风险投融资契约研究

BOSHIWENKU

博士文库

国内外研究现状评述
风险投资及风险投资中的契约关系
金融契约理论框架
基于现金流分配权的典型金融契约模型
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风险投融资契约实证分析

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内容摘要

科技创新是一个民族进步的灵魂，是国家兴旺发达的不竭动力。目前我国正致力于创新型国家的建设，从中央到地方，无不将创新型社会的创建作为重要工作来抓。但如何真正实现这一美好的愿望，还必须作一个冷静的分析。创新型社会建设需要两个方面的支持：一是技术层面的创新，没有技术创新，创新型国家建设将是空中楼阁，无本之木；另一方面，还需要将技术的创新真正转化成现实生产力的媒介和助推力，那就是对技术创新转化的金融支持。前者主要在于建立一个思维活跃，勇于不断创新的社会环境，它不是本书所能涉及的内容。本书关注的重点是如何实现有利于技术创新的金融支持，使创新技术在向现实生产力转化过程中能够方便地融通到所需要的资金。但是，创新技术转化的资金融通不同于传统企业或项目的资金融通，它带有很大的风险性。创新技术的“新”是一把双刃剑，如果转化成功，前期的垄断性可以使其博得非常高的超过社会平均水平的利润，但“前途未卜”的转化也很有可能以失败告终。也就是说，技术创新企业或项目蕴涵着高收益，高风险，通常也称之为风险企业。因其特殊的风险性，其融资渠道和方式也将是特殊的，传统的融资渠道和方式已不能满足其需要，根据需求产生供给的原理，专门对风险企业或创业家融通资金的投资者——风险投资者也就产生了。因为其特殊的高收益、高风险性质，风险投资者与创业家之间的投融资关系也脱离了传统的轨道，变得特殊起来。

那么，如何确立风险投资者与创业家之间的投融资关系，也

就是他们之间的金融契约如何制定，才能不损害双方的利益，而使技术创新企业或项目取得最大可能的成功呢？本书试图对此作一些理论上的探索。

一、本书的主要内容和观点

全书由五章组成，沿着对风险投资基本属性的理解→风险投融资契约理论框架的确立→基于完全契约理论的风险投融资契约设计→基于不完全契约理论的风险投融资契约设计→风险投融资契约实证分析的思路展开。主要内容和观点如下：

第一章，风险投资及风险投资中的契约关系。风险投资源于知识经济时代对具有高风险、高回报科技项目产业化的金融支持，对创新社会的形成具有举足轻重的作用。风险投资相对其他投资而言，有着特殊的过程、性质及相互关系。本章要解决的问题是在众多关系中确定本书所要研究的对象，即风险投资家与风险企业或创业家之间的投融资金融契约关系。

第二章，金融契约理论框架。契约是一种承诺，它的产生源自于交易双方的信息不对称。当把契约理论引用到金融领域，就有了金融契约理论。金融契约依据其对金融交易信息的能否证实，分为基于完全契约的和基于不完全契约的金融契约理论。基于完全契约条件下的金融契约认为所有的信息都是可认知的，即使可能不对称，但是可以检验和证实的；而不完全契约条件下的金融契约认为不对称的信息是不太可能检验或证实的，控制权的配置对交易效率有着至关重要的影响。

风险投融资金融契约研究一直是置于金融契约的研究框架下进行的，一是基于完全契约条件下的只关注风险企业现金流分配的研究模型；二是基于不完全契约条件下的重点关注风险企业控制权配置的研究模型。本章将对契约、金融契约的研究文献作一个梳理，理清风险投融资金融契约的研究框架和范式，为第三章和第四章的研究奠定理论基础。

第三章，基于完全契约及现金流分配权的风险投融资契约研

究。完全契约是这样定义的[①]:缔约各方都能完全预见契约期内所有可能发生的影响事件,并规定采取相应的行动,愿意遵守契约条款,若对契约条款产生争议,可由第三方(如法院)证实而予以强制执行。完全金融契约理论是指在有关事后的企业投资项目收益存在信息不对称和为克服信息不对称进行有成本监督的前提下,契约当事人在缔结契约时点能够完全预期到契约期内可能发生的所有状态,并将所有状态进行特定化,运用"成本状态法"(Costly State Verification, CSV)方法,推导出于事后的企业投资项目现金收益流效率分配相对应的激励相容的金融契约理论。[②] 在一切可能皆能穷尽的情况下,投资者和创业家之间的关系也相对比较简单,投融资契约的所有内容也就是穷尽一切可能,并对其进行规范,最终的落脚点将是风险企业或项目的货币收益如何在二者之间进行分配的问题,即现金流分配的权利如何实现的问题。

