

Determinants of women entrepreneurs' firm performance in a hostile environment

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Welsh, D.H.B., Kaciak, E., & Shamah, R. (2018). Determinants of women entrepreneurs' firm performance in a hostile environment. *Journal of Business Research*. Impact Factor 2.129 DOI 10.1016/j.jbusres.2017.12.015

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Abstract:

This study examines the determinants of firm performance for women entrepreneurs in the context of an emerging economy affected by a turbulent political and socio-cultural environment. The study draws from the resource-based and institutional-based views embedded in the gender-aware 5M (money, management, market, macro/meso environments, and motherhood) model. A generalized structural equation model is used to analyze data from Egypt, the setting for this study. The study finds a positive relationship between women entrepreneurs' human capital and firm performance. However, no detectable relationship emerges between social capital and firm performance or between women's gender-related personal problems and firm performance. The findings suggest new boundary conditions in the domain of female entrepreneurship in a hostile environment, with important implications for practice and research.

Keywords: Female entrepreneurship | Woman entrepreneur | Firm performance | Hostile environment | Egypt

Article:

1. Introduction

Most research on women entrepreneurs focuses on developed countries, while limited knowledge exists on women entrepreneurs in emerging economies with inadequate regulations and inefficient systems (Kimosop et al., 2016, Mas-Tur et al., 2015). Even less research exists on developing countries that have recently undergone dramatic political and socio-cultural unrest, leading to hostile environments for business activity.

This study shows that the current state of female entrepreneurship requires better definitions of new boundary conditions in cases of volatile and hostile dynamic environments. The extant approaches to female entrepreneurship typically invoke the family embeddedness perspective (Aldrich & Cliff, 2003), though this perspective is usually applied in mature and developed economic and socio-cultural settings, such as the United States or Canada. Furthermore, the

family embeddedness perspective better explains new business start-ups and their access to resources during the launch phase of the venture rather than the entrepreneurial processes taking place throughout all stages of firm development. Finally, the perspective mainly applies to nuclear families, not to the idiosyncrasies of female entrepreneurship. In particular, the family embeddedness perspective applies, by definition and purpose, to family venture start-ups headed by either male or female entrepreneurs operating in a stable institutional environment. In response to this lack of gender focus within the family embeddedness perspective, Brush, de Bruin, and Welter (2009) propose a context-dependent 5 M (money, management, market, macro/meso environments, and motherhood) model to better account for the real nature and intricacies of the dynamics inherent in female entrepreneurship. However, the 5M model draws from the institutional-based view (IBV), which assumes that institutions are reliable and remain stable over time. As such, the IBV may not be appropriate for less stable contexts found in developing and/or emerging markets. Therefore, Welter and Smallbone (2011) extend the institutional approach and tailor it to the dynamics of emerging economies. In their extension, they focus on the impediments entrepreneurs encountered in the former Soviet Republics, though they do not exclude its usefulness in other challenging environments.

Absent in the extant literature is a systemic approach to understanding entrepreneurial processes in hostile environments experiencing different forms of social unrest, the effects and aftermath of war, and other revolutionary movements prevalent in some countries. That is, no specific or sufficient approach or theory exists to address business operations in these hostile environments. Thus, Welter and Smallbone's (2011) theory for understanding female entrepreneurship must be expanded still further to embrace hostile dynamics. The current study shows that the relationships between variables of interest typically found in the extant models, which are based on the data from mature, stable, or even challenging environments, are not valid in hostile settings. We show that what matters when operating in a hostile environment is *human capital*, not social capital.

To examine women entrepreneurs in a hostile environment, we conduct our study in Egypt, where the Arab Spring, a revolutionary wave of demonstrations, took place in 2011–2012. The economic, political, and cultural environment that Egyptian women entrepreneurs face is unpredictable and constraining for launching and growing a business. In such volatile socio-political environments, the performance and sustainability of women-owned businesses face unique challenges that can negatively affect the business (Al-Dajani & Marlow, 2013).

In line with prevailing views that firm performance should be measured along multiple dimensions (Zhao, Seibert, & Lumpkin, 2010), we use a construct based on four performance-related dimensions: business income, geographic sales expansion, years in business, and firm size. Because women-owned businesses operate in multi-dimensional, multi-layered, and gendered environments, this study adopts a multi-theoretical approach (Meyer, Estrin, Bhaumik, & Peng, 2009) by integrating the resource-based view (RBV) and the IBV within the aforementioned 5 M framework of female entrepreneurship (Brush et al., 2009). Specifically, the RBV incorporates the first three 5M concepts (money, management, and market), while the IBV taps into the institutional aspects of female entrepreneurship—namely, motherhood and the macro/meso environments. To the best of our knowledge, this study is the first to include the RBV and IBV within the framework of the 5 M model.

The structure of the study is as follows: We first present the theoretical framework and hypotheses. Then, we discuss the methodology and results. Finally, we review the limitations of the study, suggest opportunities for further research, and outline our conclusions.

2. Theoretical framework

The 5 M framework seems most appropriate for the study of female entrepreneurs in Egypt, where both resources at the individual and firm levels and the country's institutions exercise a major impact on women's entrepreneurial performance simultaneously. Resources encompass the original, fundamental 3Ms (money, management, and markets) originating from the mainstream economics and management-driven view of entrepreneurship (Bates, Jackson, & Johnson, 2007). This study considers several such resources at the firm and individual levels. These resources are not easily imitated, are firm-specific, and are non-transferable (Eddleston, Kellermanns, & Sarathy, 2008). Therefore, the RBV is a relevant theoretical framework.

