



暨南大学管理学院“十五”“211工程”建设项目“企业管理理论与应用”研究成果系列丛书——博士文库系列

JINAN DAXUE GUANLI XUEYUAN SHIWU 211 GONGCHENG JIANSHE XIANGMU  
QIYE GUANLI LILUN YU YINGYONG YANJIU CHENGGUO XILIE CONGSHU BOSHI WENKU XILIE

苏晓华 / 著

# 高科技企业的合约安排 及其特性

——基于企业家理论的研究



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# 总 序

暨南大学管理学院“十五”“211工程”建设项目“企业管理理论与应用”是暨南大学“十五”“211工程”重点建设项目之一，其研究内容主要包括国际化经营与战略管理、生产运作与物流管理、人力资源管理及组织行为、公司理财与会计规范等四个方面。预计在国际化经营和价值链管理方面形成一批有国际影响和实用价值的学术成果。此次出版的系列丛书是我院科研人员近年来在国际化经营与价值链管理方面取得的研究成果的汇总，分为《博士文库》和《价值链研究》两个系列。

当今世界经济面临着经济全球化和新经济浪潮两大挑战，这对各国和各地区的经济发展将产生极其深远的影响。在这一背景下，供给与需求在时间、空间上的关系将面临重大变革，并成为未来市场竞争的焦点，直接关系到未来企业的价值链定位以及价值链结构。在这种情况下，企业管理的理念、模式和手段都将发生重大变革。作为市场主体的企业，只有站在全球化的背景下，充分运用信息技术等手段科学地实行价值链管理，才能适应新形势的要求。我们的研究正是在这种新形势下展开的。《价值链研究系列》涵盖了价值链管理下企业品牌、

ERP 应用以及审计功能等多方面的研究,对有关概念和方法进行了有益的探索并提出了独到的见解;《博士文库系列》是我院年轻教师在上述各领域完成的博士论文的基础上修改而成,在理论方面具有一定的先进性。我们希望通过此次出版工作,一方面能够和国内外有关同行和专家分享我们在国际化经营和价值链管理方面的研究成果,另一方面能够得到各位专家提出的批评和建议,使我们能不断提高科研工作质量和科研成果水平,为国家的发展和经济的繁荣做出更大的贡献。

本丛书的编写和出版得到了暨南大学“211 工程”建设领导小组和管理学院有关领导的大力支持,管理学院的有关专家对本次出版工作也提出了许多宝贵的意见,在此向他们表示衷心的感谢。

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2004 年 8 月

# 摘 要<sup>\*</sup>

高科技企业作为更特殊意义上的一个  
人力资本与非人力资本合约，它与传统企  
业存在着很大区别。这个区别不仅是就技  
术而言，更多还在于人力资本在企业中的  
地位。新古典经济学以传统企业为分析摹  
本，强调物质资本而忽视人力资本的作用，  
遵循物质资本至上的分析范式。但在以高  
科技企业为典型代表的新型企业中，人力  
资本已日益成为企业最重要的资产和财富  
增长的源泉。从历史变迁的角度看，企业  
的要素结构发生了变化，以物质资本为主  
导的传统企业要素结构开始了向以具有企  
业家精神的人力资本为主导的现代企业要

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素结构的转变。人力资本在实践中地位的上升逐渐引起企业性质发生一系列变化，并相应地反应在高科技企业的合约安排尤其是激励合约的安排上。因此，从人力资本角度对高科技企业进行研究已逐渐引起学术界的重视。

基于以上考虑，本书从人力资本尤其是企业家人力资本的角度来研究高科技企业，不仅从理论上规范地研究其合约特性及安排，也结合我国情况实证考察合约的具体安排、效果及存在问题。人力资本的重要性与其自身特性决定了高科技企业合约的特性及具体内容，而合约的具体安排又反过来会影响人力资本所具备的企业家精神的发挥。所以，本研究主要围绕以下两个问题展开了研究：一是相对于传统企业，高科技企业的合约特性究竟有什么不同；二是高科技企业的合约安排是怎样激发企业家创新精神的。相应地，本书从总体上分为三个部分：

