Private Ordering and Corporate Governance: 
The Case of Venture Capital

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In a private company setting corporate governance institutions can be viewed as responses to the contractual challenges of moral hazard, adverse selection and incompleteness of contracts. Thereupon, the attributes of corporate governance mechanisms are structured in a way that allows the corporate constituencies to deal with contractual design exigencies. Contract theory is thus a determinant of corporate governance.

VC-backed firms provide an explicit manifestation of this philosophy of design of corporate governance institutions. The financing practices that VC firms implement and the securities that they hold are carefully designed so as to allow the members of the firm to surmount the contractual obstacles. Staged investment (or staggered financing) is a screening mechanism that induces entrepreneurs to signal their intrinsic motivation to the VC firm and thus allows the latter to tackle the adverse selection problem. Convertible preferred stock, the VCs’ investing vehicle of choice, allows the establishment of an incentive-compatible income stream, as it replicates the disciplining and agency cost-mitigating effects of paradigm debt while at the same time it eliminates the foremost agency cost of paradigm debt, the “asset substitution effect”. Consequently, with the “debtlike” security of convertible preferred stock VCs can cope efficiently with the problem of moral hazard. In addition to this, the typical covenants that are embedded in convertible preferred stock help to generate an optimal state-contingent allocation of control rights between the VC and the entrepreneur that is in alignment with the basic axioms of financial contracting theory. Thereupon, convertible preferred stock serves as a corporate governance mechanism that challenges the problem of the incompleteness of contracts.

Finally, given that the design of efficient corporate governance institutions in a VC setting requires a great deal of contracting flexibility, we look at the mandatory nature of European corporate laws and seek to ascertain whether they directly impede VC contracting. Although no such evidence is found, it is argued that the overall mandatory nature of European corporate laws compromises the contract innovation capacity of European lawyers, who, paralyzed by anchoring bias, do not invest in learning sophisticated VC financial and corporate governance design techniques that would let the VC industry in Europe flourish.

## Table of Contents

Introduction ................................................................................................................................................. 4

I. The Contractarian Theory of the Firm and Corporate Governance ....................................................... 8
   A. The departure from the neoclassical theory of the firm and the “nexus of contracts” approach ................................................................. 8
   B. Transaction-Cost Economics, Incomplete Contracting and the Need for Corporate Governance ........................................................................ 13
   C. The Dimensions of the Lato Sensu Incompleteness of Contracts as Determinants of Corporate Governance ........................................................................ 16
      1. Moral Hazard Costs and Post-Contractual Opportunism ................................................................. 16
      2. Adverse Selection .......................................................................................................................... 20
      3. Stricto Sensu Incompleteness of Contracts ............................................................................... 21

II. Screening Private Information: How VCs Deal With Adverse Selection ........................................... 24
   A. The Theory of Financial Intermediation and Venture Capital ...................................................... 24
   B. The Staged Investment of Venture Capital ................................................................................... 29
      1. Integrating Governance Design into the Screening Game ......................................................... 29
      2. Real Options Theory and Staged Investment ............................................................................ 32
      3. Staged Investment as a Screening Strategy .............................................................................. 34
i. The traditional view of staged financing as a monitoring device .................. 34

ii. A behavioral approach to staged investment: Looking for entrepreneurial intrinsic motivation .......................................................................................... 35

iii. The problem of "soft-budget constraints" ................................................. 37

iv. The VC partnership agreement as a hard budget constraint ..................... 40

III. Infusing Governance through Security Design: Why Convertible Preferred Stock? 42

A. Venture Capital’s Investing Vehicle of Choice: Convertible Preferred Stock .... 42

1. Dividend and Liquidation Preference ....................................................... 44

2. Redemption Rights ................................................................................. 46

3. Convertibility .......................................................................................... 47

4. Control Rights ......................................................................................... 50

B. The Theories of Capital Structure and their Application in VC Financing: Governance Features of Convertible Preferred Stock I ................................................. 51

1. Solving the Enigma of Convertible Preferred; Standardization, Mimetic Isomorphism and Corporate Governance ...................................................... 51


3. Taxation and Capital Structure Choice; The Tax Effects of Convertible Preferred Stock in VC-backed firms ................................................................. 57

2
4. Capital Structure as an Agency Cost-Mitigating Mechanism .................................................. 61

i. The disciplining effects of debt .................................................................................................................. 61

ii. Replicating the incentive-compatible cash flow structure of debt with convertible preferred stock; Placing convertible preferred on the debt-equity continuum........ 63

5. Capital Structure as a Signaling Mechanism ................................................................. 71

i. Leverage signaling models .......................................................................................................................... 71

ii. Reversing the signaling game; Sorting out entrepreneurs by using convertible preferred stock ........................................................................................................ 74

C. Financial Contracting Theory and its Application in VC Financings: Governance Features of Convertible Preferred Stock II .................................................................................. 76


2. Financial Contracting Theory and the State-Contingent Optimal Allocation of Control Rights ........................................................................................................................................... 79

3. Optimal Programming of the Control Rights Pendulum in VC Contracts .......... 83

IV. The Mandatory Model of Corporate Law in Europe and its Implications for Venture Capital........................................................................................................................................ 88

A. Comparing the US and the European VC Industry......................................................... 88

B. The Enabling Character of US Corporate Law versus the Mandatory Nature of European Corporate Law .................................................................................................................. 93
C. Does the Mandatory Nature of European Corporate Laws Directly Impede VC Contracting?.......................................................................................................................... 96

D. Contractual Path Dependence and Mandatory Corporate Law............................... 98

V. Conclusion .......................................................................................................................... 101

**Introduction**

Since the turn of the century and the Enron-class corporate scandals the debate on corporate governance has been shaped by a massive complex of realized or contemplated legal reforms. The introduction of the Sarbanes-Oxley Act in 2002, the proposed amendments to the proxy rules regarding shareholder access and lately the proposed regulations pertaining to executive compensation have all led to a unidirectional view of corporate governance emanating from state actors and imposed upon corporations. This top-down perspective has shifted the focus away from the plethora of corporate governance institutions that do not stem from state or federal law, but are privately designed by the corporate constituencies and are legitimized through their inclusion in the firm’s charter or bylaws. To put it differently, now that the Congress and the SEC have started interfering more with internal corporate affairs the study of the contribution of private ordering to the US corporate governance system is to a certain extent put aside in the corporate law literature.