Women entrepreneurs in Egypt are also affected by the country's institutions. The economic growth in developing countries is often marked by turbulence, as is the case of Egypt (Hampel-Milagrosa et al., 2015, Roy-Mukherjee, 2015). Given the volatile socio-political nature of this region, the survival and long-term sustainability of women-owned enterprises are unpredictable (Al-Dajani & Marlow, 2013). The national-level policies, culture, laws, and economy define a macro environment, while regional level organizations reflect the meso setting. Finally, macro/meso surroundings intermesh with a woman's family and domestic milieu, which is strongly gender-related and constitutes the last M of the 5M framework, motherhood. Because these institutions are important environmental factors that condition female entrepreneurship, the IBV of the firm is relevant in the discussion of factors affecting firm performance. According to the institutional approach (North, 1990), institutions that are stable and operate efficiently follow the rules of the game in society and comprise formal and informal frameworks. The formal dimension encompasses constitutional, legal, and organizational rules, while informal institutions include codes of conduct, values, and norms in a society. Stability and efficiency of institutions applies to developed and mature systems rather than to emerging and transition economies, which are characterized by uncertain, ambiguous, and turbulent institutional frameworks (Welter & Smallbone, 2011).

As mentioned, the current study embraces Welter and Smallbone's (2011) extension of the institutional approach, which is tailored specifically to emerging economies. This modification assumes a two-way relationship between institutions and entrepreneurial actions: not only do institutions influence entrepreneurs, but entrepreneurs, through their actions, spur institutional changes. Furthermore, these entrepreneurial reactions to challenging institutional conditions are heterogeneous, depending on the environmental conditions, the firm's characteristics (e.g., firm age, size), and the entrepreneur's background (e.g., managerial skills, education level, networks, other forms of social capital). Welter and Smallbone (2011) suggest that their extension of institutional theory is appropriate for a wider range of contexts, including not only the former Soviet Republics but also other emerging market economies. In adopting this perspective, we extend it even further by including the context of a developing country, Egypt, that not only is

undergoing challenging transformations but also is experiencing extraordinary hostile, political, and socio-cultural unrest.

Brush et al. (2009) ground their 5M model exclusively in institutional theory in expanding the original 3M to a 5M model. The current study is the first to suggest integrating the 5M model with the RBV and IBV. Numerous international business scholars repeatedly call for more integration between the RBV and the IBV (e.g., Gaur et al., 2014, Meyer et al., 2009), and such integration finds support in research on entrepreneurship (e.g., Yamakawa, Peng, & Deeds, 2008). As Yamakawa et al. (2008, p. 64) succinctly note, “insightful as each of the perspective is, none of them is likely to be strong enough to sustain on its own; rather, it is the combination of their insights that lead to a better and more insightful understanding of the complex phenomenon.” Thus, positioning the 5M model within the two integrated views provides a useful theoretical framework for analyzing women's entrepreneurial processes.

3. Hypotheses development

3.1. Firm performance

The performance of entrepreneurial firms is an important area of theoretical and practical debate, particularly for women-owned businesses (Kimosop et al., 2016). Eddleston et al. (2008) argue that multiple performance measures are warranted because of the underlying multi-dimensionality of the performance construct. Financial performance, market performance, and organizational performance are typical outcomes. This study uses four measures: business revenue, geographic sales expansion, years in business, and firm size. Business revenue is among the most frequent and valid indicators of firm financial performance (Mari, Poggesi, & De Vita, 2016). Geographic sales expansion serves as a proxy for market performance, depicting the entrepreneur's ability to move the business across market boundaries and seize opportunities (Kimosop et al., 2016). Several studies show that the first few years following the start of an enterprise are the most challenging period for its survival (Staniewski, Janowski, & Awruk, 2016). Therefore, this study uses the number of years the firm has been in operation as a proxy for business longevity, which is a reasonable indicator of firm performance because longevity generally indicates that a firm has been successful long enough to avoid liquidation (Ha-Brookshire, 2009) and, as such, is related to firm survival (Zhao et al., 2010). Finally, firm size is another frequently used measure of performance (Jennings & Brush, 2013). We use number of employees to reflect size (Mari et al., 2016, Zhao et al., 2010).

The literature summarizes the importance of various factors for women's entrepreneurial success. These predictors include entrepreneurial resources (e.g., human capital), institutions (e.g., social capital), and socio-cultural factors (e.g., gender-related personal problems, the work–family interface) (Hodges et al., 2015, Hsu et al., 2016, Jennings and McDougald, 2007, Loscocco and Bird, 2012, Shelton, 2006). The current study considers the entrepreneur's formal education, her management skills, and age as human capital. These dimensions are intertwined with social networks and family support—the components of social capital—as well as socio-cultural dynamics that shape women entrepreneurs' unique set of personal problems. The study's theoretical model (see Fig. 1) asserts that women entrepreneurs' human capital, social capital, and gender-related personal problems are all associated with firm performance.

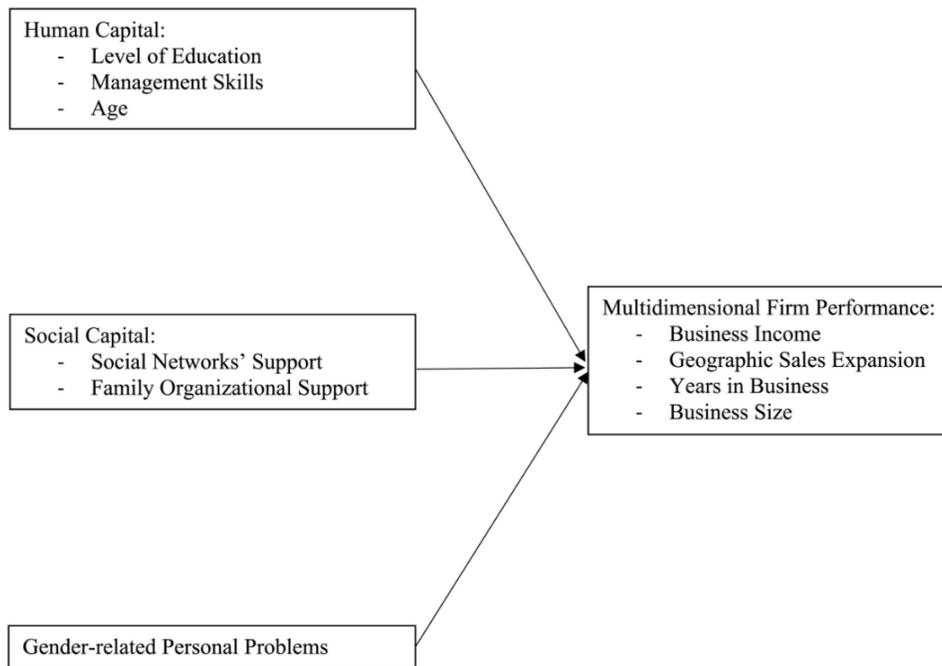


Fig. 1. Conceptual Model.