第一部分（第一、二章）是本书的起点，主要包括导论及文献评述。导论部分对本研究的选题背景与意义、逻辑思路与研究方法、基本假设与概念、研究内容及安排进行介绍。第二章则主要围绕高科技企业的合约特性展开论述。首先，在批判性地回顾企业合约性质理论的基础上，本书认为，包括新古典经济学、契约理论（交易成本经济学、产权经济学、代理理论）、企业能力与知识理论，都程度不同地忽视了人

力资本尤其是企业家人力资本在企业合约中的重要性，因而都存在着一定的局限性。在对企业家理论各个学派进行回顾和总结的基础上，本书抽象出企业家精神最为本质的三点，即创新、承担风险和不确定性、对机会的识别和把握。并且认为，高科技企业家正是在这三点上有别于传统企业家：他们是更大意义上的创新者、更高层次上的不确定性和风险承担者、更强能力的机会识别和把握者。在此基础上，本书阐释了高科技企业的契约性质和企业家特征，认为高科技企业是高能人力资本主导的合约，是激发企业家创新精神的一种制度安排。

第二部分（第三、四章）是高科技企业合约安排的理论框架。第三章首先揭示了高科技企业合约特性生成的内在逻辑，认为在企业合约理念与实践（包括以委托—代理理论为基础的“股东至上型”合约观；以利益相关者理论为核心的“共同治理型”合约观；最新的以关键资源依赖为基础的“进入权论”合约观）的变迁过程中，贯穿的主线是人力资本的引入及其地位的上升。本书进而分析了人力资本的特征，包括人力资本的重要性、产权特性、可承担风险性及谈判力强弱等，这些特异性决定了人力资本在企业合约中的地位。接着，本书考察了高科技企业中特异性人力资本的创租过程，并进一步研究了由其特异性决定的高科技企业的合约特性。



在对高科技企业合约安排的两个维度进行分析的基础上，第四章首先从技术层面对适合于高科技企业的合约类型——分成合约及其功能进行探讨。本书认为，高科技企业的合约安排必须保证人力资本以适当的方式参与企业剩余分配，而在所有的合约类型中，分成合约很好地满足了这一要求。在以高风险为重要特征的高科技企业中，实施分成合约不仅能实现风险分担，从而使具有高不确定性的创新成为可能，同时也可以通过赋予人力资本以利润分享及对利润分配的谈判权等方式，最大限度地激发高科技企业家人力资本的创新精神。然后，本书就制度环境对合约安排的影响、合约安排变迁的原因及效率评判进行了理论上的探讨。本书认为，从制度环境尤其是所有制环境考证我国高科技企业的合约安排是必要的，并且合约安排也会随着制度环境的不同，呈现出不同的制度变迁特点。

第三部分（第五、六、七章）重点对我国高科技企业的合约安排进行了相应的实证研究。

（1）第五章从对国外分成合约的实践（主要包括经营者持股、职工持股、股票期权三大类）考察入手，进一步从技术层面对我国不同分成合约模式的实施及效果进行了描述性研究。分析结果显示，这些股权分享模式都不同程度地起到了一定激励作用，但也都存在着不少问题。

(2) 第六章从制度层面进行论述,借助博弈分析法,首先对不同所有制下高科技企业分成合约的实施动机进行了探讨。在私营企业中,股权激励的选择动机无论是对所有者还是经理人来说,都相对单一,因而我们可以较自然地得出博弈中的占优均衡。而在国有企业中,由于股权激励的选择动机相对复杂、国有股东的多元化目标以及经理人道德风险的高发生概率,都使得均衡难以在某个点上实现,实际中股权激励实施与否可能是一个更加个性化的谈判过程。然后本书从历史角度考察了不同所有制环境下高科技企业合约的变迁,发现转型期我国两类高科技企业(公有民营与私有民营科技企业)合约的初始产权制度及激励合约虽不尽相同,但都呈现出向分成合约演进的规律。在此基础之上,本章对我国高科技企业合约变迁过程中存在的问题及解决思路进行了探讨。

