

Analysis of stage choice of venture capital

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Abstract: This paper was based on the study of internal mechanism of venture capital stage choice, centering on the stage choice of venture capital, studied development stage of venture enterprises and fund demand characteristic, and carried out practical analysis of coincidence degree of venture capital stage distribution in Xi'an high-tech zone, put forward proposals on the stage choice of venture capital in Xi'an hi-tech zone.

Key words : venture capital stage choice

1. Internal mechanism of venture capital stage choice

When invested on specified object, venture capital usually chooses investment amount and pattern according to the enterprise's development stage. Among these stages seed stage is most risky, the capital demand stems from government and enterprises. At initiative stage, the enterprise needs more capital to buy production facilities, develop products and market and so on. Because there is no preparation record, the enterprise has little possibility to get bank loan at this stage, and exceedingly needs the participation of risk investment. At growing stage, the enterprise begins to sell products and services, but it is still in loss in financial state and has to face with much internal and external risks. So the intervening and deepening of venture capital plays a deterministic role in the enterprises' living through the growing stage. At expanding stage, the enterprise has more marketing income than expenditure, yielding net profits. At this stage venture capital is of strong liquidity, the purpose of which is to help risk enterprises rapidly grow and make enterprises listed on market. At maturity stage, the enterprise doesn't need capital eagerly as much as early stage. The main purpose of financial is to introduce some stockholders to enhance the enterprise's reputation. The role of capital is mainly beautifying financial statement and preparing for going on the market.

In order to analyze the dispersion character of venture capital at different stages, we have introduced two basic parameters risks: investor's investment income expectation and the introduction cost expectation of the invested. The two basic parameters are closely related to technology risk, market risk of the invested items, the management and preparation risk of the investment. Risk investors have different investment expectation profits demand at different development stages. From the curve of the change regularity of risk investor's investment from high to low. Risk investor's investment expectation profits is high for previous investment. At initiative stage the lowest capital income demand is from 50 to 70 percent. With the gradual maturity of the enterprise operation, technology going through the market-tested, and its investment income expectation will decline step by step, up to profitable period, the lowest capital income demand reduces to 35 percent to 45 percent.

Correspondingly, with the difference of enterprise development stages, the equity that venture enterprise willingly make over for certain capital investment is unequal, whose introduction cost expectation takes on a regular change from high to low. The difference is the obviously slowing down of introduction case expectation at growing stage. Here we introduce the conception of identity, which shows the coincidence extent between risk investor's investment income expectation and investee's introduction cost expectation. Suppose the function of risk investor's investment income expectation is $p(t)$, investee's introduction cost expectation is $c(t)$, when introducing identity function, resolutions of them show as follow:

$$k(t) = f[p(t), c(t)]$$

Among these, $k(t)$ is directly related to the change of $p(t)$, that is, the bigger the value of $p(t)$ is, the bigger the value of $k(t)$ is, but the value of $k(t)$ is inversely related to the change of $c(t)$, that is, the smaller the $c(t)$ is, the bigger the $k(t)$ is.

Combined with the risk analysis of enterprise's market, technology management and other factors at different

stages are studied variation regularity between capital return expectation and capital-introduced cost expectation of investors and investees at different stages. we found that the identity function takes on a regularity of inverse u shape, of which coincidence degree is the highest at expanding stage, and the others relatively low. The reasons why expansion stage has optimal coincidence degree is as follows: (1) Based on intrinsic achievements and accumulation of operation experiences, risk degree decreases seriously; (2) when transparent degree of the invested objects is raised, venture capital participation can be easily controlled; (3) Understanding of both sides is deepened and mutual trust is raised; (4) The corporation invested has become more mature and can obtain money in a relatively short time.

Except for the above general regularity, the factors that we should consider on stage choice of venture capital are the actual strength of capital, the ability of risk management and the demand on withdrawing time of risk capital.

Generally speaking, small-scale venture capital corporations will choose to intervene at the starting or growing stages. But for a venture enterprise of strong capital strength, it can choose more other stages. Judging from the ability of venture enterprises management risks, the choice of Intervening point of risk investment is the important mark that reflects the comprehensive risk management of venture enterprises .For a venture capital of less experiences, if it enters at the earlier stage , it may be exposed to large risks and even finally fail. The request of withdrawing time for venture funds also affects the stage distribution of venture capital. If investors prefer to long-time capital return period., the scope of stage choice will be relatively wide and then several earlier stages of venture capital can be considered. However, if investors prefer to short -time capital return period, then the scope may be relatively narrow, and only later stages of venture capital may be suitable to enter, for example, expanding or maturity stage.

2. Analysis on demand and supply characteristics of venture funds.

2.1 . Analysis on demand characteristics of venture funds.

On the basis of analysis of the main operational and financial index of Xi'an high-tech zone, the paper classified the corporations in Xi'an high-tech zone according to their developing stages and drew the conclusion that the corporations rate belonging to starting, growing, expanding and mature stage is separately 23.7 percent,47.4 percent,18.4 percent,10.5percent.

Starting period. At this stage, technological risk that corporations are exposed to decreases, but marketing risk and capital risk stands out, and the capital is mainly used to establish production system and earlier market development, which is usually called setting-up capital.

This fund is greatly demanded by the corporations at starting stage, while investment risk degree is very high. Being Exposed to that high risk at the stage, risk investors usually require high expectation return as compensation.

