

Entrepreneurship and Resilience in Times of Crises: The Case of SME's in Lebanon

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Abstract

Myriad studies have examined the role of Small and Medium Enterprises' (SME's) resilience as a driving force of a country's economic ecosystem in times of crises. However, what most of these studies neglected was the role of SME's in reviving economies in underdeveloped countries like Lebanon. The main aim of this study is to postulate the drivers behind the Lebanese entrepreneurial paths of resilience in times of crises. A quantitative research methodology is adopted to explore whether adaptive or absorptive paths of resilience are important for entrepreneurs to pursue. The study showcases the significance of absorptive and adaptive resilience paths along with factors such as adaptability, robustness, redundancy, resourcefulness flexibility and agility. Similarly, variables like the number of employees in firms, payment of salaries, extra fees paid, governmental taxes, and organizational time and source of response are impactful in the context of entrepreneurship resilience in Lebanon in times of crises.

Keywords: Entrepreneurship • Resilience • SME's • Crises • Lebanon • Economy

Introduction

The role of Small and Medium Enterprises (SME's) and entrepreneurial endeavours in driving growth of the economies of the Middle East and North Africa region (MENA) has long been notable. In fact, these innovative start-ups, which comprise almost 80%-90% of the total businesses in these countries, have largely contributed to the enhancement of the emerging economies, in terms of enhancing GDP's, creating employment opportunities, and providing a cornerstone for innovation and creativity [1]. During the past decade, Lebanon has successfully built a reputation for being a hub for entrepreneurial ventures. As per a report by the Lebanese Ministry of Trade for the UNDP, various factors contributed to this entrepreneurial nourishment; a well suited entrepreneurial ecosystem backed up by a promising plan by Banque Du Liban (BDL), which included offering subsidized loans to start-ups, supporting an army of national accelerators and collaborating with the private sector, all in an effort to boost the development and advancement of Small and Medium Enterprises (SME's). It is worth to note that SME's comprise almost 95% of total businesses, 33% of the GDP and 45% of the workforce of Lebanon [2]. The Central bank of Lebanon defines SMEs as "enterprises with less than LBP 15 billion in annual turnover", whereas Kafalat, a renowned national incubator and supporter, defines SMEs as start-ups "having less than 40 employees" [3]. Despite the aforementioned favourable conditions

and exerted efforts, the entrepreneurial impact has been diluted due to myriad factors. These include, but are not limited to, a staggering economy led by one of the largest economic crises in history, in addition to health, political, social and humanitarian crises. Amid such calamities, entrepreneurship emerges as a major force that might lead to a long awaited and coveted economic recovery. This is mainly due to the fact that SME's have played an indispensable role for many years around the world as a catalyst of employment, provider of incomes, and most importantly as a promoter of resilience in times of crises. Nevertheless, in the country of Lebanon, entrepreneurial start-ups are usually faced by different obstacles. These include an echoing absence of governmental intervention and support, a service-based economy that is poor in manufacturing innovation and exports in addition to the on-going sectarian and political conflicts and most importantly, financing difficulties that greatly hinder the development of any new business venture [4,5]. Perhaps, among the most impactful hurdles is the lack of a clear national policy framework for SME's. Needless to say, these challenges can present opportunities to entrepreneurs who are seeking innovation and diversity of ideas. One particular strategy that has proven its effectiveness in such cases is resilience. Dijk implies that resilient and innovative entrepreneurs are more capable of surviving and even increasing business revenues in times of crises [6].

Various studies have tackled the entrepreneurship phenomenon in Lebanon [7]. Some have explored further the role of entrepreneurship

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and SME's role in driving prosperity and battling the challenges in economies in the post war Lebanon [8]. Nevertheless, understanding the best ways of resilience towards entrepreneurship, especially in a troubled country like Lebanon, is still an under-studied topic and one that draws debate among academics, researchers and practitioners alike in the entrepreneurial field despite its paramount importance given the nature of the country's economy and the dire need for investment initiatives that would in their turn revive the economic wheel. Therefore, this study attempts to investigate two types of resilience paths; absorptive and adaptive paths. Given the aforementioned gaps in literature on the resilience towards entrepreneurship in Lebanon in times of crises, the purpose of this study is to further analyse the paths of resilience that entrepreneurs would follow in order to overcome the current crises [9].

Literature Review

Entrepreneurship

Entrepreneurship is a title given to individuals who initiate new business ideas that develop into start-ups, which in turn, create jobs and entice economic growth and development within a certain country [10]. More broadly, entrepreneurship is linked to searching, identifying and creating new opportunities in very uncertain environments [11]. Moreover, entrepreneurs are seen as significant players in their economies [12]. The entrepreneurial role in the society has drastically emerged over the years. Currently, entrepreneurs are perceived as engine of social and economic development [13]. Researchers imply that entrepreneurship is a combination of a business vision, practice-led knowledge and innovation and those characteristics are either learnt during social interactions or inherited [14].

