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TOWARDS A VENTURE CAPITAL MODEL USING MEDIA EFFECT AND THE TRIPLE HELIX MODEL

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Abstract

This paper examines the collaborations and linkages among media, university, industry, and government and their effects on the venture capital industry to reduce the financial risk, information asymmetry, and the agency problems needed for the success of venture capital in any country. So, researchers will examine the effect of media coverage and the triple helix model (university-industry-government) on thirty countries. By using 15 variables divided into the main four factors over ten years, analyzed by the structural equation modeling, obtaining to create a proper model to improve the venture capital industry in Egypt. The results proved, the media has a significant positive direct relation with venture capital and negative indirect relation through the triple helix. The venture capital was affected by a positive relationship with the industry and the government and a negative relation with the university. Also, the interaction

between universities and industry, industry and government have a significant impact, while the interaction between universities and government is insignificant. The main recommendation is to improve the university educational system to return to its position in leading the future and cooperate with media, industry, and government to work together for the common good to improve the overall economy.

Keywords: Venture Capital, Media, Triple Helix, University, Industry, Government, VC determination, Egyptian VC

INTRODUCTION

Since the 21st century, the economy has changed from a traditional economy to a knowledge-based economy. Knowledge became the renaissance base of all countries and the source of economic growth, in which innovation and high technology played a vital role in the new economy (Zhang, 2010). Simultaneously, turning new technology and knowledge into commercial achievements is too risky, has many obstacles and constraints, and depends on various skills such as financial, managerial, technical, and commercial capabilities (Kaplan, 2010). Further, venture capital is the optimal approach to convert the knowledge to products or services, to benefit economic activity (Ramady, 2010). But, the establishment of any new institution in a steady environment can be difficult. The forces against these transfers are various, such as culture, legal systems, and institutions against the change. So, the most effective and complicated technique is the interaction between the existing institutions and the new ones to change the environment, this linkage reduces the risk (Dossani and Kenney, 2002). A venture capital firm is an intermediate between entrepreneurs and investors, where entrepreneurs believe that the venture capital fund is the optimal way to transfer their innovation into a working business and gaining management skills and strategic support. Besides, venture capitalists provide an excellent incentive to make the business succeed and grow, and investors expected high returns gain (FinBi, 2005).

The idea of venture capital firms showed in the United States in the 20th century extended from Europe and later to Asia and the entire world. Nevertheless, the venture capital industry's root was found in the 5th century when the Arabian Peninsula was the hub of trade, where all the tribes in Mecca took part in financing the caravans, one in summer and the other in winter (Feng, 2009). After, in the 15th century, Christopher Columbus, the Italian sailor, believed the Earth was round and he wanted to prove it by sailing west to reach Asia. Queen Elizabeth of Spain agreed to give him three ships and crew for that mission (Gallagher, 2000). Also, they promised to pay 10% of any wealth he returned to Spain, this was the most gainful

venture capital investment in Spain's history (EVC, 2003). Later, in early 1930, there were discussions between university, industry, and government focused on the necessity to collaborate and building an entity to finance small businesses (Etzkowitz, 2000). Thus, during World War II, a strong connection emerged between the university the U.S. military - government - to create advanced weaponry as radar and the atomic bomb (Leslie, 2000). In 1947, MIT professors financed High Voltage Engineering Company with $200,000 to create cancer treatment by X-ray technology. When the company went public in 1955, the value was $1.8 million (Gompers, 1995). Besides, after the Soviet launched (Sputnik-1) the world's first artificial satellite in October 1957, Congress assembled the universities and corporations to develop an American space program (Avnimelech, 2004).

Now, venture capital proved that it has positive involvement in economies' growth, particularly in providing finance for entrepreneurs, creating new job opportunities, which affect the economies positively. The world's most successful, innovative, and valuable companies were supported by venture capital, which went public rapidly and represented 42% of all U.S. companies and 63% of market capitalization at the end of 2018 (NVCA, 2019). While in Asian countries, venture capital increase from 14% in 2013 to 40% in 2018.

As in Egypt, after the Egyptian Revolution in 2011, several companies enter the venture capital industry at different levels of the investment stages. For example, accelerator firms such as "Flat6Labs" and "Falak"; "Alexandria Angels", "Cairo Angels" and "HIMangel". Private VC firms such as "Algebra Ventures", "Avereos Ventures", "Endure Capital", "Innoventures" and "Sawari Ventures". In addition to public VC firms, such as "Fekretek Sherket", which is affiliated with the Ministry of Investment, and other venture capital companies affiliated with Micro, Small, and Medium Enterprises Development (MSMED) with cooperating with the World Bank group.

Private VC companies made good deals with a total investment of $17.8 million in 2018 from successful innovation firms such as SWVL, Halan, Wazzaf, Forasna, and Vezeeta (Barakat, 2018). Moreover, Egyptian entrepreneurs are finally beginning to attract foreign investors with SWVL- buses booking application-and Wazzaf-web site offering jobs- SWVL started in Cairo and extended in Alexandria, Nairobi-Kenya, and Lagos-Nigeria, and raised $42 million in two years from venture-capital firms from Sweden, UAE, China, and the U.S. (Williamson, 2015). Yet, Egypt is still far behind in terms of venture capital investment, where the ratio of the venture capital investment to GDP is less than 1%, according to the World Economic Forum WEF, the Arab world competitiveness report (2018). The uncertainty caused by the country's political change since the Arab Spring events and the labor market obstacles, which raised the brain drain (WEF, 2019). Similarly, according to Global Entrepreneur Monitor GEM (2016), the educational quality is poor and does not reach a sufficient proportion of the

population. Moreover, the Egyptian stock market is not stable, and it's difficult to register new companies. Although the Cairo and Alexandria stock exchanges established the Nile stock exchange in 2007 to support the SMEs, the performance of the Nile stock exchange has been modest (Egyptwatch, 2019). In addition to the bureaucratic regulations with companies' registration (World Bank, 2009). Thus, the development of venture capital should be a collaborative process that relies on many other institutions.