在这里需要解决的问题是在信息不对称条件下如何激励创业家采取最优的行动,如何让创业家真实地报告风险企业业绩。因此,投融资双方需要通过现金流的不同分配模式来解决信息不对称问题。从成本角度出发的 CSV 模型和从收益角度出发的 Innes(1990)模型是这一研究方法的典型代表,他们的结论是债务契约是最优的。同时,在风险投资领域,高比例可转换金融契约的现实也促使许多学者去解释其合理性。但笔者发现大多文献模型的风险偏好假设与现实是不符的,创业家的风险假设应该是偏好,而不是风险中性。因此,笔者将改变这一风险假设,假设投资者风险中性,创业家风险偏好,证明纯债务金融合同对创业家风险偏好有激励作用。建立一个基于收益的分配函数,以促使创业家选择低风险行动为激励条件,通过分析分配函数的构成,分

① 科斯,哈特,斯蒂格利茨. 契约经济学[M]. 李风圣,译. 北京:经济科学出版社,1999:13-14.

② 潘敏. 资本结构、金融契约与公司治理[M]. 北京:中国金融出版社,2002:113-114.

析最优的金融契约类型。通过比较论证,结论是可转换证券是在完全契约条件下基于现金流收益分配权的最优契约。

第四章,基于不完全契约及控制权配置理论的风险投融资契约研究。在完全金融契约(complete contract)假定基础之上,创业家和投资者在缔结资金借贷契约时能够完全预期到契约期内投资项目收益的各种状态以及缔约双方可能采取的各种行为,并且创业家和投资者愿意遵守双方事前所签订的契约条款,契约中所涉及的双方事后分配的收益是明确而且能够由第三方(如法院)进行验证的;当契约的缔约方对契约条款产生争议时,第三方能够强制其执行。即使有信息不对称问题的存在,但信息是可以检验的,无关乎企业的决断问题,只需要货币收入的激励。但在不完全金融契约情况下,信息是不可证实的,投资者无法证实创业家事前的行动选择和事后业绩报告的真实性,创业家无法证实投资者的策略选择,第三方也无法证实。具有决断意义的控制权配置将十分重要。

企业的所有权和财产权理论告诉我们:控制权源于所有权,由所有权派生。GHM 理论的核心思想是控制权的不同配置(或者说所有权的不同归属)将影响交易效率,因此,控制权是重要的。对于风险企业如何在风险投资者与创业家之间配置控制权的问题,以 Aghion – Bolton(1992)和 Dewatripont and Tirole(1994)模型为代表的基于不完全契约的控制权模型给了我们研究的思路和突破口。但考虑到文献模型的假设条件和考虑因素的缺失,笔者拟建立一个新的基于不完全契约的模型进行研究,不同于以往之处在于:①风险假设是投资者风险厌恶,创业家风险偏好。②考虑投融资双方特别是投资者的非货币私人收益(战略目标等)。新的模型从促使创业家进行低风险行动选择和项目最优继续决策的控制权配置两个方面着手。前者的结论是具有私人收益的投资者控制是最优的,后者的结论是控制权具有相机配置的性质。综合两方面因素,笔者认为债务契约更符合其特质。因此,从控制权角度出发,在前面假设条件基础上的风险投融资金融契约是债务契约。

第五章,风险投融资契约实证分析。鉴于笔者手上的数据限

制，本书暂不能就第三章、第四章所发展的风险投融资契约模型作实证研究，转而主要就政府型风险投资机构与风险企业之间的投融资契约进行实证考察和实证分析。通过对国内外带有强烈政府色彩的风险投资机构投融资方式的描述性统计，发现现实的风险投融资更多地采取了纯股权的方式，这与理论研究的结论不相吻合。笔者认为可能的原因有两个：一是理论研究的假设是严格和单一的，与现实世界纷繁复杂的情况可能不尽吻合；二是考察对象的强烈的政府背景也可能影响风险投融资方式的选择。

同时，笔者试图通过实证的途径找到风险投融资方式的影响因素，同样因为数据的缺乏或者参数设计的难度，不能将能考虑到的因素都加入进来作多元回归，仅能就风险资金额占整个项目所需资金总额的比例对投融资方式作一元回归。结论是融入的风险资金占项目总资金额越高，采用股权的投融资方式的概率越大。