Highly uncertain environments and increased technological advancements would need effective, efficient, innovative management strategies and critical innovations in order to survive in the long term. Consequently, entrepreneurs should be in constant search to coordinate and integrate their resources to create new opportunities that would support competitive advantages and superior performance [15]. Entrepreneurial ventures usually operate in environments which are characterized risk and uncertainty requiring freedom; an essential ingredient for entrepreneurs to establish an economic endeavor, freedom to innovate and create within the enterprise [16].

Resilience

Resilience refers to the return rate to equilibrium upon any given perturbation [17]. Moreover, resilience refers to an individual's ability to withstand adversity without having any mental health outcomes or developing negative physical outcomes. Consequently, resilience is more seen as a personal trait [18]. Events contributing to resilience development include traumatic events, violence, natural disasters, homelessness, physical illness or loss of someone. Similar to the concept of entrepreneurship, the resilience approach deals with uncertainty [19]. It is the capacity to persist and continue normal daily life under a changing environment. Transformation to new developments means shifting pathways or creating new ones and might also include breaking down the resilience built on the old

pathway and creating resilience of the new [20]. Resilience can be towards something or to someone [21]. Additionally, resilience could be a source of options, memory, flexibility, innovations for transformation and even can help turn a catastrophic situation into an opportunity [22].

Resilience at the organization level is characterized by two levels; a proactive phase and a reactive phase. The proactive phase is also known as adaptive or absorptive phase at any specific time or event and reactive phase is the phase when some unexpected event happens and it alters the equilibrium of the organization [23]. The proactive phase of resilience includes the capabilities owned by the firm that would assist an organization in surviving. These capabilities should be owned pre occurrence of any event. Furthermore, resilience is the ability to be ready at a face of any crisis therefore it can be categorized into three main groups; resilience before an event occurs, resilience during an event and resilience post event. The firm should be ready to respond to any external event and develop resilience in case the crisis is affecting its internal equilibrium [24]. Acquaah, et al. think that resilience is more linked to the ability of the organization to withstand the challenge or the catastrophic events and persist to substantial changes in their business during an event. In contrast, McPhee implies that resilience is the ability to survive disruptions consequently categorizing resilience as a trait an organization possess post critical event. Taking into consideration all types of resilience within an organization including alertness, adaptation and responsiveness of a firm, then resilience can be grouped into four different timeframes as follows; Resilience pre catastrophic event, Resilience during a catastrophic event, Resilience post catastrophic event, Resilience as a continuous process and pre, during and post event. Using the four timeframes of resilience, a conceptual framework is proposed which takes into account the absorptive and adaptive paths of resilience along with the three temporal phases; pre an event, during an event and post event (Figure 1) [25].

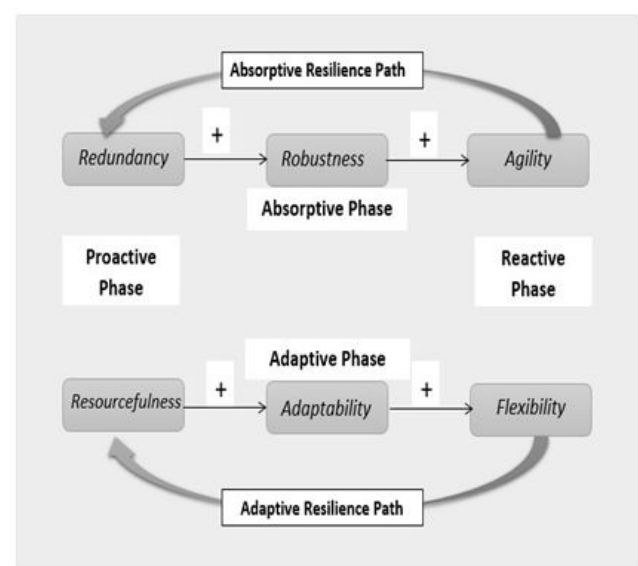


Figure 1. The resilience model of a firm.

The resilience model presented in the figure above identifies two paths; the absorptive resilience path and the adaptive resilience path taking into account the three temporal phases. An organization can either use absorptive path, adaptive path or both. In the absorptive

phase, redundancy, robustness and agility are considered to be the main characteristics of this path. Whilst redundancy refers to the ability of the firm to keep some of its resources in reserve to be used during an event, robustness is the characteristic of the firm to resist shocks through reducing or preventing the influence of things that make the organization vulnerable during an operation. Agility is the ability of the firm to quickly offer an organizational response during a shock while maintaining its own structures and strategies as explained by Ismail, et al. [26]. Therefore; considering the above definitions, redundancy is needed pre an event and robustness is needed in order to resist any shock and diminish the vulnerabilities of the organization. Consequently, building resilience using these two characteristics; redundancy and robustness should generate a long-term benefit to the firm and balance the cost of shocks versus its own reservoirs [27]. In the absorptive path of resilience, pre establishment of resources is important in order to have a resilient response which needs to be planned ahead of time thus being a proactive strategy and not just acting during an event [28].

