Determining the Impact of Entrepreneurship Financing Methods on Collective Participation in Knowledge-Based Businesses

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

Review Article

ABSTRACT

The necessity for finance during the start-up phase of new firms as well as advancements in information technology have led to a rapid global expansion of the crowd funding method. There have been a number of financing platforms built in Iran to date, some of which have been successful and others of which have not. Therefore, it is important to examine the elements affecting this strategy in order to aid in its development. Given that mass finance is a relatively new phenomena, it is important to appropriately raise public awareness of it while identifying the variables that influence this approach. Their most important characteristics are technology, skilled labour, and advanced management; they are connected to global networks and production chains; thus, the development of knowledge-based companies appears to be the key to the next decade's economic development. As a result, the primary goal of this article is to look into the impact of entrepreneurial financing methods on collective participation in knowledge-based businesses. The current article's research method is practical, and the data collection method is a survey.

1. INTRODUCTION

Crowd funding is a new approach to financing, in which large numbers of social network investors invest in projects such as start-ups and innovative projects that are largely reluctant to invest, even with small capital. This method is similar to selling bonds with the difference that

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the relationship between the investor and the applicant is unmediated and also the investor is free to choose the opportunity by relying on collective risk management to ensure the security of his capital. Innovative businesses have always been one of the most important factors in the economic growth of a country. Prerequisite for the effectiveness of this important factor is the creation of ways to connect capital with innovative ideas. There are many different ways to finance innovative projects and businesses, but crowdfunding is one of the newest methods used first in developed countries and then recently in some developing countries.

In recent years, a large number of collective investment platforms have emerged and have often been shown to be very successful in raising capital. In line with its organizational mission, the Crimean Research and Technology Fund has made the support of knowledge-based and innovative projects one of its important strategic goals. Therefore, in order to play the role of facilitator and development of the fund, this method is examined and expertized and the proposed plan of the fund is presented. In this plan, an attempt has been made to use the fund brand in the guarantee industry to ensure the accuracy of the plan, and the necessary opening to finance it in the mentioned method.

According to Belfilm et al.(2014), the crowd funding is an online invitation to raise funds in the form of gift grants , pre-purchases , and awards. Thus, the crowd funding method as a web-based method through the mass of people helps the owners of ideas and start-ups to commercialize the idea and start the business. In the world, this approach is very widespread and has a relatively high growth and stability in various aspects. In Iran, on the one hand, due to the approval of the knowledge-based law and the expansion of support institutions, we are witnessing the expansion and creation of many knowledge-based start-ups in recent years, which have financial problems and lack of funding through traditional means such as banks.

For this reason, in recent years, efforts have been made to provide a variety of new ways to support knowledge-based start-ups, such as the creation of venture capital funds, OTC markets, growth centers and accelerators, and technology donors. On the other hand, in recent years, the Internet infrastructure in Iran has grown

significantly, and the use of social networks, entrepreneurship through this and formal and informal activities in it has grown [1-4]. In Iran, apart from the two stimuli that have led to the creation and development of crowd funding in the world, the use of public participation in fundraising has a long history. For example, Golrizan or the local Qarz al-Hasna fund, endowments and donors (school builders) are examples of this partnership. But Internet-based crowd funding in Iran today is a new experience that we have seen in recent years .So that in these few years, more than 14 active platforms with different functions have been created. Along with the development and expansion of crowd funding methods in the world and Iran, various researches on recognizing and extracting the factors affecting this method have been done, which are mostly based on experimental studies and with an exploratory approach . In rare cases, it has been used either by experts or stakeholders. In Iran, not many studies have been done in this field and the existing studies are more in line with the introduction of this method. However, Ghorbani, Habibnejad and Samie-zadeh [5] have identified the factors affecting collective investment and prioritized them from the investor's point of view.

These factors include the geographical area of the initiative, the shared value between the entrepreneur and the individual, the initial amount to be invested, the payback period of the project, the amount and type of return, the trust of the entrepreneur, the quality of the project, and the community network used. ChitSazan, Koolji and Bagheri (1398) considered the existence of material benefits along with non-material benefits as features of co-financing.

