										
3. Management skills	48.2	0.19	0.18	1									
4. Ability to obtain funding	21.7	−0.13	−0.21*	−0.01	1								
5. Network support	14.7	−0.05	−0.04	−0.13	0.23**	1							
6. Business experience	72.6	0.19	0.03	−0.08	0.00	−0.03	1						
7. Education	79.5	0.07	0.11	0.03	−0.08	0.03	−0.07	1					
8. Scope of business	58.3	0.37**	0.03	0.03	−0.13	0.07	0.44**	0.29**	1				
9. Own savings at the start	50.0	0.20*	−0.15	−0.04	0.34**	0.20**	0.11	0.04	0.08	1			
10. Family moral support	27.2	−0.06	0.06	−0.11	0.24**	0.23**	−0.01	−0.03	−0.04	0.39**	1		
11. Marital status	60.6	−0.03	−0.07	−0.02	−0.13	−0.02	0.07	0.04	0.22*	0.03	0.33**	1	
12. Age	49.5	0.18	−0.02	−0.12	0.12	0.15	0.34**	−0.29**	0.29**	0.02	0.08	0.16	1

Notes: ^aPercentage of 1 (affirmative answers); * $p < 0.05$; ** $p < 0.01$.

Analysis of the correlation coefficients did not indicate any serious issues of multicollinearity. We further tested for multicollinearity and calculated variance inflation factors (VIFs) for the control and independent variables. The VIFs were all below 2.0, suggesting no problems with collinearity. Using logistic regression, value above 2.5 may cause concern (Allison, 1999). The correlation coefficients involving the moderator variable are desirably low, which provides clearly interpretable interaction terms (Baron and Kenny, 1986).

Table 2 shows the results of the logistic regression models. Standard errors have been adjusted for heteroscedasticity. Three models are defined to verify the influence of the selected variables on firm performance. Each of the three models is overall significant (Model 1: $\chi^2 = 29.57$, $p = 0.003$; Model 2: $\chi^2 = 32.79$, $p = 0.002$; Model 3: $\chi^2 = 35.71$, $p = 0.001$) and the percentages of correct predictions are high (82.1%, 82.1%, and 83.6%, respectively).

Table 2. Logistic regression

	Model 1		Model 2		Model 3	
Variables	β	SE	β	SE	β	SE
Constant	-1.472	1.53	-0.858	1.48	-0.829	1.67
<i>Controls</i>						
Business experience	-0.675	0.92	-0.665	0.85	-0.715	0.88
Education	-0.690	0.84	-1.059	0.83	-1.020	0.93
Scope of business	2.081**	0.92	2.359***	0.86	2.698***	0.96
Own savings at the start	1.620**	0.74	1.831**	0.83	2.265***	0.82
Family moral support	0.105	0.71	-0.377	0.72	-0.931	0.92
Marital status	-0.954	0.83	-0.963	0.88	-0.972	0.94
Age	1.665*	0.85	1.579*	0.87	1.846*	1.04
<i>Independent variables</i>						
IT skills (ITS)	1.290	0.81	1.433*	0.81	1.592*	0.86
Management skills (MS)	1.603**	0.77	0.974	0.88	0.961	0.99
Ability to obtain financing (AOF)	-1.486*	0.81	-1.654**	0.76	-2.469**	1.06
<i>Moderator variable</i>						
<i>Network support (NS)</i>	0.419	1.04	-0.889	1.03	-2.737**	1.36
<i>Interaction terms</i>						
ITS \times NS	-2.883**	1.29	-3.446	2.14	-2.029	1.62
MS \times NS			3.363*	2.01	3.265*	1.91
AOF \times NS					3.593*	1.91
-2 log likelihood	59.924		56.705		53.788	
χ^2	29.571***		32.790***		35.707***	
Nagelkerke R^2	0.484		0.525		0.561	
Percentage correct predictions	82.1		82.1		83.6	

Notes: 1. Regression coefficients: *** $p < .01$; ** $p < .05$; * $p < .10$; two-tailed tests.