In the adaptive resilience path, resourcefulness, adaptability and flexibility are considered to be the main characteristics of this phase when an organization is facing any shock. Resourcefulness is the capability of the firm to have diversified resources and assets including human, physical, financial, organizational, reputational and technological resources. Adaptability is the capability of the organization to adapt quickly to the ongoing external conditions and adjust its response and internal process according to that change. Flexibility is linked to the capacity of the organization to implement quick internal communication channels, rapid decision-making processes and establish a fast learning process to its employees in order to rapidly adapt the new routines and strategies based on the changing environment [29,30]. The three pillars of the adaptive resilience path are important in order to achieve desirable results. Moreover, the adaptive resilience path requires a dynamic adaptation through some actions such as recombining some new and old resources, adjusting to new routines and strategies, self-renovating and continuous reconstruction. This needs flexible adaptation which is required in the adaptive resilience path and contradicted in the absorptive resilience path where firms need agility to have a quick response in order to achieve a positive adjustment through maintaining existing strategies [31]. Interestingly, research has shown that an organization would be able to withstand any type of shock if they develop an adaptive capability. It is worth to note that flexible strategic response requires innovative as well as entrepreneurial capacities of the firm in addition to creativity [32]. These capacities differ from an organization to the other. For example, in small firms; entrepreneurial capabilities are often linked to the ability of the firm to initiate as well as sustain some entrepreneurial dynamism and arouse the learning process within the organization. In most of the times, these capabilities are linked to specific individuals known as the entrepreneurs. The situation is different in large or well established companies where capabilities of the organization is linked to the routines and processes which are managed by the employees of the firm.

Conceptual model and hypotheses

Based on the aforementioned data, the following conceptual models (1 and 2) have been formulated (Figure 2).

The absorptive resilience path

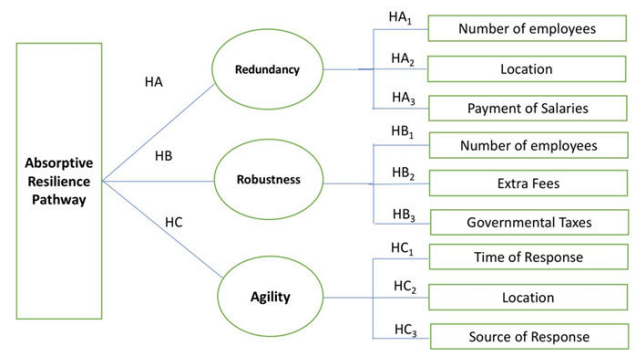


Figure 2. Conceptual model 1 and hypotheses.

Group A: The redundancy of an organization

Hypothesis A₁: the number of employees in a firm positively impacts the resilience of the organization.

Hypothesis A₂: there is a direct relationship between the locations of the firm the resilience of the organization.

Hypothesis A₃: there is a positive relationship between the payments of salaries the resilience of the organization.

Group B: Hypothesis related to the robustness of an organization

Hypothesis B₁: Number of employees in the robustness plan positively impacts resilience of the organization

Hypothesis B₂: Extra fees paid accounted in the robustness plan increases resilience of the organization

Hypothesis B₃: Governmental taxes in the robustness are associated with resilience of the organization

Group C: Hypothesis related to the agility of an organization

Hypothesis C₁: Time of the response increases resilience of the organization

Hypothesis C₂: Location of the organization positively impacts resilience of the organization

Hypothesis C₃: Source of the response positively impacts resilience of the organization (Figure 3).

The adoptive resilience path

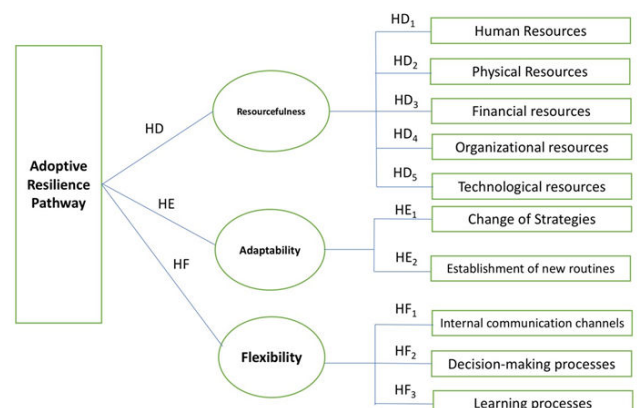


Figure 3. Conceptual model 2 and hypotheses Hypotheses.

Group D: Hypothesis related to the resourcefulness of an organization

Hypothesis D₁: Diverse and heterogeneous human resources increases resilience of the organization

Hypothesis D₂: Diverse and heterogeneous physical resources increase resilience of the organization

Hypothesis D₃: Diverse and heterogeneous financial resources increase resilience of the organization

Hypothesis D₄: Diverse and heterogeneous organizational resources increase resilience of the organization

Hypothesis D₅: Diverse and heterogeneous technological resources increase resilience of the organization

Group E: Hypothesis related to the adaptability of an organization

Hypothesis E₁: Change of strategies impacts resilience of the organization

Hypothesis E₂: Establishment of new routines impacts resilience of the organization

Group F: Hypothesis related to the flexibility of an organization

Hypothesis F₁: Internal communication channels increases resilience of the organization

Hypothesis F₂: Rapid decision-making processes increases resilience of the organization

Hypothesis F₃: Fast learning processes to the employees increases resilience of the organization

Methodology

This study adopts a quantitative approach to examine the different resilience paths that entrepreneurs could use in times of crises. In order to confirm or reject the formulated research hypotheses, both primary and secondary data were collected. The secondary data was compiled from existing literature on entrepreneurship and resilience while the primary data was acquired via quantitative methods using a structured questionnaire. The questionnaire was created using a google forms, and was distributed between March 2021 and April 2021 electronically. Participation was utterly voluntary. To ensure that

the data collection is ethical, a cover letter was enclosed with each survey. The cover letter included a paragraph explaining the research objectives, data protection protocol and confidentiality as well as voluntariness in participation.