Growing period: At the stage, the corporations are faced with technical risk and financial risk. The capital is used to improve market share, to buy more equipment to improve production ability and obtain scale returns. Demand of this fund is large, and expectation return that risk investors require is still high.

Expanding period. At this stage corporation's operational achievement has been generally embodied, in order to develop products and improve marketing ability, more funds are demanded. But because the corporations are still far from being listed, it is still difficult to obtain money from financial organizations .The participation of venture capital just can meet the need of corporation that lack money accommodation. At the moment corporations are mainly face with market risk and financial risk, anxiously expanding funds to stabilize profits, increase current capital, strengthen market, renew products and maintain the increase of sales and profits. The amount of funds demanded in this way is very large, but risk is relatively low. The corporations at the later growing stage or the earlier expanding stage need this type of funds mostly. In the one side, with a corporation's sales of products increased and market share expanded, its marketing risk decrease too. On the other side the corporation has been

operated for several years, its management risk greatly decreases .All these make the corporation's total risk decrease, so the expectation return that risk investors demand also decrease. .

Mature-period: At the moment the corporations grow up rapidly and are near to saturating state, development potential has been fully displayed. The corporations are at the previous stage of being listed, so investment risk is comparatively low, but there still exists certain marketing risk and financial risk. One of the main goal of money mobilization is to satisfy the capital demand for a corporation to develop. The other is to introduce some stockholders who can affect industrial circles to improve the reputation of enterprises and prepare for going on market. At this stage enterprises need much more capital that venture capital can't provide.

2.2.the analysis of capital oriented character

From the view about the source of different capitals and stage choice of investment ,considering the difference of its character and circumstances around it, some venture enterprises have great difference in the stage choice of venture capital in Xi'an high-tech zone.

1) .Venture capital institutions in the oversea or other investment areas. These institutions have taken up venture capital for a relatively long time, accumulated many experiences, and taken shape perfect choosing mode and strict evaluation program. In order to avoid investment failure caused by the distance and information non-symmetry, these institutions would rather not invest in the enterprises at springtime or growing stage, but at expanding stage , for example, shanghai ruan-fen invest in Xi'an shi-wei software company.

2).The different kinds of investment funds as a aid for starting an undertakings established by some departments. For these funds set up by government, they have obvious policy tendency and are invested at seed period and springtime. For instance, Xi'an science and technology investment ltd.c and Xi'an innovation investment ltd.c, pertaining to Xi'an science and technology committee, all belong to this type. While these institutions have limited capital, its investment is limited also.

3).Risk investment institution of great company. For the purpose of expanding its business, improving profit or setting foot in high -tech fields and seeking diversification, some huge company which come into the stock marketing also established the venture enterprise in Xi'an high-tech zone, the investment choice of these funds are usually determined by the business scope of parent company.

4).Xi'an local venture capital institutions,. Several venture enterprises have been set up which mainly take up risk investment in recent years. These institutions should become the main investors in the future. But at the moment these companies are young and lack many investment experiences, so they would rather not invest at the early stage which contains large risk, but later stage, at which the risk is small.

3.The analysis of matching feature of stage distribution of venture capital

At present, it is clear that the projects which have accepted venture capital at the expanding or mature stage in Xi'an high-tech zone holds leading status. Among the venture enterprises projects invested in 1999, three programs stay at the stage of springtime and growth, and the others stay the stage of expansion and maturity.

At the stage of seedtime and springtime, because of big risk, venture capital, no matter coming from government or folk, they all ask for high profit and more proportion of market as compensation, while it is hard to accept for people who started his enterprise. Beside, for little money is needed at this stage, generally thousands of money, many entrepreneurs would rather not accept venture capital, but tend to seek for more national science capital and innovation funds as an aid, thus the coincide degree is relatively lower.

The venture enterprises in Xi'an high-tech zone stay the stage of growth. They hold great enthusiasm to accept venture capital, that is, the cost expectation of absorbing capitals is still high .Since now venture capital company has enough freedom to choose projects, the investment earnings rate that they ask is sill relatively high. The coincidence degree of venture capital at growing stage is raised to certain extend, but it is still relatively low.

To the enterprise at the stage of expansion in Xi'an hi-tech zone, for such reasons as stable income, the

growing profit, the perfect management system, the decline of management risk , perfect marketing network, the improvement of company maturity and reclaim of cash in a short time, the risk of new enterprise is reduced greatly, meanwhile the required invest profit rate drop too. At the stage only a few banks and other finance institutions intervene in , so the cost expectation of absorbing capita is still high .At this stage the investment earning rate of venture capital investors is in coincidence with the capital-introducing cost of venture enterprises to the best extend , that is, at this stage it is easiest for both reach to investment agreement.

At present there are few companies which stay at the stage of maturity in Xi'an hi-tech zone. But because of the stable income and profits of the kind of companies, many banks have pay much attention to them. Then the banks would provide loan to the companies in a relatively low cost. Therefore, although the investment earnings $p(t)$ that investors required remains as before, the cost expectation of introducing capital is greatly lowered, thus make the value “coincidence degree” $k(t)$ low .

To sum up, the best choice of the stage choice of venture capital in Xi'an hi-tech zone is the expanding stage. Xi'an high-tech zone begins with the middle and latter stage of venture enterprises, mainly making investment at the expanding stage. Xi'an is a city full of science research institutions and high schools, many potential and prosperous advanced science findings. So, this kind of venture capital should be paid attention to and cooperate with overseas venture enterprises> As the result, risks can be dispersed and more experiences can be obtained.

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