3.2. Human capital and firm performance

Cressy (1999) refers to the entrepreneur's education and professional experience and management skills, elements of the 5M model, as specific human capital and defines general human capital as socio-demographic characteristics, such as age or marital status (Madsen, Neergaard, & Ulhøi, 2003). This section develops hypotheses linking human capital—exemplified here by education, management skills, and age—with firm performance.

Previous studies indicate that an entrepreneur's formal education may be an important factor in the performance of her business (Kimosop et al., 2016). Education leads to higher earnings, which strongly reflect influence the RBV of the firm (Jayawarna, Jones, & Macpherson, 2014). Most research findings suggest that the relationship between education level and firm performance is positive (Aterido and Hallward-Driemeier, 2011, Ayala and Manzano, 2014, Chowdhury et al., 2014, Hampel-Milagrosa et al., 2015, Tlaiss, 2014, Vial, 2011), though some studies are inconclusive (Kimosop et al., 2016, Lafuente and Rabetino, 2011, Manolova et al., 2007, Prasad et al., 2013). Similarly, many researchers find that management skills are positively related to firm performance (Mari et al., 2016, Prasad et al., 2013, Rey-Martí et al., 2015, Shane and Venkataraman, 2007, Staniewski et al., 2016), while other studies highlight a lack of such a relationship (Kimosop et al., 2016).

With regard to the relationship between the entrepreneur's age and firm performance, some studies find no link between the two variables (Akehurst et al., 2012, Lafuente and Rabetino, 2011, Lerner and Almor, 2002, Mas-Tur et al., 2015), while other studies find a positive link between age and performance (Pinazo-Dallenbach, Mas-Tur, & Lloria, 2016). Younger women entrepreneurs encounter greater difficulty in securing financing because creditors may question their creditworthiness, which translates into lower firm performance (Coleman, 2000, Pinazo-

Dallenbach et al., 2016). Furthermore, because women tend to have greater responsibility for childcare activities than men (Sullivan & Meek, 2012), mature women entrepreneurs may find it easier to balance work–family conflicts as their children are likely older and require less attention. In addition, the overall family situation is more settled compared with that of younger women. This may also contribute to better firm performance.

In summary, we posit that in challenging/hostile environments, human capital will have a positive effect on firm performance, in line with the RBV. A woman entrepreneur's unique human capital elements transfer from one environment to another, and she must use higher levels of human capital skills to run a business successfully in hostile environments.

H1. Egyptian women entrepreneurs' level of education is positively related to their firms' performance.

H2. Egyptian women entrepreneurs' management skills are positively related to their firms' performance.

H3. Egyptian women entrepreneurs' age is positively related to their firms' performance.

3.3. Social capital and firm performance

Social capital comprises social networks (Haynes, Hitt, & Campbell, 2015), social norms, and social trust (Payne et al., 2011, Putnam, 1995, Ritchie, 2016). We discuss each in turn.

3.3.1. Social networks' support and firm performance

With regard to entrepreneurs' social networks—an element of the *meso* environment in the 5M model—studies suggest that they are critical for firm performance (Batjargal et al., 2013, Davidsson and Honig, 2003, Hanson and Blake, 2009, Haynes et al., 2015). For example, a key way for entrepreneurs to compensate for limited resources when starting a new business is to use their social networks (Jones and Jayawarna, 2010, Urbano et al., 2014). Social networks play an especially important role in the success and survival of women-owned businesses (Apergis and Pekka-Economou, 2010, Berrou and Combarous, 2012, Carter, 2000, Estrin and Mickiewicz, 2011, Gray and Finley-Hervey, 2005, Kwong et al., 2012, Lans et al., 2015, Noguera et al., 2015, Ramadani, 2015, Tlaiss, 2014), particularly in the developing countries. When women have access to networks, they are more likely to overcome the difficulties of obtaining funding for their ventures (Carter et al., 2003, Hodges et al., 2015, Kuada, 2009), which may result in better performance. According to Hodges et al. (2015), Manolova, Manev, Carter, and Gyoshev (2006), Manolova, Manev, and Gyoshev (2014), and Xheneti and Bartlett (2012), in transition economies, access to networks is especially important because of resource scarcity and the unpredictable institutional environment. Similarly, Inman (2000) and Tlaiss (2014) suggest that access to networks is beneficial for the performance of women entrepreneurs in Arab countries, mainly due to their highly contextual nature. In these countries, informal and social networks determine most economic outcomes (Cunningham and Sarayrah, 1993, El-Said and Harrigan, 2009). Lack of social and professional networks among women entrepreneurs in the Gulf countries is an obstacle for their firms' growth (Mathew, 2010). Thus, networking is more

relevant and plays an instrumental role in environments in which institutions are weak and trust in institutions is low, both of which are characteristic of developing economies (Danis et al., 2010, De Clercq et al., 2010, Prasad et al., 2013).

H4. The use of social networks by Egyptian women entrepreneurs is positively related to their firms' performance.