This paper seeks to rejuvenate the interest in private corporate governance institutions by attempting to reconcile corporate governance with contract theory. The underlying theme of the paper is that the comprehension of the factors that shape corporate governance in a private company setting presupposes the comprehension of the
factors that impact contract design. In reality, many of the governance mechanisms that are designed by the parties to the corporate contract are essentially devices used to mitigate the various contractual impasses that contract theory identifies. The features of the contractual problems of adverse selection, moral hazard and incompleteness actually act as determinants of corporate governance planning. In other words, corporate governance institutions are a response to contractual design exigencies. Without corporate governance the members of the firm would have no way to fend off the cognitive chaos that derives from the problems of hidden knowledge, hidden action and unanticipated contingencies, to which the corporate contract gives rise.

To illustrate this argument I use the example of venture capital, where start-up firms and venture capitalists, acting within the scope of the enabling regime of state corporate law and free of the burdens of federal securities regulation or listing standards, draft their financial contract in a way that allows an optimal corporate governance structure to be established in the venture-backed firm. In Parts II and III of the paper I show step-by-step how the venture capital financial contract is designed in order to put in place governance tools that will help the parties surmount the three basic problems of contracting.

In Part I of the paper I explain the contractarian foundations of the firm by using concepts of agency theory and transaction-cost economics. I introduce the term “lato sensu incompleteness of contracts”, which includes not only the traditional (stricto sensu) incompleteness of contracts, namely the fact that the parties to a contract cannot foresee all future contingencies, but also the two other major contractual problems of moral hazard and adverse selection. I, then, present my main argument that corporate
governance mechanisms in a private company setting are actually devices, with which corporate constituencies try to tackle this three-dimensional *lato sensu* incompleteness of contracts, so that a private firm’s governance structure will reflect the severity and peculiarities of this contractual challenge.

In Part II I present the strategies employed by venture capitalists to deal with the problem of adverse selection. I argue that, although staged investment is viewed by the majority of the venture capital literature as a monitoring device, it should also be viewed as a screening mechanism; a corporate governance institution that helps the venture capitalist respond to the pooling problem. To substantiate my argument I use concepts of behavioral labor economics and I show how staged investment can lead the entrepreneurs to signal their intrinsic motivation to the venture capitalist. As a side issue, I examine how the venture capital fund partnership agreement allows the venture capitalist to credibly commit to a staged investment, which because of the “soft-budget constraints syndrome” other financial intermediaries cannot do.

In Part III I demonstrate the significance of security design for a firm’s corporate governance structure by using the example of convertible preferred stock, which is the investing vehicle of choice of venture capitalists in the US. I postulate that convertible preferred stock should not be viewed as a mere financial instrument, but as a self-sufficient corporate governance institution. Using a novel technique established by Moody’s for the evaluation of hybrid securities, I prove that with convertible preferred stock venture capitalists can create a “debtlike” payoff structure that can replicate the disciplining effects that debt has according to the theories of capital structure. I also show that convertible preferred stock is even superior to paradigm debt for the financing of
start-up firms, because it preserves debt’s beneficial incentivizing features, but also helps the venture capitalist avoid the harmful “asset substitution effect” that pure debt might create. While these two elements prove that convertible preferred stock is a governance device ideally designed by venture capitalists to deal with the problem of moral hazard, I also suggest that this corporate security can help them structure a complementary screening mechanism that will induce entrepreneurs to signal their confidence in the project. Finally, I demonstrate that the state-contingent allocation of control rights that is obtained through the proper design of convertible preferred stock is in alignment with the axioms of financial contracting theory and the contingent control model the latter puts forward. Thereupon, convertible preferred stock proves also to be an efficient governance tool to fend off against the third major contractual challenge, the stricto sensu incompleteness of contracts.

In Part IV, by relying on the conclusions derived from Parts II and III, I start my analysis with the premise that the design of optimal corporate governance institutions in venture-backed firms requires a great deal of contracting flexibility. I then pose the question of whether the inferior performance of the venture capital industry in Europe could be attributed partially to the mandatory nature of European corporate laws that do not allow for such a great flexibility. By looking at several European corporate statutes and by examining empirical data of venture capital financings in Europe I conclude that there are no specific prohibitions for European venture capitalists to privately design US-style tools for the financing of a start-up firm. However, I argue that the general mandatory character of European corporate laws leads law firms to underinvest in contract innovation, which is an indispensable element of success of venture capital
financing. The general rigidity of European corporate laws creates what behavioral psychology refers to as anchoring bias, which deters lawyers in Europe from being innovative and from expending costs to learn how to use the financially optimal instrument of convertible preferred stock. This results in less expertise in the design of contracts, which might in turn lead to suboptimal corporate governance structures in venture-backed firms. Creating the conditions for lawyers to be innovative when drafting financial contracts optimizes the contribution of private ordering to corporate governance.

Part V briefly concludes.