Riahi et al. [6] have developed a program with the aim of designing and using new tools for entrepreneurship financing based on the participation of community units.

Baharifar, Shahrabi and Jalal [7] in their report, while introducing and typology of the concept of crowd funding as a new concept in the Iranian investment literature, have described four examples of this method in full. They then make recommendations on the proposed legal requirements related to this concept in the country.

Hassanzadeh Sarvestani, Tamizifar and Simiari [8] have explained the legal relations governing crowd funding to attract the participation of

donors by using power of attorney and gift contracts.

Haji Gholam Saryazadi et al. [9] have presented the model of crowd funding business in Iran. As mentioned before, a review of the literature and research on this method, both in the world and in Iran, indicates that most research is exploratory and experimental, and only one aspect of this method has been examined. But since the success or failure of new methods, especially in the area of crowd funding with the participation of the people, is closely related to social insights and behavior, therefore, it is necessary to use public opinion with a comprehensive approach to gain a proper understanding of these methods and people's reactions to them.

Therefore, it was assessed the factors affecting the crowd funding in Iran to support knowledge-based start-ups in this research, through collective modeling and using the opinions of experts, stakeholders and actors of this method, including investors and people, capitalists and business owners and crowd funding platforms [10-14].

Collective modeling is an approach based on modeling systems dynamics that uses collective intelligence to explore new phenomena through social networks and the web. In this type of modeling, insights and opinions, in other words, people are the criteria, and the purpose of this modeling, while accurately recognizing the various dimensions of the phenomenon under study, is to inform and educate it among the people [15-19].

Therefore, in this research, the collective modeling method has been used to better understand crowd funding to support start-up knowledge-based companies in the field and also to inform the public. In the continuation of the article, first, the method of crowd funding is introduced. Then the research method of this article is collective modeling, and its different steps are introduced and explained. Then the results of collective modeling and outputs related to the factors affecting crowd funding are presented.

Knowledge-based economy has a great impact on increasing per capita production, social welfare, reducing inequality in income distribution, increasing job opportunities and improving the quality of the environment and improving the quality of products as the main

characteristics of sustainable development. In order to achieve a knowledge-based economy, it is necessary and undeniable to pay attention and emphasize the role of companies active in this field.

In order to develop these companies and highlight their role in economic processes, it is necessary to identify the variables affecting these companies and the necessary studies to make appropriate decisions. One of the key elements in the development of knowledge-based companies is the issue of financial resources of these companies [20-24].

Existence of an efficient financial system in knowledge-based companies can pave the way for the growth and development of these companies and advance their development plans with the least financial cost. Due to the vulnerability of single-product economies, especially natural resource economies such as oil, many resource-dependent countries have transformed or are evolving into knowledge-based economies to survive in today's competitive economy. Such a transformation is necessary in order to achieve sustainable economic growth [25-32].

Considering the importance of knowledge as the main factor of economic growth, programs and strategies to accelerate and enhance the knowledge capacity of nations are on the agenda.

This is also true in Iran, and the issues and problems that have plagued the country over the past few decades have led to constant letters on the agenda to get out of the current situation.

2. KNOWLEDGE-BASED START-UP BUSINESSES

In a knowledge-based economy, knowledge companies are one of the most important institutions and information technologies are one of the most important drivers. Therefore, knowledge-based start-ups in the field of information technology are of great importance with both of the above aspects. It is necessary to study their characteristics in managing the conditions for creating and supporting this type of business and providing the required resources, including financial resources.

The following are the characteristics of knowledge-based start-up companies in the field of information technology.

❖ The assets of these companies are manpower with specialized knowledge (and creative ideas that require the protection of intellectual property rights).

❖ These companies, such as small size and inability to attract resources and poor management, need to provide resources, especially financial resources (capital raising) and consulting services at the beginning of formation.

❖ The formation, maturity and failure as well as market uncertainty are important features of knowledge-based IT companies.

❖ The inherent attractiveness of the IT industry, especially the rate of return on investment and the relatively higher rate of return on investment compared to other industries and the success of start-ups in this field in recent years, has led to many public, government and private capital investment institutions and personal contributors to this field.

❖ Familiarity of traditional investors with the IT industry and businesses in this field.