3.3.2. Family organizational support and firm performance

Social capital includes the capital embedded in family relationships (Cetindamar et al., 2012, Chang et al., 2009). These relationships are part of the “motherhood” dimension of the 5 M model. Research shows that family is an important source of support to entrepreneurs (Akehurst et al., 2012, Anderson et al., 2005, Chang et al., 2009). Family support for the business owner is part of so-called familiness (Chrisman et al., 2003, Zaefarian et al., 2016) and constitutes a fundamental element for business success (Akehurst et al., 2012). Family support in providing emotional sustenance of entrepreneurs is also important (Hoang and Antoncic, 2003, Liao and Welsch, 2005, Prasad et al., 2013). Women entrepreneurs benefit from family-to-business affective support to a greater extent than their male counterparts (Powell & Eddleston, 2013). Family members can provide support in the form of emotional encouragement, understanding, attention, and an overall positive attitude, which transfers from the family to the business domain (Eddleston and Powell, 2012, Powell and Eddleston, 2013) and contributes to family cohesiveness (Edelman, Manolova, Shirokova, & Tsukanova, 2016). This support, in turn, heightens an entrepreneur's creativity when responding to highly dynamic environments, which leads to improved business performance (Baron, 2008). Women entrepreneurs, when supported by their families, show greater entrepreneurial persistence and risk taking, which may be positively related to venture success (Bruderl and Preisendorfer, 1998, Prasad et al., 2013). Increased entrepreneurial self-efficacy, bolstered by family support, may raise expectations of venture performance and further contribute to growth potential (Prasad et al., 2013). Positive emotions enhance general emotional well-being (Frederickson & Joiner, 2002), which also contributes to better firm performance (Shelton, 2006). Therefore, family support is fundamental for business success (Akehurst et al., 2012, Singh et al., 2001).

This study focuses on the organizational help that family members may provide during the venture preparation stage and later during the business creation stage (Chang et al., 2009). The family and the family's intermixing of resources with the business account for a substantial proportion of variance in business outcomes (Olson et al., 2003, Stafford and Tews, 2009). When family members help launch a business, they are expected and more likely to exert some control over strategic decisions. This can affect performance (Gómez-Mejía, Haynes, Núñez-Nickel, Jacobson, & Moyano-Fuentes, 2007). However, research on the effects of family involvement in management is inconclusive (Kim & Gao, 2013). According to research, this relationship is positive (Anderson and Reeb, 2003, Lee, 2006, Mari et al., 2016, Powell and Eddleston, 2013, Prasad et al., 2013, Tlaiss, 2014), negative (Akehurst et al., 2012, Filatotchev et al., 2005, Hatak et al., 2016, Kellermanns et al., 2012, Koenig et al., 2013, Westhead and Howorth, 2006), or inconclusive (Villalonga & Amit, 2006). However, in Middle Eastern countries, the lack of family support for women entrepreneurs is a significant barrier (Tlaiss, 2014). This lack of family support is strongly rooted in uncertainty avoidance, the masculine nature of the society,

and collectivism, three elements of Hofstede's taxonomy (Hofstede, 2001) of the cultural values in Arab countries (Tlaiss, 2014). Thus, it stands to reason that the presence of any family organizational support will improve firm performance.

H5. Family organizational support for Egyptian women entrepreneurs is positively related to their firms' performance.

3.4. Gender-related personal problems and firm performance

The negative impact of gender-related personal problems on women's entrepreneurial careers is well established in the literature (Baughn et al., 2006, Diaz-Garcia and Brush, 2012, Forson, 2013, Mari et al., 2016, Rey-Martí et al., 2015, Saridakis et al., 2014, Welsh et al., 2014, Welsh et al., 2014). These problems frequently result from work–family conflict that women entrepreneurs experience (Eddleston and Powell, 2012, Hodges et al., 2015, Hsu et al., 2016, Jennings and McDougald, 2007, Loscocco and Bird, 2012, Parasuraman and Simmers, 2001, Rothausen, 2009, Shelton, 2006). Women often have a greater responsibility for childcare than men (Sullivan & Meek, 2012). Women often report that being an entrepreneur has a negative effect on their family life (Mari et al., 2016, Ufuk and Özgen, 2001). In turn, work–family conflict can be an impediment to success (Braná, 2013, Noguera et al., 2015, Sullivan and Meek, 2012, Tlaiss, 2014, Ufuk and Özgen, 2001). In addition, work–family conflict hampers firm performance indirectly by affecting the woman's general well-being (Beutell, 2007, Shelton, 2006, Shepherd et al., 2009, Wu et al., 2010), influencing her sense of satisfaction with the job, her marriage, and her life (Kim and Ling, 2001, Mari et al., 2016, Schjoedt, 2013, Ufuk and Özgen, 2001). Women frequently complain that they suffer from negative social attitudes, experience a lack of respect, and are not taken seriously by others in their business ventures (Baughn et al., 2006), all macro-environmental factors. Gender-related personal problems affect women's entrepreneurial activities particularly in the context of developing countries (Hahn and Nayir, 2013, Halkias et al., 2011, Itani et al., 2011, Jennings and Brush, 2013, Mathew, 2010, Tlaiss, 2014). The likelihood of experiencing personal problems may be higher for women entrepreneurs in these countries, as they are fraught with turbulent and destabilizing institutional changes (Welsh, Memili, Kaciak, & Sadoon, 2014). These volatile institutional changes may increase the uncertainty of running a business and may further amplify entrepreneurial obstacles, increasing women's perceptions of the negative impact of personal problems on their businesses. In essence, the turmoil caused by the changing institutional environment combined with women's personal problems may negatively affect their business performance (Belwal et al., 2014, Itani et al., 2011, Jamali, 2009, Karkoulia et al., 2016, Mathew, 2010, Ramadani, 2015, Tlaiss, 2014).

H6. Gender-related personal problems of Egyptian women entrepreneurs are negatively related to their firms' performance.

4. Method

4.1. Data collection

The study uses a self-administered questionnaire developed by Hisrich, Bowser, and Smarsh (2006), which we then translated and back-translated according to the process described in

Earley (1987). Data collection took place in 2014–2015. In total, 150 questionnaires were distributed via mail and through field visits to companies over this one-year period, and 117 completed questionnaires were returned, for a 78% response rate.