So, the research problem is studying the factors that affect venture capital success in top countries, obtaining to create a proper model to develop and improve the venture capital industry in Egypt to facilitate the growth of VC investment positively, which will affect the Egyptian economy. By taking the Indian VC experience as an example where India and Egypt started in the 90s with the same obstacles, India now is one of the most important countries in VC. They concentrated on four critical principles. First, they changed people's culture and believes by increasing people's awareness of venture capital, building entrepreneurs' culture, and promoting innovation activities. Second, they encouraged new ideas from young people and improve educational quality, especially at universities. Third, they had good market capital and exit strategies. last, they had a good regulation system to protect the investors and the entrepreneurs as well (Dossani and Kenney, 2002).

The main goal of this study is to develop an efficient venture capital industry through the linkage and cooperation between different organizations such as media, university, industry, and government, to support and develop the venture capital industry. Moreover, creating an effective network between these factors to reduce the risk that faces this kind of investment.

LITERATURE REVIEW

The model argues that venture capital is influenced by media and the quality of information related to the VC industry, and their effect on it through the triple helix. In addition, to the impact of the university, industry, and the government on the VC investment, which represents the main three spheres of the triple helix model and their interactions between them. These two forms (media and the triple helix model) of venture capital are hypothesized to show their influence on the VC industry.

Media and venture capital

Cultural attitudes of a country are known to affect entrepreneurship. Differences in attitudes toward risk and stigma of failure may explain the entrepreneurship model across countries, where venture capital can be found when entrepreneurship is valued and encouraged (Surineni, 2012). Moreover, mass media and new technological revolutions constitute the main information

systems in modern societies (Chukwu, 2018). According to Zakharakis and Boguslavskaya (2013), who found that successful ventures contained more media citations, more headlines mentioning the company, and more media attention than failed ventures. Additionally, the implications of these studies for entrepreneurs are the need to focus on their successes to improve their business and create people's awareness. For investors, studying media citations can be another useful and low-cost tool in assessing a company's efficiency. Moreover, Phua et al. (2017) argue that the entrepreneur's social media and information channels are associated with more investors' investment. Borin and Juno-Delgado (2018) emphasize the importance of regional culture factor and their influence on the media to promote the venture capital and the creative culture that will greatly stimulate investment by hosting entrepreneurship events and showcase ventures individuals for the potential of high-tech entrepreneurship.

Therefore, the following hypothesis regarding the effect of the media on venture capital is suggested as:

Hypothesis H1: The media has a significant positive effect on the venture capital industry.

Venture Capital and Triple Helix Integration

In theory, what links the innovation Triple Helix model and venture capital is the common emphasis on knowledge generation and collaboration between actors from different fields to develop and increase innovative ideas, find new creative solutions, build a knowledge-based economy, and increased sustainable development. In both fields, the university can function as the starting and organizing partner of new projects through new ideas, applied scientific research, technology transfer, and innovation (Etzkowitz et al. 2000). Simultaneously, the government is setting rules and regulations that help and encourage entrepreneurs' activities (Pique et al., 2018).

In this study, the industry (which is the financing part in the innovation model) will be replaced with exit strategies and market capital activity, as it's the main part of the venture capital process. The concept of combining venture capital and the Triple Helix model is yet an emergent research interest, only a few studies explicitly combine venture capital and triple helix (Pinvanichkul and Wonglimpiyarat, 2011; Etzkowitz and Zhou, 2012; Wonglimpiyarat, 2015), but differently. They have shown that the triple helix interactions among institutions helped facilitate the process of technology transfer and commercialization, or focusing on the university role as a venture capitalist based on the triple helix model, in which they will contribute together to develop the VC market. So, this paper's suggestion depends on a framework that combines the venture capital process cycle with the Triple Helix model to build a knowledge-based economy and sustainable development. According to Coyle (2000), who defined venture capital as most

of shareholders representing the suppliers and the start-up companies as demanders. Thus, in our model, 'Supply' represented by the (university), 'Demand' for (exit strategy, represented as the industry), and the 'Control' for (existence of legislative acts, represented as the government). Figure 1 shows the venture capital and triple helix integration.

The university's roles have changed toward entrepreneurialism, recently, in addition to the main role of the university in education and research, which has increased the economic results of academic knowledge (Xue and Klein, 2010). According to Mann (2008), the university's new mission is applied research, technology transfer, knowledge-based innovation, and entrepreneurship, which are engines of knowledge-based economic growth. Megginson (2004) argues that universities and research institutions played an important role in encouraging a growing risk capital industry. Kim (2017) examines the relationship between well-educated people and launching a new company, he found that well-educated people have a higher ability to identify the applicable business opportunities and take the risks of launching a new company.