I. The Contractarian Theory of the Firm and Corporate Governance

A. The departure from the neoclassical theory of the firm and the “nexus of contracts” approach

For the greatest part of the 20th century most of the academic literature produced in the field of the theory of organizations was influenced by the neoclassical conception of exchange, as it was established by the Walrasian exchange theory. Based on this model of exchange, the firm was represented by a production function, which specified the level of output that is obtained when given levels of inputs are chosen. The production opportunity set available to the firm was defined in terms of its boundary; what is the maximum obtainable output quantity for different levels of input quantities,

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2 Andreu Mas-Colell et al., Microeconomic Theory (1995), ch.5
given the state of technology and knowledge\(^3\)? Within the neoclassical paradigm the firm was viewed as a “black box”\(^4\), where everything operates smoothly and efficiently, while the internal decision making machinery was not explicated\(^5\). Despite the fact that there had been some critical approaches to this view of the firm\(^6\), the vast majority of economists insisted on portraying the firm as implicitly marginalistic\(^7\) and they focused exclusively on how firms make the optimal production choices. In a perfectly competitive market, the members of the firm would have the proper incentives for maximizing their utility levels and they would move towards profit maximization, which implies cost minimization. There was no worry about how the owners of the firm succeed in aligning the objectives of its various members. Incentive considerations that could arise from the assumption that the members of the firm have individually different objectives were not incorporated in the neoclassical model. Even authors who conducted research within the framework of the theory of teams and recognized the decentralized nature of information within a team postulated identical objective functions for the members of a firm\(^8\). This seemed to be a broader problem of the general equilibrium theory, which did not account for informational asymmetries and the full complexity of strategic interactions between privately informed agents\(^9\). At the same time, the neoclassical paradigm gave no

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\(^3\) Michael Jensen & William Meckling, Rights and Production Functions: An Application to Labor-Managed Firms and Codetermination, 52 JOURNAL OF BUSINESS 469, 470

\(^4\) Jim Tomlinson, Democracy Inside the Black Box? Neoclassical Theories of the Firm and Industrial Democracy 1, 15 ECONOMY AND SOCIETY 220, 220; see also Kenneth Arrow, Foreword, in FIRMS, MARKETS AND HIERARCHIES (G. Carroll & D. Teece eds.,1999), vii: “Any standard economic theory, not just neoclassical, starts from the existence of firms. Usually, the firm is a point or at any rate a black box”.

\(^5\) MARK BLAUG, THE METHODOLOGY OF ECONOMICS- OR HOW ECONOMISTS EXPLAIN (1992), 98

\(^6\) ROBERT HALL & CHARLES HITCH, PRICE THEORY AND BUSINESS BEHAVIOR (1939), 12-45

\(^7\) Ronald Edwards, The Pricing of Manufactured Products, 19 ECONOMICA, 298, 298; M. FRIEDMAN, ESSAYS IN POSITIVE ECONOMICS (1953), 21

\(^8\) See e.g. JACOB MARSCHAK & ROY RADNER, ECONOMIC THEORY OF TEAMS (1972)

explanation why particular activities are organized within firms; in other words it did not pin down the boundaries of the firm, thus failing to explain differences in size and shape. With all these questions unanswered the time came to open the “black box” and examine the actual workings of the corporate mechanism inside\textsuperscript{10}.

The question that the neoclassical theory of the firm left open with regard to the boundaries of the firm was addressed by Ronald Coase in his much celebrated paper \textit{The Nature of the Firm}\textsuperscript{11}. Coase argued that outside the firm the price mechanism operates in all transactions, while within the firm operations are controlled by the direction of the entrepreneur. The range of transactions over which the price mechanism is replaced by the authority of an entrepreneur-coordinator constitutes the boundaries of the firm\textsuperscript{12}. Direction by the entrepreneur can be more efficient than using the price mechanism; in other words organizational costs can be lower than price mechanism costs and whenever this is the case, the firm structure will be preferred instead of contracting in the open market.

While Coase focused on the boundaries of the firm by emphasizing the role of authority in distinguishing it from what happens in the conventional market, another group of authors buckled down to the task of integrating incentive considerations in the theory of the firm. This new way to study the firm was the result of a general departure from the general equilibrium theory, which did not encompass asymmetric information and the potential for manipulation of private information that economic agents might

\textsuperscript{10} A\textsc{vinash} D\textsc{ixit}, \textsc{t}he \textsc{m}aking \textsc{of} \textsc{e}conomic \textsc{p}olicy (1996), 9

\textsuperscript{11} 16 \textsc{e}conomica, 386

\textsuperscript{12} Melvin Eisenberg, \textit{The Conception that the Corporation Is a Nexus of Contracts, and the Dual Nature of the Firm}, 24 \textsc{j}ournal of \textsc{c}orporation \textsc{l}aw, 819, 820
possess\textsuperscript{13}. The starting point of these authors’ analysis was the assumption that some of the inputs of the firm’s production function may have a quality that is endogenous, rather than exogenous\textsuperscript{14}. That means that the value of an input, which will affect the production output, may depend partially on the effort the manager expends, so that a key issue in every firm is how to provide the manager with the proper incentives to improve this quality. The reference to the matter of incentives linked the whole issue to the so-called “incentive theory”\textsuperscript{15}, which analyzes the problem of delegating a task to an agent with private information\textsuperscript{16}. Thus, the principal-agent model started to play a key role in the discourse about the theory of the firm. This model uses the contract governing the relationship between the principal and the agent as the unit of analysis for the firm\textsuperscript{17}, thus departing from the neoclassical paradigm and the “authoritarian” Coasean approach\textsuperscript{18} and hence moving towards a contractarian approach.