Table 1. Egyptian Women Entrepreneurs – characteristics of the sample ($N = 117$).

		Sample <i>N</i>	Sample %
Marital status	Single	9	7.7
	Married	16	13.7
	Widowed	2	1.7
	Divorced	2	1.7
	Separated	1	0.9
	Explicitly refused to answer	85	72.6
	Missing data	2	1.7
Level of education	Primary school	25	21.3
	High school	17	14.5
	Diploma (2 year degree)	12	10.3
	Institution (technical/trade)	20	17.1
	A bachelor's degree	39	33.3
	A master's degree	1	0.9
	A doctorate's degree	0	0.0
Age	Missing data	3	2.6
	< 20	4	3.4
	[20–29]	41	35.0
	[30–39]	42	35.9
	[40–49]	22	18.8
	[50–59]	5	4.3
	60 or more	1	0.9
Business income	Missing data	2	1.7
	< 18,000 EGP (Egyptian Pound)	44	37.6
	18,000–48,000 EGP	25	21.4
	48,001–120,000 EGP	22	18.8
	120,001–180,000 EGP	3	2.6
	> 180,000 EGP	0	0.0
	Missing data	23	19.6
Years in business	< 1 year	10	8.5
	Between 1 and 3 years	19	16.2
	Between 3 and 5 years	39	33.3
	> 5 years	46	39.4
	Missing data	3	2.6
Percent of the business owned	51% or more	63	53.8
	50% or less	47	40.2
	Missing data	7	6.0
The family business	Yes	18	15.4
	No	64	54.7
	Missing data	35	29.9
How started the business	Alone	24	20.5
	With the spouse	16	13.7
	With another family member	30	25.5
	With a non-family member	23	19.7
	Bought the business from a family member	5	4.3
	Bought the business from a non-family member	3	2.6
	Inherited from a family member	13	11.1
	Other unspecified reason	1	0.9
	Missing data	2	1.7
	Perceived gender discrimination in obtaining funds	Yes	22
No		7	6.0
Missing data		88	75.2

The majority of respondents are under 40 years of age (74%) and have at least a college degree (62%). Only 14% are married. Their businesses are relatively mature (73% are at least three years old, and 39% have been in business at least five years). Women have a leadership role in the business (86%) and the majority ownership (54%). The firms are unevenly split between family businesses (15%) and non-family businesses (55%), with 30% of responses missing in this area. The businesses were started either with family members (51%), alone (21%), or with non-relatives (28%) and mostly with internal funds—that is, either their own savings or borrowed from the family (89%). Table 1 presents selected characteristics of the sample in greater detail.

4.2. Measures

Business income measures the entrepreneur's current business annual income, which is coded as 1 when business income exceeds the Egyptian national average income per person and 0 otherwise. Previous research also uses a categorical measure of firm performance though with more than two categories (Cetindamar et al., 2012, Diaz-Garcia and Brush, 2012, Mari et al., 2016).

Geographical sales expansion measures the entrepreneur's ability to expand her current market scope, either from local to national or from national to international (Kimosop et al., 2016). It is coded as 1 when the scope of the business has expanded outside the current market boundaries and 0 otherwise.

Years in business is a proxy for business longevity. It is coded as 1 when the entrepreneur has been in business for at least five years and 0 otherwise (Mari et al., 2016, Staniewski et al., 2016).

Business size is coded as 1 for a firm with at least 10 employees and 0 otherwise (Hatak et al., 2016). We used the cutoff level of 10 employees according to a classification of small and medium-sized enterprises into micro enterprises (< 10 employees), small enterprises (10–50 employees), and medium-sized enterprises (50–250 employees).¹

Level of education indicates whether the respondent had an education level higher than high school (1) or otherwise (0) (Lofstrom et al., 2014, Mas-Tur et al., 2015, Nissan et al., 2012, Pathak et al., 2013).

Management skills differentiates whether the respondent rated her management skills as good to excellent (1) or poor to fair (0) (Lerner and Haber, 2001, Nissan et al., 2012, Rey-Martí et al., 2015).

Age indicates if the entrepreneur was 40 years of age or older (1) or otherwise (0). We used the benchmark of 40 years to separate mature women from younger entrepreneurs, similar to Mas-Tur et al. (2015).

Social networks' support is coded as 1 when such support was acknowledged and as 0 when it was not acknowledged, based on types of networks mentioned (women's professional groups, community organizations, social groups, and/or close friends) (Greve and Salaff, 2003, Jones and Jayawarna, 2010, Jumaa and Sequeira, 2017).

Family organizational support is coded as 1 if the business was started with family member(s) or 0 if it was started either alone or with non-relatives (Cooper & Saral, 2013).

Gender-related personal problems is coded as 1 when a woman entrepreneur indicated the presence of any combination of emotional stress, family stress, loneliness, influence of business on family relationships, influence of business on personal relationships, poor or lack of institutional support, time management issues, and having to deal with male-centric discrimination and 0 when none of these problems existed (Itani et al., 2011, Mathew, 2010).

Financial business start-up is coded as 1 if the woman entrepreneur started the business with her own and/or family savings and as 0 if she financed the start-up with funds borrowed from non-relatives and/or institutions (Mari et al., 2016). The choice of the cutoff levels for the variables' categories is based on theoretical considerations and their frequency distributions.

Table 2. Descriptive statistics and correlations.