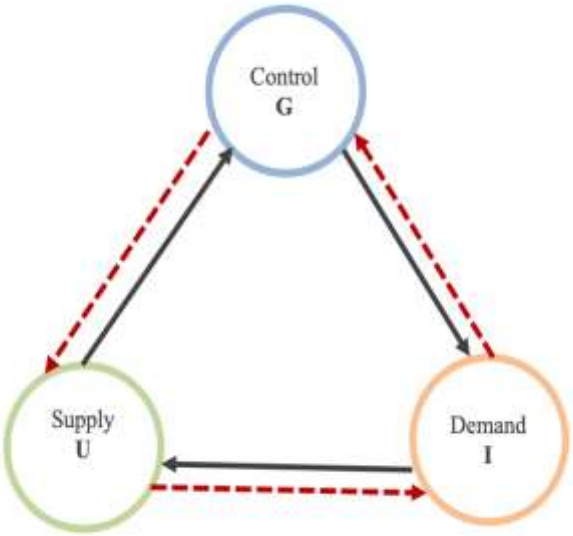

Figure 1: The generalized triple helix model of VC.
Source: derived from Leydesdorff et al. (2017). Edited by author.

Furthermore, Acs and Armington (2004) and Lee and Wong (2004) discovered that people with high educated have the ability and efficiency to sustain their business for a longer period than individuals with minimal education and these will attract venture capitalists. However, Kim et al. (2009) found that university R & D negatively impacted the birth of the start-up's firms, which will negatively affect the venture capital. Goldstein and Drucker (2006) confirm a positive relationship between the proportion of highly educated and the steady births of start-up firms. Stensson and Wessman (2015) state in their study that universities in Silicon Valley, play an

important role in the valley's success and they are focusing on creating top research, which will solve the problems that appear in real life. Also, they noticed that the greater the country's investment in professional education, the higher the rate of new business start-ups.

Based on the previous literature, the following assumption regarding the effect of the university sphere of the triple helix on venture capital can be submitted as:

Hypothesis H2: The University has a significant positive effect on the venture capital industry.

In the case of industry (exit strategy and market capital), the literature has confirmed that the core risk faced the venture investors is the risk of no return on investment. Black and Gilson (1998) found that exit tools are essential to venture capitalists to stimulate them by offering a financial benefit to the managers, to increase their effort because venture capital investors get their returns only at the time of exit. Jeng and Wells (2000) argued that venture capital illustrates strong fluctuations over time and the driving force of these fluctuations is the initial public offering (IPO), which makes the development of the capital market a determining factor. Schertler (2003) proved that the capitalization of stock markets or the number of listed companies is measured by stock market liquidity and it significantly affects VC investments. Gompers (1995) found a shred of evidence that IPOs offer a higher return than other exit forms: an average 60 percent annual return compared with 15 percent in general. Moreover, according to Phillips and Zhdanov (2018), mergers and trade sales as venture capital exit tools represent nearly six times the incidence of IPOs. They found that mergers and trade sales represent about 76.61% of exits versus 13.74% by initial public offerings (IPOs). Bena and Li (2014) and Phillips and Zhdano (2019) reported a strong positive relation between venture capital and M & A activity worldwide, which means that the M&A market gives practical exit opportunities for venture capital firms and encourage them to engage in more deals. According to the national venture capital association NVCA (2018), foreign investors have increasingly invested in venture capital firms have recently to gain a good position for the next wave of scientific and technological progress. Also, Elsiefy and Foudah (2015) state a positive relationship between foreign investment and domestic venture capital in Egypt. This means that the more foreign investment, the more financing available domestically. This is because of the foreign currencies that will be credited to the local banks for international investments.

Based on the previous literature, the following assumption regarding the effect of the industry sphere of the Triple Helix on venture capital can be submitted as:.

Hypothesis H3: The industry has a significant positive effect on the venture capital industry.

In the case of the government sphere, according to Cumming et al. (2010), they show that the sound legal framework (including the efficiency of the judicial system, shareholders' equity, the rule of law, eliminate corruption, expropriation risks, the risk of contract disavowal, and stronger creditors' rights) can be considered as an important prerequisite for continued venture capital development in any country. Moreover, Etzkowitz and Zhou (2012) state that the main components of an effective investment technique are the existence of legislative laws to regulate the relationship between all members of the innovation project and investors. Considering the possibility of foreign investors' participation, registration terms of patents for industrial designs, utility models, inventions, and conformity with international law in the field of intellectual protection. The Global Entrepreneurship Monitor (GEM, 2015) report shows that United Kingdom entrepreneurs are afraid of starting their business because they fear bankruptcy laws. Furthermore, Cressy et al. (2013), remark that legal protections are essential for the determinant of venture capital, where the quality of the legal system is positively related to returns on investment. As proved by Dias and Macedo (2016), a good legal environment protects potential funders from being seized by entrepreneurs. Also, the registration terms of patents for industrial designs, utility models, inventions, and compliance with international law in the field of intellectual protection are fundamental characteristics in the legal protection environment.

Therefore, the following assumption regarding the effect of the government sphere of the triple helix on venture capital can be submitted as:

Hypothesis H4: The government has a significant positive effect on the venture capital industry.

Interaction within Triple Helix and their relation with venture capital activities

One of the triple helix model's important aspects is the interrelations between the three spheres that influence a venture capital ecosystem. Campbell et al. (2004) have studied these relationships and found that consulting relationships between university and industry are (88%) of overall relationships, the relation between the government and industry in the research grants or contracts are more than (59%), and in the researcher training between government and university is (38%). Therefore, it is important to analyse the role of the triple helix and its interrelation according to the main players in venture capital, the startups and their innovative ideas, venture capital exit strategies (capital market), and the government's laws and regulations.