❖ The difference in the nature of businesses and ideas in the field of information technology, both in terms of evaluation and pricing, has led to a lack of proper documentation and increased investment risk in this field for traditional investors.

❖ On the other hand, however, different financing methods are different at different stages of the business life cycle, but the most important step, especially for knowledge-based companies, is to provide initial capital.

Therefore, considering the characteristics of knowledge-based start-up companies in the field of information technology, it can be said that these companies need financing at the beginning of their establishment and this need is not met by traditional investors and on the other hand, the familiarity of these businesses with information technology is a good platform for using co-financing.

2.1 Asset-based Financing Method

In the asset-based financing method, companies do not obtain cash based on their credit, but rather they acquire it based on the value of the particular asset they have created in their area of business. The most important examples of asset-based financing are receivables discounting, and leasing sparring and receivables discounting. In the method of financing by discounting receivables, a company sells a set of receivables with a high credit rating to another operating company for discount sales. The method of locking the warehouse is also one of the methods used for financing. In this method, lending is based on goods or products that are held as collateral.

These products can be stored in a warehouse that has been approved by the lender. If it was maintained in the borrower's warehouse, an independent third party enters the process for control. This method has benefits for the borrower. The borrower can use raw materials as primary collateral.
The loan repayment is at the same time as the actual consumption of raw materials.

2.2 Introduction of Co- financing Method

The method of crowd funding is derived from the collecting. The collecting is the use of the capacity and resources of the people to do work. In co-financing, the source of the money and the work in question is investment.

In defining crowd funding, Belfim et al. (2014) and Lamberto Schwynn Butcher (2010) similarly based on a variety of crowd funding models have defined this method as follows:

An open online invitation to raise funds, either in the form of a grant or in exchange for some kind of reward or franchise, in support of a special purpose project.

Also, Molik (2014) and Valensin and Jiglosiot (2014) have provided a close definition based on the process and content of collective national security, which is:

Crowd funding refers to the efforts of cultural, social, and for-profit entrepreneurs to finance their risky activities through the participation of low-capitalized individuals using the Internet without intermediaries and standard financial requirements. Crowd funding has at least three main actors:

Investors who are the mass of people participating in crowd funding , platforms and service sites that are the gateway to the interface, capitalists and funding applicants who are owners of ideas and start-up businesses.

Although the use of public participation in attracting financial resources goes back many

Table 1. Positive and growth factors of the platform side

Abundance	Variable name	Row
72	Accurate and professional design of the platform (content and appearance) with an attractive and comfortable site title	1
64	Ease of service and quick access and no time and space	2
48	Continuity in providing services and being up to date in various aspects	3
16	Cyberspace features (such as providing analytical reports, access to records, etc).	4
16	Ability to integrate with people's financial activities on the web	5
16	Use of modern technologies (useful applications)	6
8	Native to the site	7
8	Advertising growth centers and parks in this field	8
8	Select the domain name of the site appropriate to the economic activity	9
8	Ability to track capital by the investor	10

Table 2. Positive and growth factors of the environment

Abundance	Variable name	Row
48	Cultivate the use of collective investment by business owners and promote Successful examples	1
40	Technology infrastructure (Internet and social networks)	2
40	Government support for collective investment	3
32	Economic problems and recession (sanctions)	4
24	Liquidity in the right people	5
24	Wave entry in the market and change of marketable markets and insecurity in them (investment risk)	6
16	Problems in raising capital from other methods (bureaucracy and high guarantees in banks and their limitations, etc.)	7

years, but crowd funding in its current form is 15 years old.

3. RESEARCH METHODS

In this paper, the dynamics approach of systems and using collective modeling method to identify this phenomenon has been identified.

In this study, questions were designed based on the stakeholder model presented by Valensin and Jiglosiot so that the questions can cover all four stakeholders, i.e. ordinary people (capitalists), owners of knowledge-based start-up companies of crowd funding platforms and the environment (other stakeholders).

Therefore, this method of collecting information is of field type and through group and online interviews. The interview is also semi-structured in such a way that at each stage a question is asked and based on that the discussions begin to reach theoretical consensus. Finally, the question was summarized and then the next question was asked.