二、本书的主要创新之处

本书的研究框架与传统的风险投融资金融契约一样，从两个分支来研究风险投资这一特殊领域的投融资契约：一是基于完全契约框架下的以现金流分配权为出发点来研究金融契约；二是基于不完全契约框架下的以控制权配置为出发点的研究思路。但是本书有着较为重要的创新。

1. 对创业家风险偏好的假设更符合现实世界

书中对风险投融资的两个不同出发点的研究假设与现有研究不一致。现有的研究假设基本上假设创业家和投资者均为风险中性，笔者认为，这样的假设前提过于简单化，更与现实世界不符。

风险投资家通常需要周期性筹集资金，而筹集新资金的能力依赖于其早期所管理基金的业绩表现。投资失败的记录会严重影响风险投资家的声誉，并大幅增加其再筹资的难度，因此，风险投资家应该表现为风险厌恶。但是，相对于投资者，创业家往往没有初期财富，使用的风险投资资金几乎都是别人的。如果项目成功，创业家可以获得巨大收益，包括货币的和非货币的，而如果

项目失败,创业家没有货币的直接的经济利益损失,其所拥有的技术还可以在一而再,再而三的失败后,日臻成熟,最后成功。创业家是不怕失败的,只要能融到资金,他会冒着一切可能的风险进行项目投资。因此创业家不应该是风险中性,应该是风险偏好的,这样的假定更接近现实。

2. 将投融资双方特别是风险投资者的非货币收益加入到研究模型中

现有风险投资理论主要的集中点是风险投资的财务结果,即主要以货币收益大小作为风险投资的成功与否的判断依据。风险投资主要是一种新型的未来性的投资,获得超额利润固然重要。但现实的情况是,风险投资过程中,创业家和风险投资者除追求货币收益的最大化外,私人非货币收益仍然是他们考虑的重要因素。对创业家来说,项目成功与否的声誉、特定人力资本的实现等就是他要考虑的私人收益;对投资者尤其是大公司风险投资来说,公司战略目标、技术再造、规模经济、范围经济等都是他们要考虑的私人收益。本书同样依据现实的需要,在风险融资契约模型论证过程中,充分考虑了投融资双方,尤其是风险投资者的非货币私人收益。

3. 对风险投融资契约尤其是我国国有风险投融资进行了实证研究

由于风险投融资契约数据的取得非常困难,要进行实证研究难度非常大(这样的投融资合同一般是保密的),但笔者仍然通过艰难的渠道获得了一些初步数据,并对其进行了简单的实证分析。实证包括:①对美国 SBICs 和我国某一具有代表性的国有风险投资公司投资方式等的描述性统计,分析了理论与现实数据不一致的原因;②利用现有数据对影响风险投融资方式的因素作一元回归,选取的因素是风险投资额占项目总金额的比例,结论是,风险投资额占项目总金额越大,采用股权证券契约方式的概率越大。

关键词:风险投融资　契约理论　契约设计

Abstract

Technological innovation is a soul of a nation's progress and the non-exhausting motivation of a nation's prosperity and booming. Both the central and the local governments in our country are taking creation of innovative type of society as important work to carry out. But how to really realize this fine wishes, we must make a sober – minded analysis. Construction of innovative type of society needs two respects of supports: on the one hand, it is the technological innovation, without it, the construction will be a mirage; On the other hand, the financial supports are needed which serve as media and boost motor transforming technological innovations into practical production power. The former mainly deals with building up a creative social milieu, which is beyond the scope of this thesis. The most important thing the thesis cares about is how to realize those financial supports that promote innovation. But financing technological innovation which bears a lot of risk differs from that of traditional enterprises. Innovative technology is a double – sided sword. If it is successfully commercialized, the monopoly can make high profits far more than the average level, however it would result in a failure and loss of lots of money. That is, new technology based enterprise implies high return and high risk, which is also called a venture enterprise. Its special risks lead to its special financing channel and modes. Because traditional financing channel can't meet the needs, a new kind of investor, venture capital-

ists (VC) comes into existence specializing in ventures financing.

Then how to establish the relationship between the venture capitalist and the entrepreneur? This thesis tries to do some theoretic exploring.

1. **The main contents and viewpoints**

The thesis is composed of five chapters, following a path: analysis of basic attributes of venture capital →establishment of theoretic framework of venture capital financial contracting →venture capital financial contracting design based on complete contracts →venture capital financial contracting design based on incomplete contracts →empirical analysis on financial contracting. The main contents and standpoint are as follows:

Chapter 1. Venture capital and the contracts. The venture capital comes from financial support for high - risk and high - return projects in the knowledge - based economy, which plays a key role in forming a innovation society. Compared with other investments, venture capital has a special process, property and relationship with each other. The problem this chapter is intended to solve is to specify the research objects, i. e. , the contracts between VC and the EN.