Jensen and Meckling\textsuperscript{19} with the aid of the micro-analytical tools of contract theory\textsuperscript{20} identified the separation of finance and management\textsuperscript{21} – already effectively

\textsuperscript{13} SALANIE, supra note 9, 2
\textsuperscript{14} OLIVER HART, FIRMS, CONTRACTS AND FINANCIAL STRUCTURE, (1995), 18
\textsuperscript{15} It seems that often the term “incentive theory” is used to refer to the discourse of the same issues, on which contract theory focuses. This could be attributed to the fact that contract theory is a relatively young discipline and thus does not enjoy the privilege of appearing under a consistent name; see Eric Brousseau & Jean-Michel Gachant, The Economics of Contracts and the Renewal of Economics, in The Economics of Contracts: Theories and Applications (E. Brousseau & J.-M. Gachant eds., 2002), 3-6
\textsuperscript{16} Eric Maskin, Roy Radner and Incentive Theory, 6 REVIEW OF ECONOMIC DESIGN 311, 311
\textsuperscript{17} Kathleen Eisenhardt, Agency Theory: An Assessment and Review, 14 ACADEMY OF MANAGEMENT REVIEW 57, 59; However, Michael Jensen indicates that “the individual agent is the elementary unit of analysis” for agency theory, see Michael Jensen, Organization Theory and Methodology, 53 ACCOUNTING REVIEW 319, 327, but this indeed implicates the study of contracting.
\textsuperscript{18} For objections of the contractarians against the coercionist approach of Ronald Coase see Armen Alchian & Harold Demsetz, Production, Information Costs and Economic Organization, 62 AMERICAN ECONOMIC REVIEW 777
\textsuperscript{19} Michael Jensen & William Meckling, The Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure, 3 JOURNAL OF FINANCIAL ECONOMICS 305
\textsuperscript{20} Jacques Lenoble, From an Incentive to a Reflexive Approach to Corporate Governance, in CORPORATE GOVERNANCE: AN INSTITUTIONALIST APPROACH (2003), 20
located by Berle and Means\textsuperscript{22} as the essence of the agency problem of the firm and focused their efforts on developing the most efficient contract governing the financier-manager relationship given assumptions about people, organization and information\textsuperscript{23}. Under the contractarian approach, transactions within the firm and transactions outside the firm are part of a continuum of contractual relations\textsuperscript{24}. Therefore, the firm is not an arena for authority and direction as Coase postulated, but an arena for making contracts\textsuperscript{25}; a nexus for a set of contractual relationships\textsuperscript{26}. The term “contract”, however, in this context does not refer to the legal notion of contract, but has a much broader range of coverage\textsuperscript{27}; it refers to an economist’s view of the contract as any reciprocal institutional arrangement between two or more parties that influences and coordinates strategic interactions between the individual decision makers\textsuperscript{28}.

\begin{itemize}
\item \textsuperscript{21} The more standard terminology is “separation of ownership and control” (see e.g. Eugene Fama & Michael Jensen, \textit{Separation of Ownership and Control, 26 Journal of Law and Economics 301}), but in my view separation of finance and management conveys the agency problem better.
\item \textsuperscript{22} \textsc{Adolph Berle & Gardiner Means, The Modern Corporation and Private Property} (1932)
\item \textsuperscript{23} The issue of incentives in management was touched upon explicitly almost fifty years before Jensen and Meckling developed the agency theory framework by Chester Barnard in his book \textit{The Functions of the Executive} (1938), 139: “An essential element of organizations is the willingness of persons to contribute their individual efforts to the cooperative system… Inadequate incentives mean dissolution or changes of organization purpose, or failure to cooperate. Hence, in all sorts of organizations the affording of adequate incentives becomes the most definitely emphasized task in their existence. It is probably in this aspect of executive work that failure is most pronounced”.
\item \textsuperscript{24} Oliver Hart, \textit{An Economist’s Perspective on the Theory of the Firm}, 89 \textit{Columbia Law Review} 1757, 1764
\item \textsuperscript{25} Jeffrey Gordon, \textit{The Mandatory Structure of Corporate Law}, 89 \textit{Columbia Law Review} 1549, 1549
\item \textsuperscript{26} Eisenberg, supra note 12, 823
\item \textsuperscript{27} \textsc{Yuwa Wei, Comparative Corporate Governance: A Chinese Perspective} (2003), 44
\item \textsuperscript{28} Brousseau & Glachant, supra note 15, 3; \textsc{Urs Schweizer, Vertragstheorie} (1999), 5. Especially, in the venture capital literature, to which we will turn shortly, the term “contract” is also very often used in its broad sense, as including not only explicit enforceable contractual provisions, but also implicit reciprocal arrangements; see Bernard Black & Ronald Gilson, \textit{Venture Capital and the Structure of Capital Markets: Banks versus Stock Markets}, 47 \textit{Journal of Financial Economics} 243, 261ff.; Ulrich Hege et al., \textit{Determinants of Venture Capital Performance: Europe and the United States}, LSE Working Paper Nov. 2003, 2 available at http://www.lse.ac.uk/collections/RICAFE/pdf/RICAFE-WP01-Hege.pdf
\end{itemize}
As it will become evident in the following sections, the establishment of the contractarian approach to the firm is of great significance for the way we think (or ought to think) about corporate governance nowadays.29

B. Transaction-Cost Economics, Incomplete Contracting and the Need for Corporate Governance

Despite the fact that it was Jensen and Meckling’s paper that introduced the contractarian approach to the firm,30 the spread of the idea that the theory of the firm is an extension of the theory of contracts is customarily credited to a stream of economic thought known as “Transaction-Cost Economics”, which includes the work of Oliver Williamson31, Oliver Hart32 and Benjamin Klein, Robert Crawford and Armen Alchian33. These authors, starting with Coase’s idea –despite the fact that Coase could be considered as an authoritarianist in terms of the theory of the firm34– that there are transaction costs in writing a contract, postulated that parties to a relationship will fail to write a contract

29 The contractarian approach to the firm is prevalent in the US corporate thought. Nonetheless, it does not seem to be a universal idea. In Germany, for instance, the German Constitutional Court (Bundesverfassungsgericht) has indirectly rejected the view of the firm as a nexus of contracts by explicitly recognizing the firm as a joint undertaking of labor and capital. According to this judicial opinion the economic view of the firm should be complemented with a social approach, which would conceive the firm as the joint undertaking of labor and capital (“Diese ist der Preis der angestrebten Ergänzung der ökonomischen durch eine soziale Legitimation der Unternehmensleitung in größeren Unternehmen, der Kooperation und Integration aller im Unternehmen tätigen Kräfte, deren Kapitaleinsatz und Arbeit Voraussetzung der Existenz und der Wirksamkeit des Unternehmens ist”); Entscheidungen des Bundesverfassungsgerichts Bd. 50, 290, 352.