The triple dynamic helix started between university-industry and university-government a series of parallel double helix interactions, and eventually, a university-industry-government triple helix was established (Etzkowitz and Zhou, 2018). Although there are few empirical tests of the effect of interaction within the triple helix on venture capital activities, they can assume their interrelationship effect.

Therefore, it has been assumed that there are interrelationships between the three spheres of the triple helix.

Hypothesis H5: The interaction between the three spheres of the triple helix has a significant positive effect on the venture capital industry.

Nevertheless, will hypothesize each relation separately. First, in the case of university and government, the university focuses on basic research and innovation in science and technology, and the government provides the legal system, the patent, and trademark law, to promote and protect the basic research across different areas of science and technology disciplines. However, basic research cannot be easily converted or applied to technology or the products, which can serve as a platform for a start-up business (Archibald and Finifter, 2003).

Therefore, it has been hypothesized that the effect of the interrelationship between university and government in the venture capital industry is indirect and limited.

Hypothesis H5a: The interaction between university and government has a significant positive effect on the venture capital industry.

Second, will discuss the relationship between the university and industry in the triple helix. Where the venture capitalists are investing in good ideas from universities, which leads to a good competitive industry. Venture capital investments in high-growth sectors are likely to get high exit opportunities through IPO, M&A, direct selling, or they can attract foreign investment (Campbell et al., 2004).

Etzkowitz and Zhou (2012) argue that VC and business research findings are intertwined. First, universities should be encouraged to invent new ideas and export their innovations worldwide. Second, promoting scientific and technological research activities can increase the possibility of venture capital, improve stock exchange trading, and grow the economy.

Therefore, it has been assumed that the effect of the university-industry mutual relationship on venture capital activities as follows:

Hypothesis H5b: The interaction between university and industry has a significant positive effect on the venture capital industry.

Finally, In the case of government-industry interaction, the government provides legal systems to enhance market capital and protect the investors to improve the social and economic impact on the venture capital exit strategy (Etzkowitz and Zhou, 2018).

Therefore, the triple helix model's government and industry interaction can be more direct and positive in enhancing and activating the exit market for the venture capital industry.

Therefore, it has been hypothesized the effect of the interrelationship between government and industry on venture capital activities as follows:

Hypothesis H5c: The interaction between government and industry has a significant positive effect on the venture capital industry.

Media and the Triple Helix

Recently, the UN has recognized the vital role that independent media has played in achieving good governance. They found that more than 70% of the world's population lacks access to adequate information (Orme, 2019). The Media Development Investment Fund (MDIF) provides evidence that the quality of independent media positively impacts society through three sections. First, governments affect society negatively, especially in increasing poverty and income inequality. So, there is a strong link between a free, strong, and independent press and reducing corruption (MDIF, 2019). Second, economic players need accurate and timely information to allocate resources efficiently. Where Investors are increasing their value and demanding a role in monitoring the government by the media (Zakharakis and Bogoslavskaya, 2013). Third, free independent media provide citizens with information, allowing them to change their behavior and higher social demand. Therefore, it has been argued that good media give the investor preferential access to industry-related information, facilitate better communication, and share sources of knowledge among investors and the startups. So, the media mediate the effect of the triple helix on investment capital.

Hypothesis H6: The triple helix model mediates the significant positive relationship between the media and venture capital industry.

To investigate the role of media and triple helix in the venture capital industry. These two forms of venture capital are hypothesized to show their influence on the venture capital industry and the link between them, which is illustrated in figure 2.