The survey results were analyzed using the STATA (v. 15) statistical software. Firstly, the descriptive analysis was conducted through frequency and percentage tables. Then, inferential statistics were used to determine the associations among the items as well as the direction of each association. Finally, regression analysis was performed to define the relationships between the measured variable and the outcome of interest.

Instrument, measurement and scales: The questionnaire consists of four main parts; a) a demographic section including questions on gender, age, years of experience, industry and location of the firm. The second part of the questionnaire is designed to test the following paths: redundancy, robustness and agility in an organization. Each of the 3 variables are measured by a total of 4 items using a 4-point Likert scale where 1 is "Not quick at all" and 4 is "Very quick". The final section of the questionnaire consists of questions on resilience which are also measured using a 5-point Likert scale where 1 is "strongly disagree" and 5 is "strongly agree". As part of a validation process, the questionnaire was pretested with 20 participants to detect any ambiguities or errors. The overall response rate was 85%.

Sampling: The sample of the study was selected via purposive sampling technique. The data was not restricted to any industry type nor location and type of organization the entrepreneurs are involved in. The researcher targeted a group of entrepreneurs from every governorate in Lebanon as well as entrepreneurs from well-established companies or newly established ones with a belief that the targeted population are well informed about the organization and can fill the survey in a reliable and accurate way. As the below table shows, the majority of the participants are males and of young ages. As for the age of the company; 25% were newly established companies, 18% were established between 2 and 5 years ago, 17% were established between 5 and 10 years ago and 40% were well established companies with the age of company being more than 10 years (Table 1).

Item		Percentage		Percentage	
Gender	Male	75%	Type of industry	Manufacturing	5%
	Female	25%		Construction	2%
Age of respondent	<45	75%		Public administration	5%
	45-60	22%		Wholesale, retail, transport	28%
	60+	3%		Services	27%
Age of company	0-2 years	25%		Professional	3%
	2-5 years	18%		Other	30%
	5-10 years	17%		Akkar governorate	2%
	10+ years	40%		Bekaa governorate	2%
Years of experience	<5	22%		Location of the	Keserwan governorate

years		company	
5-10 years	23%	Mount Lebanon governorate	37%
10-20 years	38%	Beirut governorate	43%
20+ years	17%	Nabatieh governorate	2%
		North governorate	3%
		South governorate	5%
		Company goods and services	exporting
		Yes	45%
		No	55%

Table 1. Demographic characteristics of the participants.

Moreover, the data showed that 22% of the entrepreneurs selected had either less than 5 years of experience, 23% had between 5 to 10 years of experience, 38% had between 10 and 20 years of experience and 17% had more than 20 years of experience. Respondents were asked to categorize the type of company they are working for and results indicated that 5% worked in manufacturing, 2% in construction, 5% in public administration, 28% in wholesale/retail/transport, 27% in services, 3% as professional and 30% in other fields. Almost half of the companies (45%) were exporting goods and services. The majority of the companies were located either in Mount Lebanon (37%) or in Beirut governorates (43%) and the rest were distributed among other governorates.

Reliability and validity

In order to test the reliability of the questionnaire's items, the coefficient of Cronbach alpha test was calculated. The results of the below table show that all of the variables possess a good level of alpha coefficient which indicates that the reliability of the tool is well guaranteed. Any Cronbach alpha coefficient that is greater than 0.6 can be considered as reliable as per Nunally (1994). Furthermore, the overall coefficient of the adaptive resilience path was also measured and showed a high level of reliability value. Similarly, the "Resilience" variable items were found to be reliable as well (Table 2).

Item	Alpha
Absorptive Resilience Path	0.7942
Redundancy Plan	0.5977
Robustness Plan	0.4488
Agility Plan	0.6783
Adaptive Resilience Path	0.7617
Resourcefulness	0.7127
Adaptability	0.7722
Flexibility	0.6453
Resilience	0.7345

Table 2. Cronbach Alpha coefficient for all the components of the questionnaire.

In order to ensure the validity of the questionnaire, literature search was conducted on the paths of resilience and the factors associated with each path. A series of meetings with the research team were conducted in order to develop the items of the questionnaire. This is related to the content validity and the main purpose is to eliminate linguistic ambiguities.