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Business income	1										
2. Geographic sales expansion	0.33***	1									
3. Years in business	0.17	0.19**	1								
4. Business size	0.27**	0.21**	0.07	1							
5. Level of education	0.10	0.28***	0.17	0.00	1						
6. Management skills	0.19	0.10	-0.02	0.15	0.05	1					
7. Age	0.20	0.14	0.09	0.19	-0.04	0.06	1				
8. Social networks' support	-0.04	0.08	-0.06	0.05	0.06	0.06	0.16	1			
9. Family organizational support	0.10	0.06	0.17	-0.02	-0.04	-0.07	0.14	0.01	1		
10. Gender-related personal problems	0.03	-0.03	-0.21**	0.14	-0.12	0.03	0.12	0.18	-0.06	1	
11. Financial business startup	0.02	0.01	-0.13	-0.01	-0.07	0.16	-0.07	-0.06	0.00	-0.07	1
N	94	110	114	109	114	116	115	117	115	112	111
Mean	0.53	0.47	0.40	0.56	0.63	0.38	0.24	0.85	0.51	0.85	0.89
SD	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Min	0	0	0	0	0	0	0	0	0	0	0
Max	1	1	1	1	1	1	1	1	1	1	1

Note: *** $p < 0.01$. ** $p < 0.05$. * $p < 0.10$.

4.3. Data analysis

Descriptive statistics (including means and correlations) for the study variables appear in Table 2. We used a generalized structural equations model (GSEM) to analyze the data. The GSEM approach generalizes standard structural equation modeling (SEM) by allowing for binary responses in the estimation process (Rabe-Hesketh, Skrondal, & Pickles, 2004). The research model has one latent variable (firm performance), four observed indicators (business income, geographical sales expansion, years in business, and business size), and seven observed predictors (level of education, management skills, age, social networks' support, family organizational support, gender-related personal problems, and financial business start-up). Such a model belongs to the family of multiple indicators multiple causes (MIMIC) models, a special

case of SEM. The MIMIC approach is attractive for our purposes because it allows for a representation of the output as a latent variable, which cannot itself be directly measured but has causes and effects that are observable. A MIMIC model comprises two parts: the measurement model, which depicts the links between the observed indicators and their underlying latent variable(s), and the structural part, which involves the connections between the predictors and the latent variable(s). First, the measurement model is tested, and then the structural part is added, with the resulting MIMIC model being estimated.

4.4. Common method bias

Collecting behavioral and attitudinal data from self-reported questionnaires at one point in time can lead to common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Therefore, we applied Harman's one-factor test on all observed variables. The exploratory factor analysis produced the (unrotated) factor solution with five factors, accounting for 63.13% of the total variance explained. If common method bias is present, a single factor is extracted and accounts for most of the variance. Because a single-factor solution did not emerge, common method bias is not likely to be a concern. Additional tests comparing the measurement model with the full model (Podsakoff et al., 2003) further confirm that common method bias is not a problem.

5. Results

The results appear in Fig. 2 in two phases: (1) estimation and evaluation of the measurement model and (2) estimation and evaluation of the MIMIC model.

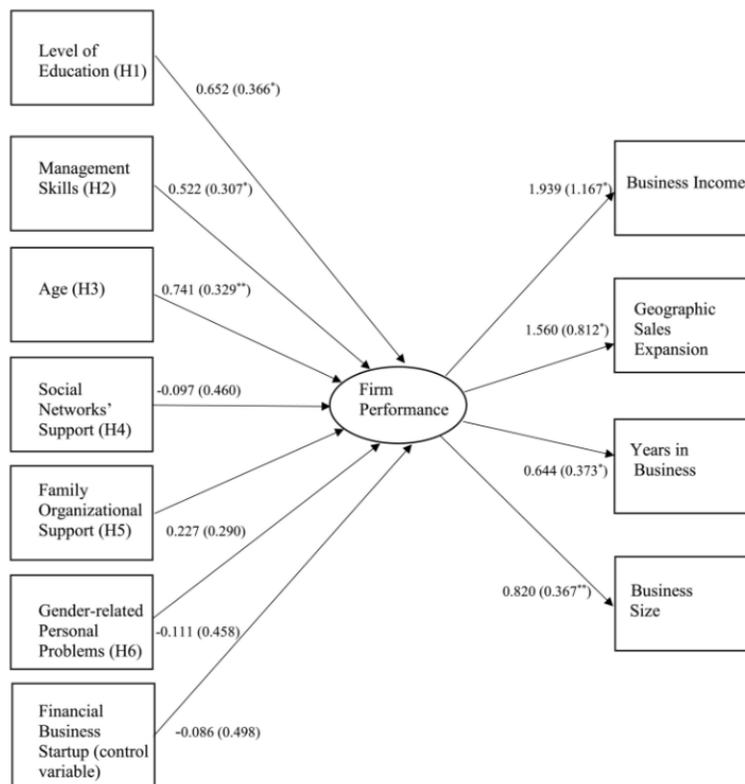


Fig. 2. MIMIC model results.

5.1. Measurement model

We assessed fit of the measurement model by running a confirmatory factor analysis. The study used the Huber–White Sandwich Estimator method, which is robust to heteroskedasticity of the errors (Huber, 1967, White, 1980) (i.e., when the errors variances are not constant for all observations). The ordinary least squares standard errors are no longer valid in the presence of heteroskedasticity. When this occurs, the data are biased and inconsistent, and the estimates are inefficient. Therefore, the data must be tested for its presence, and if detected, a remedy must be applied. The most widely used procedure is the Huber–White estimation (Wooldridge, 2003, p. 258).

To aid interpretation, the variance of the latent variable is constrained to be 1, and all the loadings are left unconstrained (StataCorp, 2015, p. 314). The factor loadings (the slopes) reveal how discriminating each indicator is with regard to the respective latent construct. All four indicators significantly loaded onto the hypothesized latent construct and in the anticipated direction, suggesting the appropriate structure for this latent construct measure. Business income is the most discriminating with regard to firm performance ($b = 1.939, p = 0.097$), followed by geographic sales expansion ($b = 1.560, p = 0.055$), firm size ($b = 0.820, p = 0.026$), and years in business ($b = 0.644, p = 0.085$). The only goodness-of-fit measures offered by the GSEM procedure are Akaike information criterion (AIC) and Bayesian information criterion (BIC) indicators, as well as log pseudo-likelihood. These measures are 577.56, 599.66, and -280.78 , respectively.