2. Standard errors adjusted for heteroscedasticity.

Dependent variable: Firm Performance (1 = High; 0 = Low)

Independent variables: IT Skills (1 = High; 0 = Low); Management skills (1 = High; 0 = Low); Ability to obtain financing (1 = Yes; 0 = No).

Moderator variable: Network support (1 = Yes; 0 = No).

Control variables: Business experience (1 = Yes; 0 = No); Education (1 = High; 0 = Low); Scope of business (1 = Wide; 0 = Narrow); Own savings at the start of business (1 = Yes; 0 = No); Family moral support (1 = Yes; 0 = No); Marital status (1 = Married; 0 = Otherwise); Age (1 = Older than 40 years; 0 = Otherwise).

H1 refers to the positive influence of IT skills on firm performance. The binary logistic regressions yielded positive and statistically significant (*albeit* weakly, in Models 2 and 3) coefficients of the independent variable with respect to IT skills, thus confirming H1 – the better IT skills, the better the firm performance.

H2 positively relates management skills to firm performance. The results do not provide support for this hypothesis. We also did not find support for H3 (that ability to obtain financing is positively associated with firm performance). The outcome is statistically significant but negative, contrary to our expectations.

We hypothesised that when IT skills (H4), management skills (H5), and ability to obtain financing (H6) are combined with network support, firm performance will be improved. We found support for H5 and H6, but not for H4. Network support positively moderates the relationship between management skills and firm performance as well as between ability to obtain financing and firm performance, but not between IT skills and firm performance. The interaction effect for IT skills is negative across all three models and is statistically significant in Model 1.

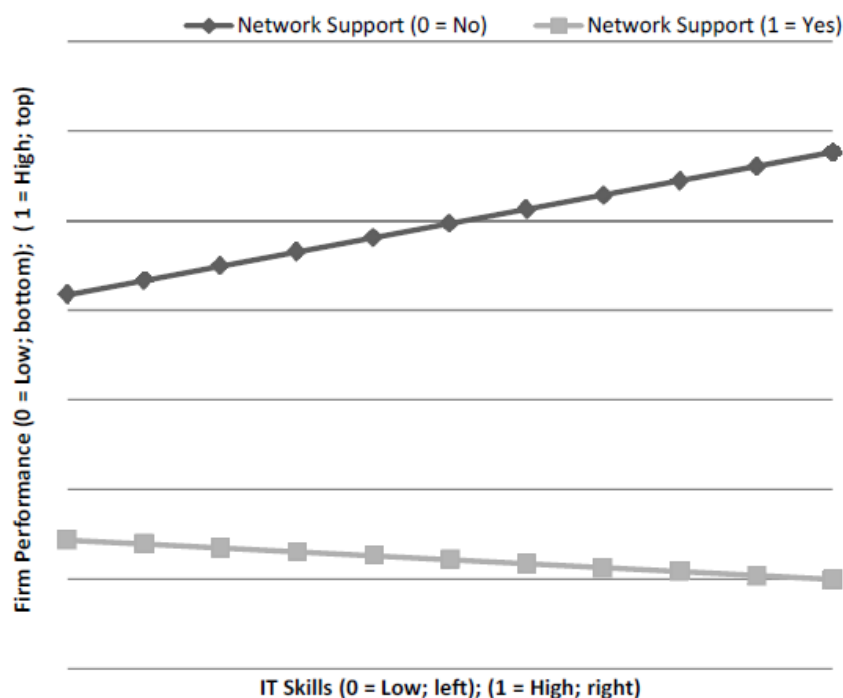


Figure 2. Moderation effect of *Network Support* on the *IT Skills–Firm Performance* relationship

To further explore these moderation effects, we plotted the interactions between personal entrepreneurial skills and network support. Figure 2 indicates the lack of the moderation effect of network support on the relationship between the IT skills and firm performance. On the other hand, Figure 3 depicts a strong and positive effect of network support on the relationship between the management skills and firm performance. Similarly, Figure 4 shows a strong and positive effect of network support on the relationship between the ability to obtain financing and firm performance. Concerning the control variables, scope of business, own savings at the

beginning of the business venture, and age, are statistically significantly and positively related to firm performance.