Results

Absorptive resilience path

Descriptive statistics was conducted on the absorptive resilience path's variables including redundancy, robustness and agility. The results show that in the redundancy plan, 48% of entrepreneurs reported having back up employees, 35% of entrepreneurs had a backup location, 55% of entrepreneurs had back up money to continue the business and 55% of entrepreneurs had back up money to pay for their employees during harsh economic conditions. In the robustness plan, 50% of entrepreneurs reporting that they reduce

number of employees during a crisis, 43% said that they reduce salary of their staff, 72% try to reduce the cost of company from electricity, water and fuel and 37% try to skip paying governmental taxes during harsh conditions. In the agility plan, 68% believe that they are able to respond to a crisis and have rated their response as such, 25% of the response was very quick, 38% of the response was

quick, 35% of the response was not so quick and 2% said that the response was not quick at all. Only 35% of the entrepreneurs said that they can change their location in case the old location is no longer valid for work. The majority of respondents showed readiness towards taking an action during a crisis (Table 3).

Item	Options	Frequency	Percentage
Redundancy plan			
Having back up employees	Yes	29	48%
	No	31	52%
Having back up location	Yes	21	35%
	No	39	65%
Having back up money to continue business	Yes	33	55%
	No	27	45%
Having back up money to pay for employees	Yes	33	55%
	No	27	45%
Robustness Plan			
Reduce number of employees during harsh economic conditions	Yes	30	50%
	No	30	50%
Reduce salary of the staff during harsh economic conditions	Yes	26	43%
	No	34	57%
Reduce costs of the company during harsh economic conditions	Yes	43	72%
	No	17	28%
Escape from paying governmental taxes during harsh economic conditions	Yes	22	37%
	No	38	63%
Agility Plan			
Able to respond timely to the situation	Yes	41	68%
	No	19	32%
Rating the response	Very quick	15	25%
	Quick	23	38%
	Not so quick	21	35%
	Not quick at all	1	2%
Can change location in case the old location is no longer valid for work	Yes	21	35%
	No	39	65%
Ready to take an action during a crisis	Extremely ready	6	10%
	Ready	37	62%
	Not ready	17	28%

Table 3. Descriptive analysis of the absorptive resilience path.

Adaptive resilience path

The variables of the adaptive resilience path encompassing resourcefulness, adaptability and flexibility were described statistically using frequency and percentage tables. In the resourcefulness variable, 58% of the entrepreneurs said that they have multiple or diverse human resources including manpower, labor, personnel in the

company, 43% of the entrepreneurs said that they have multiple or diverse physical resources including manufacturing, inventory, office building, storage and distribution offices specific for the company, 58% of the entrepreneurs said that they have multiple

or diverse financial resources including cash, bank deposits and stocks in the name of the company, 52% of the entrepreneurs said that they have multiple or diverse organizational resources raw materials or capital and 48% of the entrepreneurs said that they have multiple or diverse technological resources including materials, tools and machines.

As for the adaptability factor; change of strategy techniques post harsh economic conditions was believed to be very quick by 12% of entrepreneurs, quick by 52% of the entrepreneurs, not so quick by 35% of entrepreneurs and not so quick at all by 2% of entrepreneurs.

Establishment of new routines within the organization was believed to be very quick by 7% of entrepreneurs, quick by 57% of entrepreneurs and not so quick by 37% of entrepreneurs. As for flexibility; internal communication channels in an organization was rated as such; very quick by 13%, quick by 62% and not so quick by 25%. Decision making process was rated as such; very quick by 28%, quick by 48% and not so quick by 23% and learning process in the organization was rated as such; very quick by 28%, quick by 58% and not so quick by 13% (Table 4).

Item	Options	Frequency	Percentage
Resourcefulness			
Have multiple/diverse human resources	Yes	35	58%
	No	25	42%
Have multiple/diverse physical resources	Yes	26	43%
	No	34	57%
Have multiple/diverse financial resources	Yes	35	58%
	No	25	42%
Have multiple/diverse organizational resources	Yes	31	52%
	No	29	48%
Have multiple/diverse technological resources	Yes	39	65%
	No	21	35%
Adaptability			
Change of strategy technique post harsh economic conditions	Very quick	7	12%
	Quick	31	52%
	Not so quick	21	35%
	Not quick at all	1	2%
Establishment of new routines in your organization post crisis	Very quick	4	7%
	Quick	34	57%
	Not so quick	22	37%
Flexibility			
Internal communication channel	Very quick	8	13%
	Quick	37	62%
	Not so quick	15	25%
Decision making process	Very quick	17	28%
	Quick	29	48%
	Not so quick	14	23%
Learning process	Very quick	17	28%
	Quick	35	58%
	Not so quick	8	13%

Table 4. Descriptive analysis of the adaptive resilience path.