5.2. MIMIC model

After testing the measurement model, we used the GSEM procedure to estimate the MIMIC model. The AIC, BIC, and log pseudo-likelihood are now equal 526.92, 566.88, and -248.46 , respectively. Compared with the results for the measurement model, we observe a desired drop in the AIC and BIC measures, as well as an increase in the log pseudo-likelihood, which indicates that adding the structural part to the measurement model improved the MIMIC model's fit. Variance inflation factors (VIFs) tested for any unwanted presence of multi-collinearity among the predictors. The VIFs ranged from 1.04 to 1.109, indicating a lack of potential multi-collinearity (Cenfetelli & Bassellier, 2009). Fig. 2 shows the results of the GSEM analysis.

Each of the three components of human capital is positively related to firm performance. The regression coefficient for level of education, b_1 , is equal to 0.652 and is statistically significantly different from zero ($p = 0.075$), in support of H1. The management skills component is also significant ($p = 0.090$) and positively ($b_2 = 0.522$) related to firm performance, in support of H2. The results also support H3 because the regression coefficient for age is positive ($b_3 = 0.741$) and significant ($p = 0.024$).

Neither of the social capital elements nor gender-related personal problems are related to firm performance. Specifically, the regression coefficient for social networks' support ($b_4 = -0.097$) is not significant ($p = 0.833$). Thus, H4 is not supported. In addition, family organizational

support is not related to firm performance ($b_5 = 0.227, p = 0.434$), contrary to our expectation (H5), nor is gender-related personal problems (H6) ($b_6 = -0.111, p = 0.981$).

The control variable (financial business start-up) ($b_7 = -0.086, p = 0.498$) is also not related to firm performance.

6. Discussion

Two major findings emerge from the study. First, the study shows a positive relationship between human capital and firm performance in the context of women entrepreneurs in Egypt. Second, the study finds no relationship between women's social capital and gender-related personal problems and firm performance. These two findings suggest that new boundary conditions should be developed to better explain female entrepreneurial processes in hostile environments. Most extant literature suggests that the two links should be positive, regardless of the environment. This study finds evidence that only one of these links is relevant: human capital. The components of social capital are not related to the performance of firms led by women entrepreneurs in a hostile environment. Furthermore, gender-related personal problems are not linked to firm performance.

As indicated, the three elements of human capital (level of education, management skills, and age) are positively related to firm performance, as hypothesized (H1, H2, H3). The first two results have been reported in several studies, including those on developing economies (i.e., education [Hampel-Milagrosa et al., 2015], management skills [Kimosop et al., 2016, Prasad et al., 2013]). However, the literature reports conflicting results with regard to the relationship between entrepreneurs' age and firm performance (Pinazo-Dallenbach et al., 2016). This study finds a positive link between the two variables. Mature (at least 40 years of age) Egyptian women entrepreneurs seem better equipped to handle the country's hostile environment than their younger counterparts. In developing countries with highly challenging environments, younger women entrepreneurs encounter greater difficulty in securing financing because creditors often question their creditworthiness, which translates into lower firm performance (Pinazo-Dallenbach et al., 2016). Mature women entrepreneurs may find it easier to balance work–family conflicts, as their children are likely older and require less attention, and the overall family situation is more settled. Finally, more mature women entrepreneurs may have developed more resilience, which allows them to better cope with the highly challenging environment of Egypt. Resilient entrepreneurs adapt quickly to change to take advantage of new situations and are able to learn from their mistakes (Bullough & Renko, 2013). Resilience allows entrepreneurs to cope with challenging and hostile conditions and destabilizing events and helps them bounce back from hardships and become stronger as a result (Ayala & Manzano, 2014).

Contrary to expectations, the first of the social capital components, support from social networks, is unrelated to firm performance. This may be due to one of two explanations that support this study's argument that new boundary conditions should be defined for the female entrepreneurship domain in hostile environments. First, developing a social network is a common challenge that female entrepreneurs face in an emerging economy. Lack of social and professional networks among women entrepreneurs in Middle Eastern countries is an obstacle to firm growth (Mathew, 2010). The existing networks are frequently weakened or annihilated by

massive displacements of communities as the result of social unrest and sectarian violence outcomes (Roy-Mukherjee, 2015).

Second, a noticeable lack of trust (El-Said and Harrigan, 2009, Ritchie, 2016) occurs between companies and individuals in countries undergoing turbulent political and socio-cultural changes (Hampel-Milagrosa et al., 2015). Personal trust is a substitute for inefficient formal institutions. Personal trust comes from group characteristics such as kinship or ethnicity (Welter & Smallbone, 2011) but can also result from long-term business relationships. While personal trust can evolve with or without formal institutions, institutional trust can emerge only when there is stability and predictability (Welter & Smallbone, 2011). Personal trust can act as a substitute in situations in which little or no institutional trust exists. Entrepreneurs in Egypt (and women in particular) are more reluctant to rely on their social networks because they have had or heard about unpleasant experiences with the provision of mutual trust (Hampel-Milagrosa et al., 2015). This is partly due to deficiencies in the country's institutions and in the rule of law, in which legal procedures are lengthy and unreliable (Hampel-Milagrosa et al., 2015). Trust plays a major role in challenging environments as a substitute for or complement to the formal institutional framework (Welter & Smallbone, 2011).

The other social capital element, organizational support from the family, is also unrelated to firm performance. The study's findings do not support the common notion of a positive link between family involvement in business and its success (Mari et al., 2016). Tlaiss (2014) reports that the lack of support from the families of women entrepreneurs in the Arab Emirates was the first barrier women encountered. Women entrepreneurs in such turbulent environments as Egypt after the Arab Spring have succeeded despite the lack of family support because of their maturity and resilience. However, in emerging economies such as India, research finds a positive relationship between family social support and firm performance (Prasad et al., 2013). The difference may be attributed to Egypt's recent dramatic social unrest, whereas India has been relatively peaceful throughout this same period. In challenging/hostile environments, the woman entrepreneur's human capital (e.g., education, management skills) matters most, an attribute that women can take with them wherever they conduct their business. In other words, it is the quality of the entrepreneur herself that makes the largest difference (Hampel-Milagrosa et al., 2015). Social capital elements (e.g., networks, family support) are not guaranteed in such environments, as they are elusive or damaged and are not "movable." Successful women entrepreneurs must be able to survive and flourish in a challenging and hostile environment without external aid.