30 Lenoble, supra note 20, 20


32 Oliver Hart, Incomplete Contracts and the Theory of the Firm, 4 JOURNAL OF LAW, ECONOMICS AND ORGANIZATION 119

33 Benjamin Klein et al., Vertical Integration, Appropriable Rents and the Competitive Contracting Process, 21 JOURNAL OF LAW AND ECONOMICS 297

34 Alice Belcher, The Boundaries of the Firm: The Theories of Coase, Knight and Weitzman, 17 LEGAL STUDIES 22, 22; contra Andrei Shleifer & Robert Vishny, A Survey of Corporate Governance, 52 JOURNAL OF FINANCE 737, 740
that anticipates all future contingencies. Given the behavioral economics axiom\textsuperscript{35} that human agents are subject to a bounded rationality\textsuperscript{36}, which means that perfectly rational decisions are not feasible due to the finite computational resources available for making them\textsuperscript{37}, contracts will necessarily be incomplete. They will contain gaps or missing provisions, as rational actors must exercise judgment in a context of uncertainty\textsuperscript{38} and some important future variables have to be left out of the contract, because they may be difficult or even impossible to predict or describe\textsuperscript{39}. Complete contingent contracts that specify obligations in each possible state of the world are impeded by the inherent transaction costs of contracting\textsuperscript{40}.

Building on Jensen and Meckling’s view that the firm is a nexus of contracts, transaction-cost economics rendered the paradigm of incomplete contracting central in the way we reflect on the nature of the firm and its governance structure. As Luigi Zingales puts it:

\begin{quote}
Only in a world where some contracts contingent on future observable variables are costly (or impossible) to write ex-ante, is there room for governance ex-post. Only in such a world, are there quasi-rents that must be divided ex-post and real decisions that must be made … only in
\end{quote}

\textsuperscript{35} Christine Jolls et al., \textit{A Behavioral Approach to Law and Economics, in Behavioral Law & Economics} (C. Sunstein) (2000), 14  
\textsuperscript{36} “Bounded rationality” is a term attributed to Herbert Simon, who defines it as behavior that is “intendedly rational, but only limitedly so”, \textit{see Herbert Simon, Administrative Behavior} (1961) p. xxxiv  
\textsuperscript{37} The cognitive assumption of bounded rationality on which transaction-cost economics rely is another pillar by which the theory of the firm put forward by this school of thought is distinguished by the neoclassical approach to the firm.  
\textsuperscript{38} Lenoble, \textit{supra} note 20, 20  
\textsuperscript{40} Robert Scott & George Triantis, \textit{Incomplete Contracts and the Theory of Contract Design}, 56 Case Western Reserve Law Review 187, 190
a world of incomplete contracts can we define what a firm is and discuss corporate governance.\textsuperscript{41}

In other words, incomplete contracts are what give rise to the need for corporate governance\textsuperscript{42}. Incomplete contracting acts as a determinant of corporate governance mechanisms, in the sense that the latter are a response to contractual design exigencies; they are devices used to mitigate contractual impasses\textsuperscript{43} and to reduce the risks associated with incomplete knowledge. Understanding the factors that impact contract design means understanding the factors that shape corporate governance.

Although “incompleteness of contracts” has become a \textit{terminus technicus} of contract theory conveying the impossibility of accommodating all future eventualities in a contract, I argue here that, when this term is used within the analytical framework of the theory of the firm, it should be given a broader meaning; it should be used so as to include all the implicit challenges of contracting between the financiers of the firm and the managers and not only the unforeseeability of future eventualities. “Incompleteness” should incorporate not only the problem of unpredictable future variables, but also the incentive problems, to which agency theory points, as well as additional contractual hazards that transaction-cost economics identifies. To make things clear, I will hence refer to contract theory’s traditional notion of incompleteness as \textit{stricto sensu incompleteness} and to the sum of intrinsic problems that contracting between financiers and managers has as \textit{lato sensu incompleteness}.

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\textsuperscript{41} Luigi Zingales, \textit{Corporate Governance in THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW} (P. Newman ed., 1998) 497, 503

\textsuperscript{42} See Andrei Shleifer & Robert Vishny, \textit{supra} note 34; Jean Tirole, \textit{Corporate Governance}, 69 ECONOMETRICA 1

\textsuperscript{43} Oliver Williamson, \textit{The Theory of the Firm as Governance Structure: From Choice to Contract}, 16 JOURNAL OF ECONOMIC PERSPECTIVES, 171, 174
Under this terminological distinction, *stricto sensu* incompleteness will be treated merely as one of the many conundrums that the principal-agent contract must address; in other words as one of the dimensions of the *lato sensu* incompleteness of contracts.

The construction of this new term will also help me to convey more efficiently a significant point that I am trying to make in the following section: agency theory and transaction-cost economics although customarily considered as two distinct approaches to the theory of the firm are in essence complementary and the problems that they identify with regard to the contract, which underlies the organization of a firm, can be accommodated under a single broad sense of incompleteness.

C. The Dimensions of the *Lato Sensu* Incompleteness of Contracts as Determinants of Corporate Governance

1. Moral Hazard Costs and Post-Contractual Opportunism

If one skims treatises and articles listing the different theories that have been put forward to describe the nature of the firm, it won’t be difficult to identify that transaction-cost economics and agency theory are traditionally classified as two distinct approaches to the theory of the firm\(^4^4\). However, this taxonomy comes as a surprise, if one takes under account the contractarian basis of both schools of thought that we described above. The actual convergence of the two theories is more evident, if we also consider the main concerns that they express with regard to the organization within a firm.