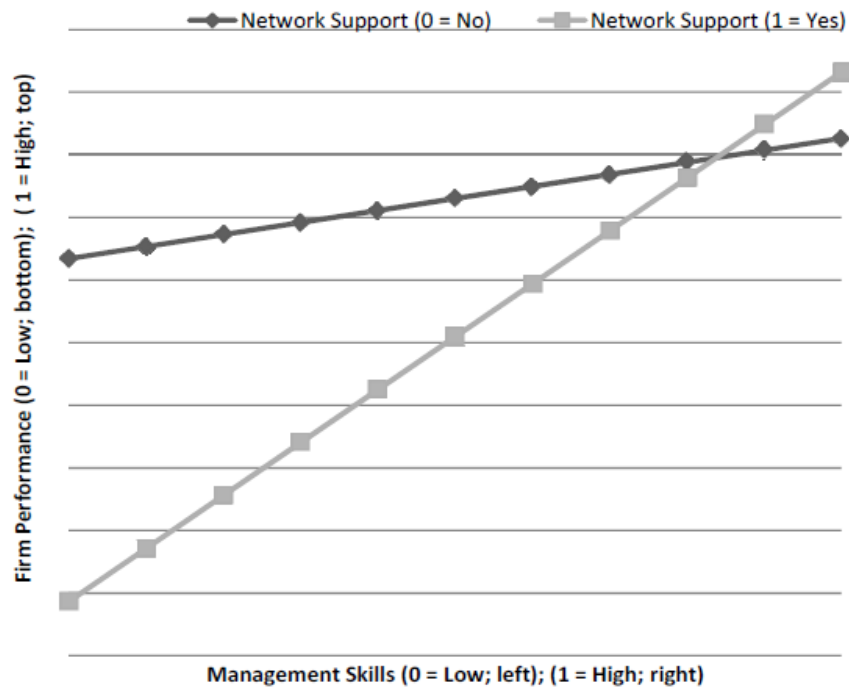


Figure 3. Moderation effect of *Network Support* on the *Management Skills–Firm Performance* relationship

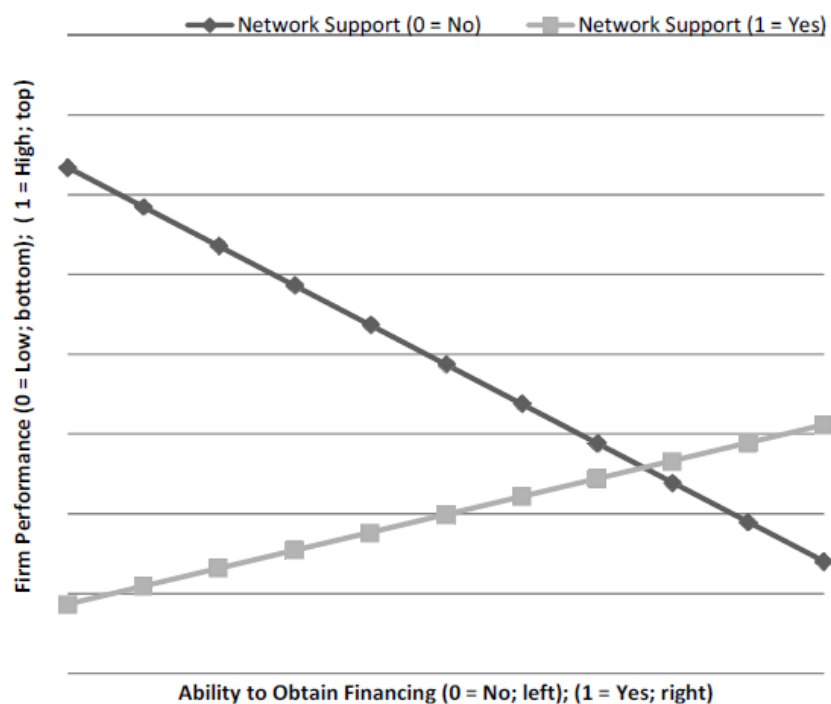


Figure 4. Moderation effect of *Network Support* on the *Ability to Obtain Financing–Firm Performance* relationship