(3) 第七章对我国股权激励效果进行实证检验,选取了143家高科技上市公司高管持股的样本数据,对在前面分析基础上提出的理论假设进行检验,结论大部分支持假设。包括:高管持股的高科技企业与高管未持股的高科技企业在业绩上存在差异,前者好于后者;高管持股的上市高科技企业中,高管持股比例与公司的经营绩效之间呈正相关关系;高管持股与企业业绩的相关性显著于员工持股与企业业绩的相关性。在进一步对行业细分、资本结构、企业规模、成长性

等因素进行分类的情况下，本书就高管持股与企业绩效的关系进行探索性研究，得出了一些有意义的结论。总体上看，高管持股这种方式在各类高科技企业中具有不同的激励效果。本书实证结果表明，在国有绝对控股、资产负债率适中、规模偏小、成长性高的电子通讯、软件及计算机行业内的上市高科技企业中，高管持股具有较好的激励效果。

第四部分（第八章）是结论与讨论部分，对本书的主要观点和结论、创新之处、本研究的不足及进一步的研究方向进行总结。

## ABSTRACT

High technology enterprises play a vital role in current and future economic activities. As a special nexus of contract between human capital and physical capital, high-tech enterprise differs greatly from traditional firm. This difference lies not only on the technical aspects but also more on the distinctive role of human capital. It is generally believed that neo-classical economics focuses on the analysis of traditional firm, gives sufficiently highlights on physical capital while ignoring the voice of human capital. This can be concluded with the physical capital-primacy paradigm. When applying this perspective to the high-tech enterprise, which stands for the so-called new enterprises, we find things are not always in line with the neo-classical perspective. In technology-based firms human capital turns to be the most important source and driver of the growth of the firm. From the historical point of view, we find that the elements structure of the firm has changed a

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lot. The human capital has taken the place of physical capital, becoming the dominant element in the firm. The escalating role of human capital in business practice has induced the partial change of the firm's nature, which accordingly is reflected in the governance arrangement and the incentive contracts. Therefore researches on high-technology enterprise from the human resource perspective have greatly flourished recently.

Based on the above consideration, we intend to focus our research on high-technology firms from the human capital, especially entrepreneurial capital perspective. Besides expounding on the nature, characteristics and arrangement of the contract normatively, this paper will also empirically verify the above research issue with the combination of Chinese high-tech firms' business practices. Since the importance of human capital and its unique features greatly influence the nature and construct of the high-tech firm's contract, subsequently the specific arrangements of the contract will give feedback to the entrepreneurship potential, this paper is mainly centered by the following two issues: (1) Compared to the traditional firm, what is the unique nature of the high-tech firm's contract? What kind of role the human capital plays in this contract? (2) How this contract is specifically arranged? By what means can entrepreneurship in high-tech firms be sufficiently motivated? Accordingly this paper can be classified into three parts as follow:

The first part (Chapter1 and chapter 2) mainly covers introduction and literature review. The introduction states the research background, the research logic and method, etc. Chapter two

resolves around the contractual nature of high-technology enterprise. On the basis of critical retrospect of the theory of the firm, we find that besides the entrepreneur perspective, theories including neo-classical economics, transaction cost economics, property right economics, agency theory, competence and knowledge-based theory to some extent have all ignored the crucial role of human capital, especially entrepreneurial capital in the contract. Through the work of literature review, we classify the nature of entrepreneurship into three points as crafting innovation, taking risk and uncertainty, distinguishing and seizing opportunities. These features are what make the high-tech entrepreneurs distinctive from traditional entrepreneurs as the former are required more active in innovation, more willing to taking risk and uncertainty and more capable in seizing the opportunities. We believe from this point of view that high-tech firm is a high power human capital primacy contract, taking full advantage to motivate the entrepreneurial innovations.