Agency theory develops a theory of contracts in cases, which are characterized by asymmetric information and by a divergence of incentives between the parties. The foremost agency problem, with which proponents of this theory are concerned, is the one

\(^4^4\) *See e.g.* [O]LIVER H[ART], FIRMS CONTRACTS AND FINANCIAL STRUCTURE (1995), 15ff.
that governs the relationship between the capital suppliers of the firm and the managers; a
problem that derives from the separation of management and finance. As in every
agency relationship, the contractual relationship between the financiers of the firm (the
principals) and the managers (the agents) is characterized by three essential elements:

(i) The objectives of the principal and the agent do not concur, in the sense
that they have different utility functions; thus, the maximization of each one’s
utility depends on the undertaking of different actions and the making of different
decisions.

(ii) The principal and the agent have different attitudes toward risk; they may
prefer different actions because of their different risk preferences (the problem of
“risk sharing”).

(iii) It is difficult or expensive for the principal to verify what the agent is
actually doing and if she behaves appropriately. Due to asymmetry of information
individual actions cannot be easily observed.

These elements create a problem that is more broadly known as “moral hazard.”

In essence, the greatest part of the so-called “agency costs” are moral hazard costs.

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45 Shleifer & Vishny, supra note 34, 740.
47 Bengt Homstrom, Moral Hazard and Observability, 10 BELL JOURNAL OF ECONOMICS 74, 74
48 Milton Harris & Artur Raviv, Optimal Incentive Contracts with Imperfect Information, 20 JOURNAL OF ECONOMIC THEORY 231, 231. The term “moral hazard” is interchangeably used in theory with the term “hidden action”, which conveys the meaning in a more straightforward way to the layperson; see e.g. MAs-Colell, Whinston & Green, supra note 2, 477
49 Michael Jensen & Clifford Smith, Stockholder, Manager and Creditor Interests: Applications of Agency Theory, in Recent Advances in Corporate Finance (E. Altman & M. Subrahmanyam eds., 1985)
Therefore, when agency theory states that a corporate governance institution should be conducive for reducing agency costs, it means that a governance structure should help alleviate the moral hazard problem that governs the relationship between the financiers of the firm and the managers. Institutions of corporate governance should reduce the range of actions, for which the capital suppliers have disutility while the managers have utility, by generating an optimal incentive scheme.

Transaction-cost economics, apart from the problem of stricto sensu incompleteness, lay traditionally emphasis on the problem of post-contractual opportunistic behavior\(^{50}\). Contracts are not always honored by the parties and in the presence of appropriable quasi-rents the possibility of opportunistic behavior is very real. Transaction-cost economists claim that dealing with the problem of “jockeying” over quasi-rents will be done at less cost if done through vertical integration, namely within a firm, rather than through market contracting. However, given the contractual basis of the firm, transferring quasi-rents from the contractual relationships of the conventional market inside the firm will not completely eliminate the problem of opportunistic behavior. The firm, as a nexus of contracts, will keep on generating quasi-rents and corporate governance institutions will be used to constrain opportunism and shape the ex-post bargaining over these rents\(^{51}\).

\(95; \) Stephen Ross, The Economic Theory of Agency: The principal’s problem, 63 AMERICAN ECONOMIC REVIEW 134

\(50\) Klein et al., supra note 33, 297

\(51\) Zingales, supra note 41, 501
If closely examined, the hazard of opportunism that transaction-cost economics focus on is not different in substance to moral hazard, on which agency theory focuses. The only difference seems to be in terms of the perspective of the problem: agency theory examines the problem of the relationship between the financiers of the firm and the managers from an *ex ante* incentive-alignment point of view, while transaction-cost economics are more concerned with establishing *ex post* governance mechanisms, which will mitigate the adverse effects of the suboptimal structure of the initial contract. In both cases, however, we are discussing the design of mechanisms that will help the members of the firm surpass the inherent problems of the underlying contracts that they have entered into. Agency theory will focus more on the design of “preventive” measures, while transaction-cost economics will lay emphasis more on the design of “repress” measures.

The bottom line, however, is that both moral hazard costs and the hazard of opportunism are dimensions of the same *lato sensu* incompleteness of contracts, so that this very attribute of contracts can be thought of as driving the establishment and design of a great deal of institutions of corporate governance. Without corporate governance market players would have no way to fend off the cognitive chaos that would derive from

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52 Williamson, *supra* note 32, 123
53 I use the term “mechanism” in its game theoretic sense; a set of rules that one player (the principal) establishes and another (the agent) freely accepts in order to convey information from the second player to the first. The mechanism is essentially an information report by the agent to the principal. In this framework, the design of corporate governance mechanisms is a sub-category of the general mechanism design, on which game theory discourses focus; see Eric Rasmusen, *Games and Information: An Introduction to Game Theory* (2001) 240ff.
the uncertainties that are associated with the incompleteness of contracts. As it will become evident in the third part of this paper, many of the provisions found in venture capital financing contracts essentially attempt to establish a corporate governance mechanism that will address the problem of moral hazard, which the contractual relationship between the start-up firm and the venture capitalist (henceforth: VC) would otherwise generate.

2. Adverse Selection

The main cause of moral hazard is asymmetric information during the period, in which a contract governs a relationship. However, apart from moral hazard, economists refer to a second type of agency problem known as adverse selection, which stems from asymmetric information prior to entering into a contract. Adverse selection is a problem particularly associated with VC financing.