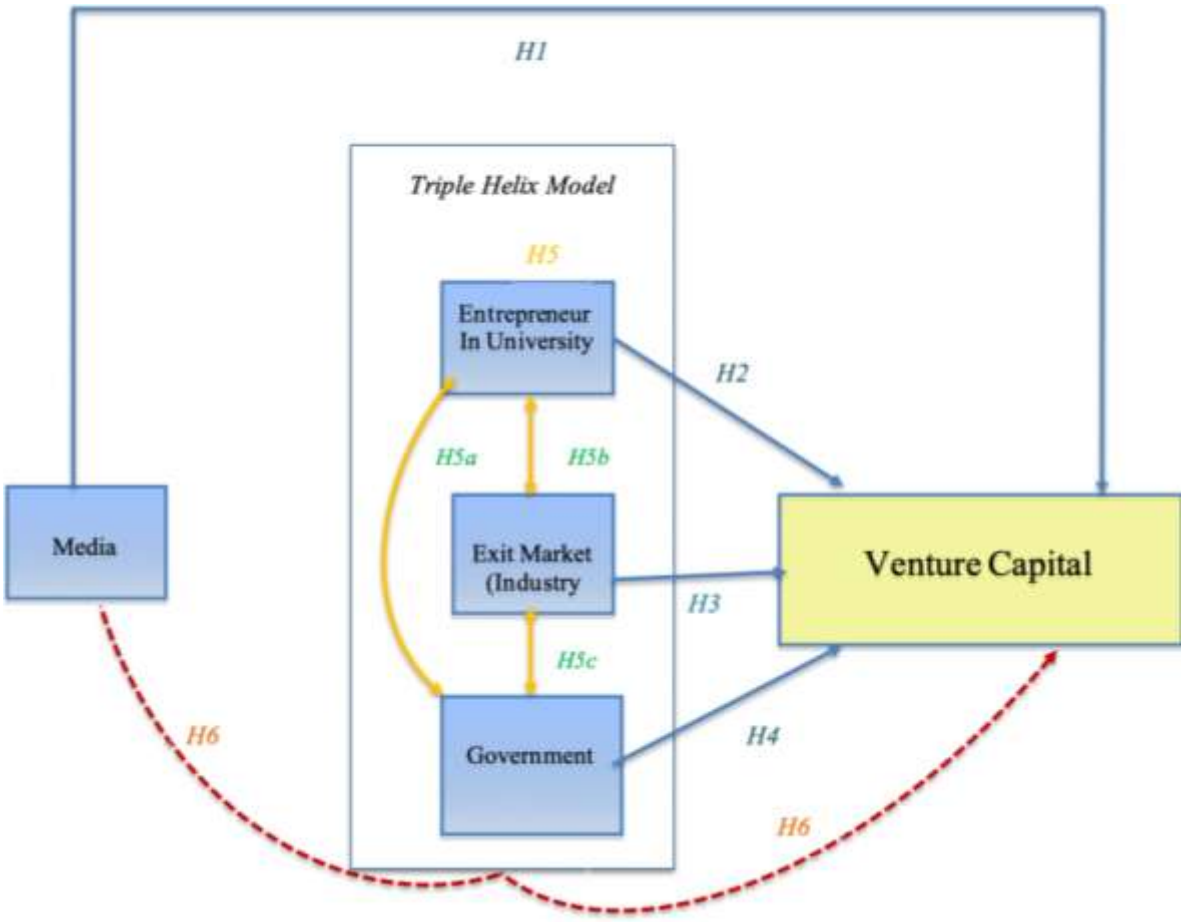

Figure 2: The venture capital integrated model and hypotheses

RESEARCH METHODOLOGY

This study will use secondary data series, which is driven by previous literature papers findings and specified global reports, which include the latest information about venture capital. The data were composed of 30 countries, the first countries in "The Venture Capital and Private Equity Country Attractiveness Index 2018". The evaluation of these countries respects the socio-economic criteria for international venture capital. The data cover the years from 2007 to 2017, which is the latest year found information about the chosen variables related to the selected countries. The sample includes the countries from all regions that received a high index rank - standard for rating not less than 70-, each country should achieve a high score on all of the individual criteria that make up the VC markets.

The first 30 countries, which arranged alphabetically, are; Australia, Austria, Belgium, Canada, China, Denmark, Finland, France, Germany, Hong Kong, India, Israel, Ireland, Italy,

Japan, Korea, Malaysia, Netherlands, New Zealand, Norway, Poland, Singapore, Spain, Sweden, Switzerland, Taiwan, Thailand, United Kingdom, United States of America and the United Arab Emirate. The major task at that point was to find appropriate variables that reveal the characteristics of the constructs and to be related to our main factors: Media, industry, university, and government. This study uses the purposive sampling technique in non-probability sampling because researchers believe that the sample of the countries chosen will be worth being included, which helps adapt the suggested model and give accurate results for the study.

The sample size is 330 samples, 30 countries in 11 years, which uses 15 variables to analyze the data. There were a few missing values in the data (2% of all used measurement items). The missing data or values will be imputed by predicting the missing values depending on the relations between variables and time by using a linear trend at a point. Table 1 will summarize the 15 variables that will be examined to construct factors to represent best the constructs mentioned. It also shows the source of each variable.

To test the hypotheses, the present research will use two main statistical methods. First, Exploratory Factor Analysis (EFA) is used to explore the observed measurement elements to determine the latent theoretical structures as expected on the suggested model and reduce many variables into a few factors. So, factor analysis becomes vital due to the number of variables in which the (21) variables have been selected and picked (15) variables that were related and more relevant to our suggested model and the four factors, which would cause an influence on the analysis of the econometric model, since the aim is to evaluate a model that best describes the relationship between the variables.

Second, Structural Equation Modeling (SEM) using IBM-AMOS software, was conducted as integrates factor analysis and multiple regression analysis, and it is used to examine the structural relationship between measured variables and latent constructs. This method is preferred because it estimates the multiple and interrelated dependence in a single analysis (Ullman, 2001). It uses goodness-of-fit tests to verify if the pattern of variances and covariances in the data is reliable with the hypothesized structural model to be self-determined (Loehlin, 1987). The procedures used to examine the model's quality are parameter estimates and the model as a whole. Besides creating a single mediator model guided by the hypothesized framework, where media is the independent variable, the mediator is the Triple Helix (university, industry, and government), and the venture capital is the dependent variable.

Table 1: Variable Identification

Construct	Variable	Source
Dep.variable	VC investment M$	OECD
University (Moderator)	Quality of educational system	WCY
	Quality of scientific research	WDB
	Capacity of innovation	WCY
	University industry research collaboration in R&D	WDB
	Local availability of research and training service	WCY
Industry (Moderator)	Stock trade activity (IPO) in B$	WDB
	Utility Patent	WDB
	Merge and acquisition market activity	IMAA
	Foreign direct investment in M$	WDB
	Listed domestic companies	WDB
Government (Moderator)	Business extent of disclosure	WDB
	Ease of shareholder suit index	WCY
	Strength of legal rights.	WCY
Media (Indp.V)	Media attention to entrepreneurship	GEM
	Quality of information	WCY

Notes: OECD: Organization for Economic Co-operation and Development, WCY: World Competitiveness Year Book, WDB: World Data Bank, IMAA: Institute for Mergers, Acquisitions, and Alliances and GEM: Global Entrepreneurship Monitor.