6 Discussion and conclusion

This study is conducted in the context of a recent developing economy, Poland. Institutional theory is used as an overarching theoretical framework through the lens of the 5M Model. Studies on women entrepreneurs in Poland have been scarce (Jones et al., 2011). There have been substantial strides in entrepreneurship development, particularly after the radical changes in the political system (Jones et al., 2011; The World Bank, 2013). Therefore, a better understanding of entrepreneurial dynamics is needed, particularly in regard to women entrepreneurs and their businesses as they constitute a growing segment of the Polish economy. To fill this gap in the literature, we examine the relationships between entrepreneurial skills, including IT, management, and ability to obtain financing (i.e., human capital) and women entrepreneurs' firm performance. Furthermore, we examine the moderation effects of network support (social capital) on the link between those skills and firm performance, while positioning the analyses in the context of a recent developing economy, Poland.

We found that IT skills are positively related to firm performance (H1). However, the hypothesised (H2) positive effects of management skills on firm performance are not significant. Interestingly, our findings also indicate that ability to obtain financing is negatively associated with firm performance, contrary to our expectations (H3). This may be because of women entrepreneurs' lack of skills in channelling obtained funds into investments effectively. When there is an excessive debt financing with a high interest rates, it can constitute a substantial strain on the business as well as the entrepreneur, and in turn, affect firm performance negatively. This finding draws attention to the need for entrepreneurs' expertise in not only obtaining funds, but more importantly in effectively managing and controlling obtained funds.

De Clercq et al. (2010) point to a lack of systematic research of relationships between institutional burdens the entrepreneurs encounter in developing economies and their participation in networks. In this study, we examine the interplay between networks and the institutional context in which they are embedded. Specifically, we investigate the moderation effects of network support on the link between entrepreneurial skills and firm performance within the context of a developing economy. We find support for the positive interaction effects of network support with management skills and the ability to obtain financing on firm performance. This means that what matters in today's business world, and particularly in developing economies, is not only what you know, but also who you know, thus confirming the relevance of networks as an important social resource. Manolova et al. (2014) hypothesised a positive moderation effect of personal networks on the relationship between an entrepreneur's array of financial resources and firm performance, measured through the degree of internationalisation, in the context of a developing economy (Bulgaria). However, they did not find support for their hypothesis. Our findings show that such a positive moderation effect exists. Hence, women entrepreneurs in developing countries need to not only to develop their human capital, but actively participate in entrepreneurial and social networks.

We did not, however, find support for the positive interaction effects of network support with IT skills on firm performance. The interaction effects of network support with IT skills turned out to be insignificant, although negative. If this negative interaction effect of network support with IT skills on firm performance turns out significant in other studies, this may be because of the

knowledge spill overs facilitated by networks and competitors' (who are involved in networks) learning know-how and imitating women entrepreneurs' activities. Although IT skills may be beneficial to the business, networks combined with IT skills can facilitate unwanted knowledge (or trade secret) spill overs to competitors who may be within the network, particularly when new ventures owned by women entrepreneurs lack intellectual property protection. This finding draws attention to the dual network effects that can simultaneously be beneficial and harmful to new ventures, particularly when they are not able to manage, control, and protect their IT skills within the context of networks. This is consistent with research suggesting that a firm can be profitable only when it can restrict competition by creating barriers to imitation (Alvarez and Barney, 2004). Hence, women entrepreneurs need to protect their intangible assets, such as know-how and trade secrets, when exchanging information within networks through technology. Future research should individually investigate these findings more thoroughly, as our survey included a limited number of questions on IT skills.

Our findings are partially in line with those reported by Manolova et al. (2006). The authors also investigated the influence of human and social capital on entrepreneurial activities in a developing country (Bulgaria). However, their study investigated the use of a new venture's external financing. This was one of the independent variables in our study. The authors found that social capital is an important determinant of the ventures' chances of survival and growth. The relationship between the human capital factors (education and management experience) and obtaining external entrepreneurial funds was not confirmed. They also found that women are less likely than men with comparable business networks to use external financing for their ventures.