Resilience

The descriptive analysis was conducted on the resilience and frequency and percentage of each item was calculated in the tables below. Results are shown in the table below. The resilience variable was measured using 8 items on a 5-point Likert scale that ranges from strongly agrees to strongly disagree. The majority of entrepreneurs rated all of the items either agree or strongly agree; 77% of entrepreneurs agreed or strongly agreed on “I choose to be positive rather than negative” item, 57% of entrepreneurs agreed or strongly agreed on “I am aware of my limitations” item, 65% of

entrepreneurs agreed or strongly agreed on “I see obstacles as temporary and have confidence in my ability to overcome them” item, 52% of entrepreneurs agreed or strongly agreed on “I do something good for my wellbeing every week” item, 50% of entrepreneurs agreed or strongly agreed on “I feel positive on my future” item, 85% of entrepreneurs agreed or strongly agreed on “When things are hard I try to focus on what I can achieve” item, 77% of entrepreneurs agreed or strongly agreed on “I set clear priorities in my life” item and 65% of entrepreneurs agreed or strongly agreed on “I can tolerate high levels of ambiguity and uncertainty” item (Table 5).

Item	Options	Frequency	Percentage
Resilience			
I choose to be positive rather than negative	Strongly agree	18	30%
	Agree	28	47%
	Neutral	8	13%
	Strongly disagree	5	10%
I am aware of my limitations	Strongly agree	4	7%
	Agree	30	50%
	Neutral	20	33%
	Disagree	2	3%
	Strongly disagree	4	7%
I see obstacles as temporary and have confidence in my ability to overcome them	Strongly agree	13	22%
	Agree	26	43%
	Neutral	19	32%
	Disagree	2	3%
I do something good for my wellbeing every week	Strongly agree	10	17%
	Agree	21	35%
	Neutral	22	37%
	Disagree	7	12%
I feel positive about the future	Strongly agree	9	15%
	Agree	21	35%
	Neutral	18	30%
	Disagree	8	13%
	Strongly disagree	4	7%
When things are hard, I try to focus on what I can achieve	Strongly agree	13	22%
	Agree	38	63%
	Neutral	8	13%
	Strongly disagree	1	2%
I set clear priorities in my life	Strongly Agree	12	20%

	Agree	34	57%
	Neutral	11	18%
	Disagree	3	5%
I can tolerate high levels of ambiguity and uncertainty	Strongly Agree	4	7%
	Agree	35	58%
	Neutral	13	22%
	Disagree	5	8%
	Strongly disagree	3	5%

Table 5. Descriptive analysis of the resilience using frequency and percentage.

The variables of resilience were also analyzed to show the mean and standard deviation of each one. Results showed that the minimum mean was 3.38 (SD=0.91) with the variable “I feel positive about the future” and the maximum mean was 4.03 (SD=0.71) with the variable “When things are hard, I try to focus on what I can achieve”. The other variables possessed high values of mean; “I choose to be positive rather than negative” had a mean value of 3.93

(with SD= 1.05), “I am aware of my limitations” had a mean value of 3.47 (with SD=0.93), “I see obstacles as temporary and have confidence in my ability to overcome them” had a mean value of 3.83 (with SD=0.81), “I do something good for my wellbeing every week” had a mean value of 3.57 (with SD=0.91), “I set clear priorities in my life” had a mean value of 3.91 (with SD=0.76) and “I can tolerate high levels of ambiguity and uncertainty had a mean of 3.53 (with SD=0.93) (Table 6).

Item	Mean	SD
I choose to be positive rather than negative	3.93	1.05
I am aware of my limitations	3.47	0.93
I see obstacles as temporary and have confidence in my ability to overcome them	3.83	0.81
I do something good for my wellbeing every week	3.57	0.91
I feel positive about the future	3.38	1.11
When things are hard, I try to focus on what I can achieve	4.03	0.71
I set clear priorities in my life	3.91	0.76
I can tolerate high levels of ambiguity and uncertainty	3.53	0.93

Table 6. Descriptive analysis of the resilience using mean and standard deviation.

Reliability

Inferential statistics: Whilst t-tests were conducted to examine the relationships between the variables gender and resilience and between the companies who export goods and services versus those who do not perform resilience, ANOVA tests were conducted to observe the relationship between the firms’ resilience and the age of

these firms. Finally, a regression model was conducted to assess the empirical evidence of each of the hypotheses formerly proposed in the model.

The table below show that the entrepreneur’s resilience is not related to a certain gender whether males and females (Table 7).

Gender	Mean of resilience	S.D.	P-value
Female	3.59	0.52	0.337
Male	3.75	0.54	

Table 7. T-test analysis of resilience between males and females.

As for the relationship between the companies who export goods and services versus those who do not with respect to resilience, the

below table shows that resilience is not statistically different among the companies (Table 8).

Export goods and services	Mean of resilience	S.D.	P-value
No	3.77	0.55	0.31
Yes	3.63	0.52	

Table 8. T-test analysis of resilience between the companies.

On a similar note, the Anova test conducted to measure whether there are any significant differences among the age of company and

resilience showed that resilience is not statistically significant (Table 9).

Age of the company	Mean of resilience	S.D.	P-value
0-2	3.68	0.57	0.247
02-May	3.91	0.38	
05-Oct	3.69	0.41	
10+	3.64	0.63	

Table 9. Anova test to measure resilience among different ages of the company.

Finally, as aforementioned, a regression analysis was conducted in order to test the effect of the independent variables (redundancy,

robustness, agility, resourcefulness, adaptability and flexibility) on the study's dependent variable (resilience). A P-value of less than 0.05 was considered significant in this study (Table 10).