The second part ( Chapter 3 and chapter 4 ) embodies the frame of this paper's theoretical analysis. In chapter 3 we turn to the internal explanation for the contractual characteristics of the high-tech firms. The changes of contractual analysis perspective, including principal-agent based view, shareholder primacy view, stakeholder primacy perspective, co-governance view and the access right theory, have all demonstrated that the increasing importance of human capital is the key factor that gives in-depth elaboration to those transformations of research focuses. This paper tries to analyze

the determinants that help the repositioning of human capital in the contract. The importance of human capital, the property feature of human capital, the risk taking capability of human capital, the bargaining powers of human capital are among four factors to give proof to the above argument. Through the investigation in the rent creating process primacy by the human capital in high-tech firms, this paper further reveals the contractual nature of the firm.

Chapter 4 continues the analysis about contractual arrangement for high-tech firms, pointing out that contracting design must ensure the human capital to share the residuals through appropriate means. Among all types of contract, profit sharing is believed as the one to live up to this demand. As any participants in high-tech firms cannot solely bear such great uncertainty, it is profit sharing that can realize the risks and uncertainties be undertaken by different parties. This also gives incentive for innovating activities under great uncertainty. At the same time, profit sharing is always helping for screening of human capitals with desired entrepreneurship. Through profit sharing, ex post bargaining on profit and a voting voice in the governance, entrepreneurship in high-tech firms can be ultimately inspired. We also make a tentative analysis about the institutional factors that might exert influence on the change of contractual arrangement for high-tech firms.

Part 3 (Chapter 5, 6 and 7) is the positive research concerning the contractual arrangement for high-tech firms. (1) Combined with western practice, Chapter 5 makes a descriptive analysis about the profit-sharing patterns in Chinese high-tech firms. Re-

search findings indicate that those different patterns all have some positive effect in motivating human capital's endeavors. (2) Chapter 6 while discusses the above issue from the institutional dimension, finding that in private owned enterprises, no matter for the owner and professional managers, the motivation for choosing stock option is quite clear and certain. Thus we can reach a dominant equilibrium for both parties. While in state-owned enterprises as the incentive to choose stock option is rather complex and high opportunism for managers. All these make it difficult to reach a stable equilibrium for both parties. In reality whether or not to accept stock option to enforce motivation is a more individualistic bargaining process. The result is determined by two parties' bargaining power and other considerations. The following section then focuses on the evolutionary pattern of the contractual arrangement of the high-tech firm in China. During this transition period from planned economy to market economy, although those two kinds of firms showed much difference in incentive contract and property rights pattern in initial stage, they all abided by the same path in institutional change, which evolved towards the profit-sharing arrangement. (3) The empirical analysis is conducted in chapter 7 to test the effect of the profit-sharing arrangement in Chinese high-tech firms. The dissertation uses 143 listed high-tech companies as the sample to verify the proposition rose in the above theoretical analysis. Most of the proposition is proved by the test, such as there exists significance in performance between the high-tech firms with executive stocks and without executive stocks; there is a strong cor-



relation between the executive share proportions and the business performance; the correlation existing between the executive share proportion and firm's performance is much greater than that between employee stock proportion and firm's performance. More in-depth analysis is conducted under the classification of ownership structure, industry, scales, financial structure to test the relationship between the executive share proportion and firm's performance. Those exploratory researches on the whole bear some reasonable conclusions as in the listed high-tech firms, which are state-owned, moderate scale, high growth oriented, have better incentives by the executive shareholding.

Part 4 (Chp8) is the conclusion and discussion of this dissertation, which includes the main views and conclusions, innovation, and future direction of this research.