While moral hazard derives from the agent’s hidden action, adverse selection stems from the agent’s hidden information. The agent knows more about her ability than the principal does at the time of contracting, just like the seller of a product may know more about the quality of the item she sells than the buyer. The principal has thus imperfect information about the agent’s innate work disutility and therefore within the framework of a firm it might be difficult to hire only managers with high ability. In the absence of mechanisms that can help distinguish high-ability managers from low-ability

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54 For the role of innovative legal devices, like private governance mechanisms, in managing uncertainty see in general John Flood, Doing Business: The Management of Uncertainty in Lawyers Work, 25 LAW AND SOCIETY REVIEW 41
55 MAS-COLELL, WHINSTON & GREEN, supra note 2, 436ff.
56 Ian Ayres & Peter Cramton, Relational Investing and Agency Theory, 15 CARDOZO LAW REVIEW 1033, 1040
managers it will be in the interest of the latter to withhold information about their skills. Corporate governance institutions can help to structure schemes that will incentivize potential managers to signal their ability to the principals prior to entering the contract, so that the pooling problem can be tackled.

In start-up firms that seek financing, a variation of the adverse selection problem appears, where the entrepreneur has better information about the profitability and the prospects of the existing firm, than VCs do. In subsequent parts of this paper (II and III.B.5) I will examine how VCs screen entrepreneurs and deal with this idiosyncratic agency problem. The take-away for the moment from this brief presentation of the adverse selection problem is that it is another challenge of contracting, another dimension of the lato sensu incompleteness of contracts and hence also drives the design of corporate governance mechanisms.

3. Stricto Sensu Incompleteness of Contracts

As it was noted earlier in this chapter, transaction-cost economics have as their starting point the stricto sensu incompleteness of contracts: parties to a contract cannot possibly lay out all future contingencies and hence the contract will remain incomplete. This dimension of the inherent problems of contracts has not been adequately emphasized by the prevalent approach to the theory of the firm, which constrains its discourse to incentive (agency) problems. Nonetheless, the mere fact that future

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58 For the view of corporate governance as a tool for dealing with adverse selection see e.g. Tirole, supra note 42, 2
59 See Stewart Myers & Nicholas Majluf, *Corporate Financing and Investment Decisions when Firms Have Information that Investors Do Not Have*, 13 JOURNAL OF FINANCIAL ECONOMICS 187
eventualities cannot be foreseen within the scope of the initial contract between the financiers of the firm and the managers is in reality one of the most significant determinants of corporate governance design. Over the past twenty years the so-called “financial contracting literature”60 has tried to integrate this factor in the discourse of the theory of the firm by focusing on how decision-control rights should be allocated among the members of a firm.

Agency theory has gone to great lengths to establish a comprehensive theory about the firm based on the problem of asymmetric information. Although the conflict of interests between the capital suppliers of the firm and the managers has significant influence in the way corporate contractual packages are designed, it does not provide us with the complete picture about the limitations that these two parties face when contracting. The problem is that by focusing exclusively on this viewpoint of the conflict between the investors and the manager we take as granted that the relationship between the two is static, in the sense that, no matter what the circumstances are, the manager will act in a specific way that is contrary to the utility of the investors. However, the relationship between the manager and the financiers of the firm is actually dynamic61; the nature and type of the conflict of interest between the two parties is subject to alterations


61 Hart, Financial Contracting, 1083
depending on the ever-changing states of the world and on unexpected eventualities. Therefore, provisions in the initial contract that, based on the remarks of agency theory, attempt to align the incentives of the two parties (: corporate governance mechanisms) cannot be expected to work in all possible future contingencies. Important new decisions, whose timing and nature is unknown during the draft of the initial contract, must be taken in response to these eventualities, since the incentive-alignment scheme put forward under the original contractual package might not be the optimal under the new circumstances. Incentive schemes, although they aspire to be comprehensive, cannot possibly be “one-size-fits-all”. Therefore, as Hart puts it “…although the contracting parties cannot specify what decisions should be made as a function of (impossible) hard-to-anticipate-and-describe future contingencies, they can choose a decision-making process in advance”62. In other words, non-conceivable eventualities create the need to design institutions that will allocate decision-making power over future strategic decisions among the members of the firm. Consequently, stricto sensu incompleteness of contracts adds another issue in the design of the corporate contract, another challenge for the design of corporate governance institutions: how should residual rights of control – “defined as rights to decide between different transactions in contingencies left out of the initial contract”63- be allocated among the members of the firm64? Which mechanisms should be used to ensure that the key corporate decisions under future states of the world

62 Hart, Financial Contracting, 1084
64 Hart, Incomplete Contracts, 124
will be made by the party to the contract that has the optimal incentives given the circumstances?

As it will be shown later in this paper (III.C) the issue of allocation of control rights among the members of the firm is of extreme importance in the highly uncertain and ever-changing environment of VC financings. In an uncertain economic environment, where the ability to adjust is a valuable asset by itself, the specification of the authority over key corporate decisions is a vital issue. For the moment though, the take-away is that the way decision power is allocated within a firm is of great significance for the design of this firm’s governance structure.

II. Screening Private Information: How VCs Deal With Adverse Selection

A. The Theory of Financial Intermediation and Venture Capital

As it became evident in the previous chapter, informational asymmetries have a dominant position in the discourse about the design of financial contracts and governance institutions. This comes as no surprise to those who are familiar with the theory of strategic interactions, since most real world situations are indeed games of incomplete rather than complete information. However, in the financial market informational asymmetries are much more intensely pronounced than in other situations where rational players with private information interact\(^6\). As far as public financial markets are concerned, securities regulation determines how parties share information with each other and thus -to a certain extent- regulation mitigates the problems caused by these

asymmetries. But, in the world of private financing companies are not obliged by legal rules to publish any information to potential financiers. Apparently, entrepreneurs seeking financing will be *de facto* required to disclose information, but still the absence of a mandatory disclosure regime preserves a high level of costly market imperfections and creates an environment of uncertainty. The result is a market structure that is far from being ideal according to the Arrow-Debreu model, where full information prevails\(^{66}\). The more a market departs from this theoretical benchmark, the more prone to failure it becomes\(^{67}\). Without a device that would produce and transfer information from the entrepreneurs to investors, the venture capital markets may fail to exist\(^{68}\).