ANALYSIS AND RESULTS

Before applying the factor analysis model, many variables were tested related to our research and excluded the variables with lower weights and did not match our suggested model. The factorability of the 15 variables was examined, and several well-recognized criteria for the factorability of a correlation were used. First, it was observed that the 15 variables were correlated and did not have an issue of multicollinearity as well. Second is the analysis of the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) statistic, which needs to be greater than 0.5 in a range between 0 and 1 (Miljko, 2017). The measure of sampling adequacy was 0.764, and Bartlett's test of spherical value was significant (0.001) with a P-value less than (0.5). Given these overall indicators, factor analysis was treated as suitable for all 15 variables. Factor analysis confirmed the theoretical model by separating the 15 variables into four factors, as shown in table 1.

From researchers' perspective, it was expecting the patent application to be with the legal right and business extent of disclosure, but it was loaded together with the stock traded and the foreign investment. But, Mazzucato and Tancioni (2012) found that there is a positive and significant relationship between stock return volatility and R&D intensity and the patent-related measures of innovation. Plus, the financial markets react to the 'signals' that firms provide, via their R&D spending and patenting behavior. Moreover, according to Clarke et al. (2001), the possible fruitful patents, valuable intellectual property, and predictable, competitive advantages are taken into account by its stock price.

Based on the structural equation modeling analyses, the model appears good. The model was tested with six criteria: The goodness-of-fit index (GFI), relative chi-square fit index CMIN/DF (X2/df), Comparative fit index (CFI), Normed fit index (NFI), Parsimony normed fit index (PNFI), Root-mean-square error of approximation (RMSEA). The model yielded acceptable fit indices for all indices except one RMSEA, but Browne & Cudeck (1993) prove that model is fit when RMSEA is between" 0.0 and 0.1". Moreover, the other fit measures attained the recommended target values. The value of the GFI was 0.907, The CMIN/DF was 4.176, the RMSEA was 0.093, the CFI was 0.929, the NFI was 0.911, and the PNFI was 0.569. Overall, the fit indices show an acceptable model fit with the data.

Recently, researchers used the effect size besides the statistical significance P-value because the significant p-value tells us that the intervention between the two variables works, while an effect size tells us how much it works. According to Kieth (2006), the path coefficient of over 0.25 was shown to a large effect size.

Table 2 shows the Path Coefficients for the Structural Model in this study, the path coefficient of university is ($r = -0.442$ at significance level $p < 0.001$).

So, venture capital was influenced by the university's direct effect, which accounted for approximately 19.5% of the variance in venture capital. Media, Industry, and government were also had a large size and direct effect on venture capital, which accounted for approximately 14.8%, 4.5%, 5.8%, and of the variance in venture capital. Also, the university factor was the only factor negatively related to venture capital.

Table 2: The Path Coefficients for the Structural Model

Relationships	Coefficients	Effect Size. R^2	P-value
Media ⇒ Venture Capital	0. 385	14.8%	0.001
University ⇒ Venture Capital	-0.442	19.5%	0.001
Industry ⇒ Venture Capital	0.211	4.5%	0.001
Government ⇒ Venture Capital	0.241	5.8%	0.001

Besides, table 3 shows the inter-correlations among the three Factors, university, industry, and government. Non-significant correlations were found between University (U) and Government (G), r = 0.074 at significance level p = 0.131, and significant correlations were found between University (U) Industry (I), r = 0.192 at significance level p <0.001, and Government (G) and Industry (I), r = 0.116 at significance level p = 0.026.

Table 3: Inter-correlations among Latent Variables in the Structural Model

Relationships	Coefficients	P-value
University ⇔ Government	0.074	0.131
University ⇔ Industry	0.192	0.001
Industry ⇔ Government	0.116	0.026

The next phase of the analysis is testing the mediation effect of the media. The hypothesis (H6) predicts that media mediates university, industry, and government's influence on venture capital as the dependent variable. Media affects venture capital directly and indirectly affects VC through a mediating triple helix (university, industry, and government).

Table 4 shows the Path Coefficients analysis of the mediation of university, industry, and government. Non-significant and negative correlations were found between Media and the industry r = −0.03 at a significance level of p = 0.597. And there are significant and positive correlations between university and industry and the media. Besides, the effect size of media on the industry is minimal by 0.09%, compared to the effect size of media on university 37.8%, and the government effect is 4.3%.

The total effect of the triple helix factor (university, industry, and government) processing is r = -0.228 at significance level p = 0.004, and the effect size is 5.2%.

So, the total impact of media on venture capital is the summation of direct and indirect effects. When the direct effects, r = 0.385 at significance level P is less than 0.001. As a result, the total effect of the media on venture capital is 0.157 at the significance level less than 0.05, and the size effect between the total effect of the media and the venture capital is approximately 2.5%.

Table 4: The Path coefficients analysis of the mediation in the Structural Model

Relationships	Coefficients.r	Effect Size. R^2	P-value
Media ⇒ University	0.615	37.8%	0.001
Media ⇒ Industry	-0.030	0.09%	0.597
Media ⇒ Government	0.208	4.3%	0.002
Media ⇒ Venture Capital (indirect)	-0.228	5.2%	0.004

A graphical presentation of all the structural model results is shown in figure 2, which presents the Intercorrelations among latent variables in the structural model and their path coefficients.

Regarding the analysis of the hypotheses, the media factor affects the venture capital significantly and positively as expected, which means that we will accept hypothesis one (H1). This positive relation agrees with Phua et al. (2017) Borin and Juno-Delgado (2018) Surineni, 2012. In the case of the triple helix, the results also met our expectations, the industry affects the venture capital positively and significantly, which means hypothesis three (H3) will be accepted, and these agree with Jeng and Wells (2000) and Chang (2004). There is a significant positive relationship between government and venture capital, matching with Cumming et al. (2010), Cressy et al. (2013), and Etzkowitz and Zhou (2012), so will accept hypothesis four (H4).