Prasad et al. (2013) report that in the context of developing economies, network resources may be useful for counteracting limitations that women entrepreneurs face in externally financing their business ventures. The authors reported a positive relationship between the size of a woman's business network and her business growth. This finding is partially in agreement with our findings. We consider the network support a moderator variable, whereas they use it as an independent variable.

Summarising, we consider our beginning findings to be applicable to women entrepreneurs in all those countries where institutions have not yet reached their maturity stage, and are weakly codified, as is the case of the developing economies. In their difficult institutional settings, entrepreneurial firms must adhere to the rapid and dramatic changes in institutions (Ahlstrom and Bruton, 2017). This phenomenon is referred to as a co-evolution, which involves changes and adjustments of firms reacting simultaneously to changes in the institutions (Ahlstrom and Bruton, 2017). Many developing countries fail to develop or enforce commercial and civil laws that are intended to require that business contracts be fulfilled. Entrepreneurs are forced to pursue less formal solutions to ensure their business survival (Ahlstrom and Bruton, 2017). These alternative mechanisms involve an extensive use of entrepreneurial networks as a back-up and remedy for the lack of institutional enforcement. Immature institutions influence the extent to which women entrepreneurs can develop their business ventures (Aidis et al., 2007).

6.1 Limitations and future research

We utilised a convenience sample conducted online and face-to-face and mostly through support organisations and networks of women entrepreneurs. Hence, the results are strongly influenced by women who can use the internet and women who could be contacted face-to-face. Future studies may include more women entrepreneurs with diverse backgrounds.

Longitudinal studies can examine Polish women entrepreneurs and businesses over time. It would be important to explore whether the changes toward a more liberal economy may encourage more women for entrepreneurial endeavours in the long-run. Future research can also examine the impact of Polish women entrepreneurs on innovations. Political systems and the impact on support mechanisms or lack thereof for women entrepreneurs are also a topic of investigation in developing economies.

Family business idiosyncrasies were not the focus of our study. However, in our sample, we could observe some family involvement in women entrepreneurs' businesses. Therefore, future research can examine the impact of family involvement and other family firm dynamics on Polish women entrepreneurs' firm performance. As family businesses in Poland are just beginning to face succession issues and entering the second generation, the impact of women entrepreneurs and inclusion in the leadership of the next family business leaders is ripe for investigation. Their ability to impact the entrepreneurial future of these businesses may mean the continuation or end of these businesses.

6.2 Implications for policy making

Economic growth appears to be among the top priorities in Poland (The World Bank, 2013). This study has implications for policy making. Programs and funding that promote entrepreneurship and economic growth in both the developed and developing countries are increasing (Acs and Szerb, 2007). Nevertheless, the macroeconomic policies facilitating support and investment in SMEs tend to assume that firms of comparable size have similar developmental needs and capabilities. Consequently, public policy programs usually segment entrepreneurial efforts and/or firms based on contextual factors, such as size (i.e., number of employees and sales revenue) and/or industry. Furthermore, existing support programs do not distinguish between male- and female-owned ventures and simply treat them as "new ventures". This study shows that new ventures owned by women may be different from others in terms of challenges as well as opportunities. Our study on Polish women entrepreneurs can help alert policy makers regarding the unique idiosyncratic characteristics and challenges facing women-owned businesses. For instance, personal factors (human capital) and external factors (social capital) seem to play significant roles in women entrepreneurs' businesses. The better these factors are understood and articulated, the better policy makers will be able to provide support programs. One area that needs policy attention is better access to capital at more competitive rates for women-owned business success and growth. This will increase the impact women-owned businesses have on local economies and economic growth around the world. Women-owned businesses invest at a higher rate back into their families and the local community. Public policy administration aimed at the creation, growth, and sustainability of SMEs; and increasing support for women-owned SME businesses would provide the much-needed focus that has so far been lacking in government programs in Poland.

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