Variable	Standardized coefficient	t-value	P-value
Absorptive resilience path			
Redundancy			
Number of employees	0.257	1.9	0.045*
Location	0.342	2	0.062
Payment of salaries	0.142	9.9	0.002*
Robustness			
Number of employees	0.085	9	<0.001*
Extra fees paid	0.171	1.7	0.018*
Governmental taxes	0.385	9.63	0.002*
Agility			
Time of the response	0.569	17.13	0.008*
Location	0.303	6.42	0.083
Source of the response	0.559	13.48	0.013*
Adaptive resilience path			
Resourcefulness			
Human resources	0.36	9.65	0.058
Physical resources	0.167	3.41	0.007*
Financial resources	0.343	9.21	0.001*
Organizational resources	0.28	7.79	<0.001*
Technological resources	0.404	13.15	0.019*
Adaptability			
Change of strategies	0.535	7.48	0.088

Establishment of routine	0.25	6.46	0.024*
Agility			
Internal communication	0.489	12.38	0.001*
Decision-making	0.547	9.85	0.022*
Learning processes	0.481	14.56	0.040*

Table 10. Regression analysis.

As the above regression table reveals, the absorptive resilience path's variables showed that in the redundancy plan, having back-up employees was significantly associated with resilience of entrepreneurs. Equally, having a back-up plan for payment of salaries to staff was associated significantly with the resilience of entrepreneurs. In contrast, having a back-up location of the organization had no effect on the resilience of entrepreneurs. In the robustness plan, reducing the number of employees was significantly associated with the resilience of entrepreneurs, reducing extra fees paid accounted in the robustness plan was significantly associated with resilience and skipping governmental taxes was significantly associated with resilience of entrepreneurs. In the agility plan, having a timely response was significantly associated with resilience, whereas, quickly changing location from old to new had no effect on resilience. Finally, the source of response was significantly

associated with the resilience of entrepreneurs. In the adaptive resilience path, the regression showed that in resourcefulness, having diverse and heterogeneous human resources was on borderline significance with resilience. Though, having diverse and heterogeneous physical resources, financial resources, organizational resources and technological resources were highly and significantly associated with the resilience of entrepreneurs. In the adaptability plan, the ability to change to new strategies had no effect on the resilience of entrepreneurs while in contrast the establishment of new routines in the organization was significantly associated with resilience. In the flexibility plan, all items (having internal communication channel, rapid-decision making process within the organization and a fast learning process that is open to employees) were significantly associated with the resilience of entrepreneurs (Table 11).

Hypothesis		P-value	Empirical Evidence
Absorptive Resilience Path			
Hypothesis A ₁	Number of employees in the redundancy plan are associated with resilience of the organization	0.045*	Supported
Hypothesis A ₂	Location of the firm in the redundancy plan are associated with resilience of the organization	0.062	Not supported
Hypothesis A ₃	Payment of salaries in the redundancy plan are associated with resilience of the organization	0.002*	Supported
Hypothesis B ₁	Number of employees in the robustness plan are associated with resilience of the organization	<0.001*	Supported
Hypothesis B ₂	Extra fees paid accounted in the robustness plan are associated with resilience of the organization	0.018*	Supported
Hypothesis B ₃	Governmental taxes in the robustness are associated with resilience of the organization	0.002*	Supported
Hypothesis C ₁	Time of response is associated with resilience of organization	0.008*	Supported
Hypothesis C ₂	Location of the organization is associated with resilience of the organization	0.083	Not supported
Hypothesis C ₃	Source of response is associated with resilience of organization	0.013*	Supported
Adaptive Resilience Path			
Hypothesis D ₁	Diverse and heterogeneous human resources are associated with resilience of the organization	0.058	Not supported

Hypothesis D ₂	Diverse and heterogeneous physical resources are associated with resilience of the organization	0.007*	Supported
Hypothesis D ₃	Diverse and heterogeneous financial resources are associated with resilience of the organization	0.001*	Supported
Hypothesis D ₄	Diverse and heterogeneous organizational resources are associated with resilience of the organization	<0.001*	Supported
Hypothesis D ₅	Diverse and heterogeneous technological resources are associated with resilience of the organization	0.019*	Supported
Hypothesis E ₁	Change of strategies are associated with resilience of the organization	0.088	Not supported
Hypothesis E ₂	Establishment of new routines associated with resilience of organization	0.024*	Supported
Hypothesis F ₁	Internal communication channels are associated with resilience of the organization	0.001*	Supported
Hypothesis F ₂	Rapid decision-making processes are associated with resilience of the organization	0.022*	Supported
Hypothesis F ₃	Fast learning processes to the employees are associated with resilience of the organization	0.040*	Supported

Table 11. Empirical Evidence of each of the hypothesis.