Oppositely, there is a significant negative relationship between the university and the venture capital industry, which is unlike the expectation and contrary to our hypothesis. This means hypothesis two (H2) will be rejected. These negative relations between the university and the venture capital are in agreement with Kim et al. (2009), and contrary to Ranga and Etzkowitz (2013). The negative effect of the university may be related to the focusing of the university on presenting theoretically basic skills, not on teaching students to be risk-takers, and become entrepreneurs, except in a few countries. Plus, the researchers are mainly focusing on theoretical and basic research over applied and practical research (Surineni, 2012). So, universities should prepare students to work in a dynamic, rapidly changing entrepreneurial environment, and allowing much more room for experiments and learning by doing.

Besides, the global entrepreneurship monitor (GEM) reference, "Education and training report", found that over 60% of those who have received training in entrepreneurship, has received informal training (unrelated to the university) through self-study, followed by informal university programs and courses offered by business associations. Most students have formal training only to get their credits and pass the degree (GEM, 2010).

For example, Google support professional certificate for any person in the new technology and IT infrastructure. Additionally, in many countries, high schools are the main education while university education is optional. So, some educational institutions present courses and training like MIT Entrepreneurship Lab and Global Entrepreneurship Laboratory in the United States, which place the student teams in the area work environment with real problems (Surineni, 2012). Moreover, in the innovation-driven countries, such as the U.S, UK, France, Germany, Finland, Japan, and South Korea, they still believe that education and training are unnecessary for starting businesses. They took public figures such as "Bill Gates and Steve Jobs", who dropped out of the university after a few years, as role models (Sorgman

and Parkison, 2008). In addition, high levels of university scientific research and innovative ideas may be associated with the absorption of much of the highly educated labor pool of a university or the industries, which leads to diminished entrepreneurial activity (Kim et al., 2009).

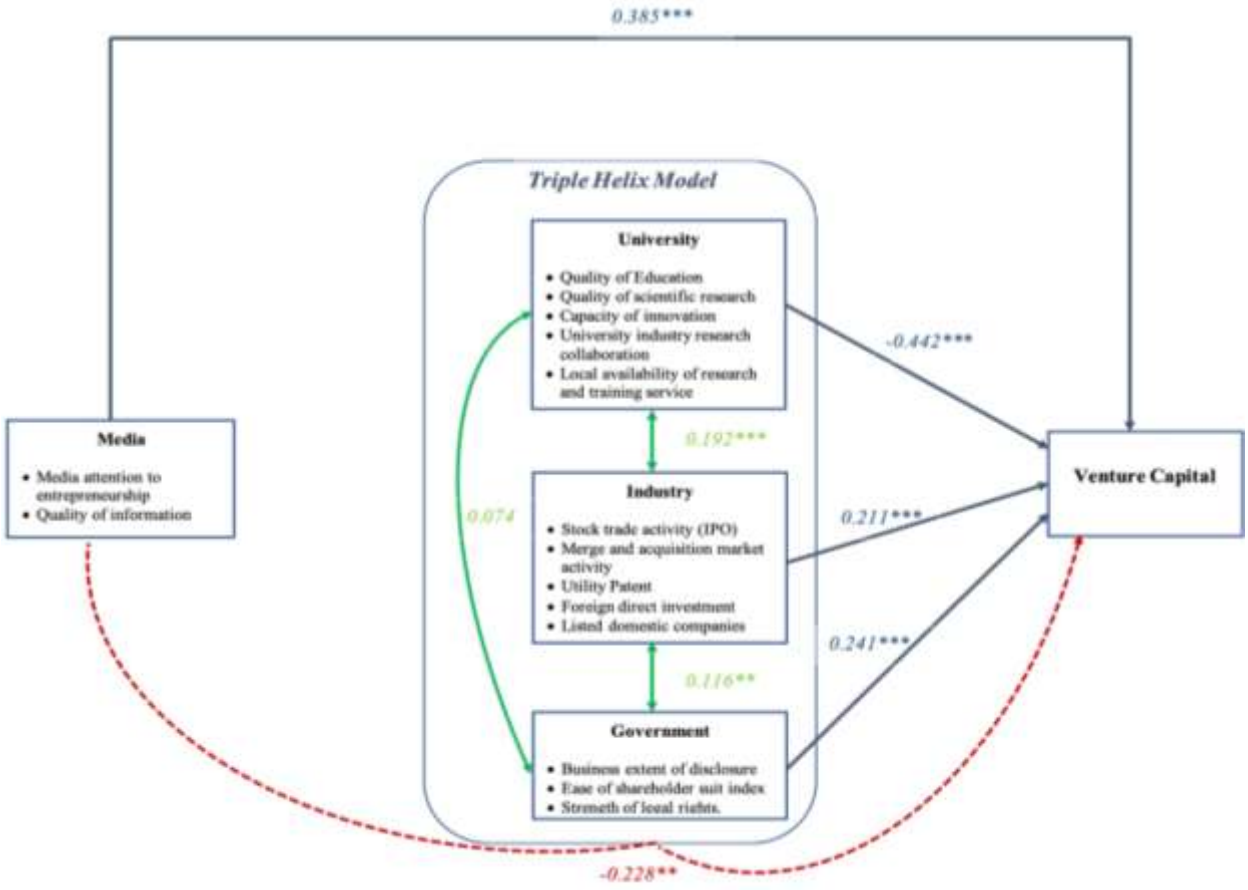

Figure 3: The result of the theoretical model of venture capital.