In the following, collective modeling is described and then the steps of collective modeling are stated and finally the results of this method are presented.

3.1 Introduction Collective Modeling

The systems dynamics approach was developed by Forrester to study problems within complex dynamic systems. Since the advent of systems dynamics approach, this approach has been developed in various aspects such as areas of application, methods and tools used, software and information resources and data collection methods (Ackerman and Venix).

For example, in the field of software development used in systems dynamics, online and web-based software or websites that are capable of dynamic modeling have been developed today. With the development of systems dynamics approach, different methods for modeling based on how to collect information from the sources of mental models, numerical databases and written databases to build models have been proposed.

In the field of modeling methods, initially the focus was more on mind modelling and based on information and library resources, and modeling is done individually. But since today's problems are beyond the ability of a person to understand and solve, it is not in the area of responsibility of an individual [33].

Collaborative modeling has been proposed by system dynamics scientists. Collaborative modeling can be done as group or individual modeling. In this regard, on the one hand, modeling the dynamics of systems emphasizes the participation of individuals and the use of their mental models, on the other hand, with the spread of the Internet and the advent of social networks, a good platform for using the community for various tasks such as sharing knowledge and ideas through outsourcing, sharing financial resources through co-financing, etc. is increasing. Therefore, participatory modeling can be done collectively through social networks. Therefore, the following 9 questions were designed for this purpose.

1. What factors related to the investor or the people cause the prosperity of the method of crowd funding and more investment and more participation of people for investment?
2. What are the factors related to the investor or the people as an obstacle to this method?
3. What are the factors related to the capitalist or the new knowledge-based companies, the prosperity of this method and more investment and more participation of people to invest?
4. What are the factors associated with capitalism or start-up knowledge-based companies that stand in the way of this approach?
5. What are the factors related to the platform or the sites that provide crowd funding and will lead to the growth of this method and more investment and participation of people to invest?
6. What are the factors associated with the platform or the sites that provide crowd funding as an obstacle to this approach?
7. What factors in the environment, such as government, business rules and regulations, information technology infrastructure, lead to the prosperity of this method and more investment and participation of people to invest?

8. What factors in the environment, such as government, business rules and regulations, and IT infrastructure are as the obstacle of this approach?
9. What policies or strategies can be proposed in Iran to develop crowd funding to support knowledge-based start-up businesses?

3.2 Factors Affecting Crowd Funding Platforms

The following tables list the factors that lead to the growth and expansion of crowd funding as well as the impediment to its growth on the platform side. On the platform side, 17 variables were identified, of which 10 are positive and 7 are negative. The following table lists the positive factors that drive crowd funding on

4. CONCLUSION

The need for financing in the early stages of the establishment of knowledge-based start-ups and advances in information technology has led to the creation and development of collective financing in the world and in Iran.

A review of the literature on the subject of this method indicates that studies on it have mostly explored one of the aspects of this method with an exploratory and experimental approach.

In Iran, crowd funding in the form of today and web-based is a new experience that in recent years, about 14 platforms have been created, some of which have been successful and some of which have been unsuccessful. But because the method of crowd funding is based on people's participation and is closely related to social insights and behaviors, therefore, it is necessary to use the opinion of the people and with a comprehensive approach, to gain a proper understanding of these methods and actions of the people about them.

Therefore, in this research, through collective modeling and using the opinions of experts, stakeholders and actors of this method, the factors affecting collective financing in Iran were extracted in order to support start-up knowledge-based companies.

Collective modeling means using social networks to bring together a large number of people to identify a new and exploratory dynamic

problem, gather different perspectives, analyze, model and present the results.

Using collective modeling, the factors affecting crowd funding to support knowledge-based start-ups were extracted, which were classified into four categories: investor stakeholders, capitalists, platforms, and the environment In each category, 17, 22, 24 and 10 variables were identified in the form of two categories of positive growth factors and negative and slowing factors of crowd funding development. In the end, based on the extracted factors and the opinion of the members, strategies and policies were suggested for the development of this method in Iran, which are:

Effective publicity and education, especially in relation to donors, the development of collective finance laws, the establishment of mechanisms to ensure collective financing and government support.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle5.com/review-history/88404