Discussion

This study aimed at examining the resilience pathways of Lebanese entrepreneurs in times of crises. Furthermore, the study departed from Conz and Magnani's model of resilience paths in order to explore the relationships between various variables and the resilience paths of entrepreneurship in Lebanon. The study results are consistent with Conz and Magnani's model with few exceptions. Regarding the absorptive resilience path, HA₁ assumed that in the redundancy plan, the number of employees in a firm positively impacts the resilience of the organization. This relationship is also confirmed by the regression model. In contrast to existing literature, the results of the regression model did not support HA₂ that expected a direct relationship between the location of the firm in the redundancy plan and the resilience of the organization. The positive relationship between the payment of salaries in the redundancy plan and the resilience of the organization previously proposed in HA₃ has been confirmed. HB₁, HB₂, and HB₃ which anticipated an association between different variables (number of employees in a firm, the extra fees paid and the governmental taxes) and the robustness of an organization under the absorptive resilience path pillar were all confirmed as well. In relation to the agility of an organization under the absorptive resilience path, two variables are found to be significant. These are the "time of response" and the "source of response" proposed in HC₁ and HC₃. Whereas, HC₂ is not supported empirically indicating that the location of the firm has no impact on the latter's resilience path. Similarly, the formulated hypotheses under the adoptive resilience paths (HD₂, HD₃, HD₄, HD₅, HE₂, HF₁, HF₂, and HF₃) were all found consistent with the theoretical model by Conz and Magnani. Nonetheless, two variables in particular (the diverse and heterogeneous human resources and change of strategies) showed no effect. Therefore, further research is required in

order to better comprehend these variables and their effect on resilience in the Lebanese context. It is worthy to note that, in contrast to existing research on gender and its relation to resilience, the descriptive statistics showed no significant effect of gender on the resilience of entrepreneurs in times of crises.

Limitations

The study was conducted during challenging times in the country of Lebanon; the chronic political instability, the devaluation of the currency leading to the greatest inflation in the history of the country's economy and the on-going COVID-19 pandemic which made it harder to communicate with entrepreneurs. Add to that, the Beirut Port explosion which is deemed as one of the biggest and most tragic explosions in the world. These crises have negatively affected the social, cultural, humanitarian and business environments of the country and presented a major limitation to the study; the difficulty in reaching Lebanese entrepreneurs which led to a relatively small sized sample. Another limitation is related to the sampling strategy were the selection was based on known entrepreneurs to the researcher. This sampling strategy was a non-probability sampling which has its own limitation mainly because it cannot be generalizable. In addition to that, the research is a cross-sectional research and not a longitudinal which decreases the validity of the findings since resilience can change over time and data needs to be collected more than once over a period of time. Finally, beside the advantages of this proposed framework, there are also some limitations to it. The model itself does not explore the correlations between the different capabilities and does not explain how a firm can transform these capabilities that have before an event

to be used during a crisis. By other means; it does not explain how robustness during an event can be turned into an agile response or the adaptability of the organization can be used to generate a flexible response. In addition to those, the model does not take into account the environmental conditions that might affect the equilibrium of an organization and alter all of its adopted processes. Future studies are needed in order to further explore the difference between absorptive and adaptive path through testing the core capabilities of each and how they are deployed by the organizations in order to achieve resilience in each of the phases proposed in the conceptual framework.

Conclusion

Lebanon has always been renowned as land of Phoenicians; Lebanese entrepreneurs carrying the blood of their ancestors have created successful ventures and brands around the globe. However, the current Lebanese entrepreneurial ecosystem is one that suffers from various crises on the political, economic, health and socio-cultural levels. Therefore, the present research examines the resilience pathways of Lebanese entrepreneurs in times of crises. The research findings have shown once again, that resilience is of great importance for entrepreneurs in adversarial conditions. The study results as well have asserted that both absorptive and adaptive paths are essential to achieve resilience within any SME. The factors affecting the resilience paths have been revealed to encompass the physical, human, technological, communication resources of the SME in addition to aspects such as the decision making and learning processes.

Implications and contributions

This study adds to the repertoire of entrepreneurship research in Lebanon and fosters a better understanding of the role of resilience paths in SME management in the Lebanese entrepreneurial ecosystem. Additionally, the study provided insightful analysis of the factors that affect each path of resilience, the latter being essential to the success of business ventures and start-ups. One final noteworthy contribution provided by this study is the evaluation of resilience paths and its associated impactful factors (redundancy, robustness, agility, resourcefulness adaptability and flexibility) from a Lebanese entrepreneur's perspective, a topic that has been surprisingly understudied, particularly in the MENA region.

Recommendations for future research

As previously stated, it is imperative to emphasize that the country's situation at the time of sampling hindered the data collection process leading to a relatively small sample. Larger samples could have provided more significant results which could be a starting point for a future study on this topic. Moreover, in the context of entrepreneurship in the MENA region, females' business and women entrepreneurship generally has not achieved its full potential due to a number of sociocultural and economic obstacles. It would be interesting to explore the factors affecting the women entrepreneurship resilience in the hope of conducting a gender comparative study. Researchers could as well, explore the differences between the resilience paths and try to evaluate their competitiveness in other contexts. On a final note, future research

could replicate the present work under more favorable circumstances, specifying the COVID-19 pandemic as a main variable of research in relation to resilience, and on a wider scale, to gather a larger number of respondents and achieve more significant results.

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