In the case of the interrelationships within the triple helix, between university, industry, and government, a significant and positive coefficient relation were found in the interaction between university and industry, which is the relation between innovative ideas, which attracted directly by foreign investment, and the stock trade market that can invest directly in new ideas and firms. As in the NASDAQ stock market, where it allowed to venture capital to take a more active part in creating and establishing new companies. Moreover, NASDAQ had more ease listing requirements than the New York Stock Exchange and was more responsive to the needs of small businesses (Avnimelech, 2004).

Considering the relationship between industry and government, a significant and positive relation was found between them, in which the government sets the policies, laws, and

regulations to manage and protect the stock trade and foreign investment, and control other exit strategies. So, the results confirmed the suggested hypotheses H5b and H5c, so will accept both of them.

The hypothesis H5a suggested, there is a positive interrelationship between university and government, the result shows a non-significant relation between them, which is contrary to hypotheses H5a, which means will reject the hypothesis. The university didn't need the support of government legal rights, except for patent and intellectual property rights, and by factor analysis, the patent appeared in the industry factor, which confirmed that there is a non-significant relation between the university and the government.

Regarding hypothesis H6, which predicts that the Trible Helix model mediates the relationship between media and venture capital. The statistical results show a significant negative effect on venture capital through the university, industry, and government. which means that will reject hypothesis six (H6). However, media has a positive direct effect on venture capital and the total effect of the media is positive on venture capital. In practice, the influence of the media on venture capital through the triple helix has been significantly reduced the effect of media on venture capital investments. The reason is that media is different from what it was years ago, the spread of the Internet has allowed information to be accessible to a large number of people and has become a valuable source of information to companies, researchers, and help in spreading innovative products or services. Generally, media is an incredible tool but also is an elusive device (Ward and Wylie, 2014). Moreover, the imports of the technology cost too much because of the increase in intellectual property rights expenses, and it delays the development of advanced technology, so most of the entrepreneurs don't want to show or talk about their ideas, where media will affect the entrepreneurs' innovations negatively because it exposes them to steal their ideas by others (Etzkowitz and Zhou, 2012). On the other hand, the disadvantages of the media include the risk of inaccurate reporting, where the media puts out incorrect or inaccurate information, which negatively affects the VC. In addition, the low media attraction to entrepreneurship combined with a lack of role models and a fair of failure made a lot of barriers to venture capital and entrepreneurship.

CONCLUSION

According to the findings and results of this research, the main recommendation is to develop and improve the educational system at the universities to return to their place because of its importance in leading the future. Besides giving more importance to the media channels to transfer the true information and promotion for the innovations and the new industries.

Our recommendations concerning Egypt are, the universities should foster an entrepreneur-friendly environment through integrating entrepreneurship courses as a core part of the curriculum. Stimulate students from different colleges and backgrounds to work together to succeed in business and gain experience. Besides, enhance professional education, and encourage an entrepreneurial culture by teaching the elements of business creation. In addition, suggested that universities such as AUC, GUC, Nile University, and AAST raise money yearly to established seed funds to foster the growth of best ideas on university campuses. Furthermore, universities should increase teaming up with the industry to allow students to gain experience by working on solving obstacles faced by the industries.

Second, the Egyptian government should set policies, legislative environment, rules, and regulations (especially in tax incentives) to support the venture capital industry and make it clear for the entrepreneurs and investors. In addition, the government can establish fund-of funds by the endowments and pension liquidity, even a small percentage of their corpus, to be managed by the private sector to assist the supply of innovative companies. Furthermore, specialized commercial courts and a new bankruptcy code should be established to deal with many commercial disputes. Besides, they should unify the VC definition, and the activity of venture capital to enable the existent of a healthy legal environment. Moreover, there is a need to develop a training program for lawyers to be aware of the rules and regulations of the VC industry.

Third, improve and reform the MSME stock exchange (NileX) for a smooth exit, encourage foreign investors, and attract all new companies in MINA regions. Modernizing and creating an Intellectual Propriety Rights (IPRs) infrastructure, that is transparent, accessible.

Fourth, Media channels should increase the awareness of venture capital activity through direct advertisement or publicity. Media should be highlighted the successful entrepreneurs, and promote products or services under the hash-tag "Made in Egypt" to encourage youths to work and innovate. Furthermore, building a database system to share data, which will help the investors making the right investment decisions, to empower the venture community for success, serving as the leading resource for venture capital data, practical education courses, and active networking. In addition, Egypt should establish a technological park, such as "silicon Valley" to attract the enterprises and investors and create a venue for business and technical students, potential angels, and firm founders to interact and to be a leader in the MENA region and attract Araba and African investors.

Finally, venture capital firms should work in close cooperation with the university and government to find possible ideas/areas for high-tech projects. a panel of scholars, scientists, and experts should be formed to make decisions on the validity of these projects, and its

proposals should be considered. After that, media institutions will promote the new high-tech products or services, stimulate investors, and attract foreign investments. This will lead to making a strong venture capital industry, which will create a favorable environment for venture capital undertakings to faster the economic growth of the country.

Future studies may develop more variables to measure this model or to get other factors that may reflect interactions with the venture capital industry. Examining the VC model in the Egyptian market to find out the exact deficiencies and obstacles in the venture capital ecosystem and measure the relationships between the four factors, to get more specialized and detailed information, which should be gathered through surveys and interviews with entrepreneurs, government officials, media executives and venture capital managers.

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