Finally, gender-related personal problems are not related to the performance of firms owned and managed by women entrepreneurs in Egypt. This result can be explained along several dimensions. Hampel-Milagrosa et al. (2015) also report that most female entrepreneurs interviewed in Egypt did not indicate that being a woman was a constraint for their business or hampered its performance. De Vita, Mari, and Poggesi (2014) report that women in emerging economies tend to be more self-confident in their managerial capabilities and less fearful of failure than women in developed countries. Thus, their performance may not be as affected by personal problems. Oftentimes, these women are necessity entrepreneurs (De Vita et al., 2014). Finally, women in countries such as Egypt could simply be more resilient than their counterparts in developed economies, though this is only a conjecture. This also might be a result of the recent Arab Spring and the timing the surveys were completed.

Regarding the method of financing the business start-up (the control variable), the study finds it to be unrelated to firm performance. This is not surprising, as mixed results have been found regarding financing and firm performance (Kim & Gao, 2013). Some studies suggest that when a family is highly involved in the business, this can create trust and a strong familial bond in the firm (Hatak et al., 2016, Hsu and Chang, 2011, Zahra et al., 2008). However, other researchers highlight the dangers inherent in having too much family involvement. Family members may impede the long-term growth of the business (Koenig et al., 2013, Mitra, 2002, Renzulli et al., 2000). Other studies find no relationship between the two variables (Cruz, Justo, & De Castro, 2012).

In essence, a new approach to emerging economies that exhibit volatile and hostile conditions needs to be developed. This study uses a combination of RBV and IBV, intertwined in the 5 M model, as a solution to better understand the impact of volatile environments on women entrepreneurs' success.

7. Limitations and future research

This study is limited by the size of the sample and its use of a convenience sample conducted by mail and through networking and support organizations. Women entrepreneurs, despite the study's safeguards and anonymous responses, may have been hesitant to answer the questions because of fear of tax consequences, problems with officials, or being stereotyped in some way due to the strong masculine orientation of the country. Future studies might compare other emerging countries that have experienced similar dramatic political and socio-cultural changes specific to challenging and hostile environments. Longitudinal studies could investigate the impact of changes in the lifestyles and culture along with government initiatives on women entrepreneurs in challenging environments over time. Studies investigating female entrepreneurship dynamics in challenging environments are necessary to better understand coping mechanisms and empowerment skills. Conducting comparative studies through a different theoretical lens may offer additional insights into the performance of women entrepreneurs in turbulent environments and how public policy can effect positive change.

8. Conclusion

Current approaches to female entrepreneurship in emerging economies require additional attention to understand how turbulent environments affect the success of women-owned businesses. Studies need to be conducted to tap into the idiosyncrasies of environments that have undergone volatile and dramatic political and socio-cultural changes, including social unrest or war in countries such as Egypt, Brazil, Venezuela, Sudan, Ukraine, or Syria. Dynamics in such settings are different from those in other emerging economies, such as the former Soviet Republics, countries of Eastern and Central Europe, and China. However, understanding how they affect business success is imperative to the country recovering and the speed of recovery.

The results show that in a hostile institutional environment, only human capital matters. Social capital is not relevant. This finding has theoretical and practical implications. New theoretical approaches to studies of entrepreneurial processes, including gender-related studies, in hostile

environments should be developed. Our findings also suggest that country context matters. Results of studies from other countries may not be comparable. From a practical perspective, public policy makers could use the findings to shape their approach to promoting and fostering entrepreneurship in various settings. Specifically, in hostile environments, such as the one defined in this study, more emphasis should be put on the entrepreneurs' personal abilities (i.e., their human capital) rather than on their social skills.

Entrepreneurship occurs around the world, and the environment in which entrepreneurs operate can vary dramatically. Therefore, more approaches, theories, and methodologies need to incorporate these variations so that entrepreneurship and entrepreneurial behaviors are better understood in context. Incorporating the social, political, and cultural environments helps clarify the attitudes of societies and how they change toward entrepreneurship as opportunities emerge and entrepreneurship becomes more prevalent. While entrepreneurship relies on individuals and teams that seize opportunities, the business environment has a major effect on the extent of entrepreneurship in a society and the behaviors of entrepreneurs.

Combining the IBV and the RBV provides a framework for understanding the external and internal influences on individual behaviors of entrepreneurs and the role of these influences. Entrepreneurs are change agents rather than passive players. Institutional change plays a major part not only in affecting entrepreneurial behavior but also in being affected by entrepreneurship. Together, IBV and RBV theories help explain the role of the individual entrepreneur and organizational agents in the change process. Entrepreneurs are not the same; they are heterogeneous and possess different capabilities. Therefore, their behaviors are influenced by institutions as well as personal and business resources. There is an interplay between the structure and agency that can be explained best by the role of trust in relationships. The theoretical framework adopted in this study (RBV and IBV, in the context of the 5 M model) should be tested in a wider range of contexts, particularly those of emerging-market economies, but also in more mature economies.

Cognitive theory identifies the behavior of entrepreneurs as being similar, despite differences in environment, time periods, and cultures. Behavioral responses are learned over time, and entrepreneurs learn strategic responses to environmental differences to survive and prosper. Under well-functioning institutional systems, entrepreneurs are more likely to respond and conform. When institutional frameworks are emerging, entrepreneurs are more likely to revert to avoidance and evasive behaviors (Welter & Smallbone, 2011). Environments make a difference in entrepreneurial behavior for individuals and firms. This study is a first step toward recognizing the impact of turbulent and volatile environments on emerging economies and on the vital success of women entrepreneurs who contribute to the economic well-being and stability of countries.

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