Chapter 2. Financial contractual theoretic framework. The contract is a kind of commitment, which originates from informational asymmetry and it's the application of contract theory to financial fields. According to whether the information between the financing parties can be verified, it is classified into two types of financial contract theory: financial contract based on complete contracts and financial contract based on incomplete contracts. Financial contract based on complete contracts pose that all information is verifiable. Financial contract based on incomplete contracts holds that information isn't verifiable, so allocation of control rights affects transaction efficiency greatly.

Researches on venture capital contract are always conducted in the framework of financial contract, those based on complete contracting only care about allocation of cash flow of venture enterprise, and those based on incomplete contracting otherwise care about allocation of control rights. This chapter mainly recalls related literature in financial contract sorts out the research framework and paradigm and lays a foundation for analysis of Chapter 3 and Chapter 4.

Chapter 3. Research on venture capital contract based on complete contracting and allocation of cash flow rights. Complete contracting is defined as contract in which all the parties can ex ante anticipate the events and regulate corresponding actions, if there are disputes over contract terms ex post, a third party (i. e., court) can verify and enforce to exercise according to specified contract. Financial contracting based on complete contract contains a lot of literature especially those initiated by Townsend (1979) who utilized approach of CSV (costly state verification) and later Diamond (1984), etc. They concluded that debt is the optimal contract.

In most of the papers they assumed that the entrepreneur is risk neutral which is contrary to the real world. I think that entrepreneur should be risk love. I established a model under assumption that entrepreneur is risk love in framework of complete financial contracting and I concluded that convertible security is a optimal financial contracting.

Chapter 4. Research on venture capital contract based on incomplete contracting and allocation of control rights. Incomplete contract theory implies that the contact is silent to some unanticipated events, so allocation of control rights is important. Grossman and Hart (1986), Hart and Moore (1990) developed a property theory in the framework of incomplete contract. As for how to allocate control rights between venture capitalist and entrepreneur, Aghion and Bolton

(1992), and Dewatripont and Tirole (1994) is a pioneer. Different from them, I developed a model assuming that entrepreneur is risk love and the investor has private benefits, our conclusion is that debt satisfies the assumption and solution of optimization.

Chapter 5. An empirical analysis on venture capital contracting. This chapter mainly investigates the relationship between government – backed venture capital institution and venture firms. We found that their contract is more prone to take contracting of equity, which is not consistent with the theory to some extent. I think that two reasons may contribute to the results: the first is that the assumption may be too strict and simple; the second is that the background of government may affect selection of type of contract. We make a Logistic regression and found that the bigger ration of the total invests the government – backed venture capital institution make stake, the bigger probability of type of equity it will take.

2. The main contributions of the thesis

The thesis follows the existent research framework. The main contributions are as followings:

Firstly, the assumption that entrepreneur is risk love is more suitable to describe real world.

In reality, the investors are easier to diversify their investment in the capital market to earn average return, so the assumption that the investor is risk neutral is reasonable. But compared with the investor, the entrepreneur usually dosen't own initial wealth, once the money comes from outside investor, he is more willing to take riskier actions. If the project succeeds he achieves a lot, if the project result in failure, he dosen't bear direct losses. So the entrepreneur should not be risk neutral, on the contrary, he should be risk love.

Secondly, I incorporate investor's non-monetary benefit into the model.

Much literature in the venture capital contracting considers entrepreneur's private benefit. But as a matter of fact, some investors, especially large company becomes venture capital investor, for them, company's strategic object, technology acquiring, scale economy, scope economy and etc. are all its private benefit. In this thesis, I take account of investor's private benefit and get some results.

Thirdly, I make a simple empirical analysis on contract between state – owned venture capital institutions and the investee. I make a descriptive statistics based on data of SBICs and one state – owned venture capital institutions in our country. After that I collect data form a state – owned venture capital institutions located in Beijing and take the financing security the institution adopt as dependent variable and the ration of the institution's investment in a investee company as explanatory variable and make a make a Logistic regression, I found that the bigger ration of the total investments the government – backed venture capital institution make, the bigger probability of type of equity it will take.

Key Words: enture capital's investing and venture firm's financing
Financial contract
Contract design

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