Where many entrepreneurs seek financing at the same time, the investors cannot discriminate between good and bad projects. The entrepreneurs know their industriousness, moral rectitude and the quality of their projects, but the investors do not possess that information. In a pool of projects that seek financing there will be necessarily high quality and low quality projects. The entrepreneurs have the incentive to overstate the favorable aspect of the project, while downplaying the negatives, thus essentially leading to a situation where all entrepreneurs claim that their project is of high quality\(^{69}\). Since the investors cannot discern the high quality projects from the low quality projects, the venture capital markets may fail to exist.

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\(^{66}\) Kenneth Arrow & Gerard Debreu, *Existence of Equilibrium for a Competitive Economy*, 22 *ECONOMETRICA* 265ff.; In sum, Arrow and Debreu show that when preferences and production sets satisfy basic convexity and continuity conditions and there is full information, agents are atomistic and there are no externalities, then there will be prices, which clear markets and make individual plans consistent.

\(^{67}\) For an overview of the financing constraints created in debt and equity markets due to informational asymmetries see Glenn Hubbard, *Capital Market Imperfections and Investment*, 36 *JOURNAL OF ECONOMIC LITERATURE* 193.


projects, the best they can do is to offer to invest at a price that reflects the average quality of the pool; interest rates (if the investment is made through debt instruments) or the portion of the profits asked in exchange (if the investment is made through equity instruments) will be adjusted to the average quality of the pool. Demanding yields for a project of only average quality will result in high cost of capital for entrepreneurs, who have high quality projects; high quality projects essentially take the biggest discount, when the investors discount the stream of benefits for the probability that they will not materialize. As a result high quality entrepreneurs will withdraw from the pool and gradually only bad quality projects (“lemons”) will be left for financing.

The pool price effectively subsidizes low quality and penalizes high quality projects. This problem exists in every investment environment, but seems to be particularly acute in entrepreneurial finance. Start-up firms are young and volatile with no track record that would provide information about their potential and often with no assets at all that could serve as collateral. These attributes make the effects of informational market failures more severe in entrepreneurial finance than in the financing of established firms. Therefore, this market is in dire need of an agent that will produce

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70 Peter Spencer, The Structure and Regulation of Financial Markets (2000), 11
72 Leland & Pyle, supra note 65, 371
73 Whincop, supra note 71, 3
75 Raphael Amit et al., Entrepreneurial Ability, Venture Investments and Risk Sharing, 36 Management Science 1232, 1232-1234
information about the qualities of the projects and will transfer it, so as to bridge some of the informational asymmetry that exists between entrepreneurs and investors.

Information production is deemed to be a sufficient condition for the emergence of financial intermediaries that will be delegated the costly tasks of screening and monitoring investments. Financial intermediaries attenuate the informational obstacles by taking advantage of economies of specialization and scale. The company research and the monitoring that intermediaries undertake is centralized and thus the costs associated with decentralization that would exist, if individual investors had to perform these tasks, are significantly reduced. Therefore, for these activities intermediaries are said to have a comparative net cost advantage.

In the entrepreneurial finance world venture capital funds perform this intermediary function and thus improve allocational efficiency. Through the use of debt, equity or hybrid securities they make capital and professional services available to firms that might otherwise be excluded from other sources of private finance. Universally, there are four main types of venture capital funds: small business investment companies (SBICs), financial VC funds, corporate VC funds and VC limited

\footnotesize{\begin{itemize}
\item Chan, supra note 68, 1543
\item Tim Campbell & William Kracaw, Information Production, Market Signaling, and the Theory of Financial Intermediation, 35 JOURNAL OF FINANCE 863, 863
\item Douglas Diamond, Financial Intermediation and Delegated Monitoring, 51 REVIEW OF ECONOMIC STUDIES 393, 393
\item Haar, supra note 57, 163
\item XAVIER FREIXAS & JEAN-CHARLES ROCHET, MICROECONOMICS OF BANKING (1997), 29
\item One of the reasons why banks have not undertaken the role of the intermediary in the financing of start-up firms will become evident in 2.B.v.
\item A concise definition of venture capital is the one provided by the British Venture Capital Association “venture capital refers to financing the start-up development, expansion or purchase of a firm, in the act of which the venture capital investor acquires, by agreement, a proportion of the share capital in the business in return for providing funding”; see GAVIN REID, VENTURE CAPITAL INVESTMENT: AN AGENCY ANALYSIS OF PRACTICE (1998), 15
\end{itemize}}
partnerships. In the US the prevalent type of organization for funds is the limited partnership. Under the partnership agreement a VC firm, more often referred to as the “venture capitalist”, acts as the general partner, while individual and institutional investors invest in the partnership as limited partners. Investment and monitoring decisions are delegated to the VC, who has significant discretion over the funds of the partnership. Usually the partnership agreement does not allow the fund to reinvest profits or issue debt; this effectively leads to the so-called “venture capital cycle”, which means that capital is first raised, then invested and in the end returned to the investors. This cycle differentiates VC funds as financial intermediaries from other information production devices such as banks, which raise, invest and return capital all at the same time. The structure and organization of VC funds features many of the traditional incentive and incomplete contracting problems that were touched upon in the previous chapter. Their analysis though is beyond the scope of the current paper, which is primarily concerned with the contract between the VC and the start-up firm and not with the (distinct) contract between the investors of the VC fund and the venture capitalist. Nonetheless, whenever the content of the contract between the investors of the VC fund

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85 M. Klausner & K. Litvak, *What Economists Have Taught Us About Venture Capital Contracting*, in *BRIDGING THE ENTREPRENEURIAL FINANCING GAP*; supra note 71, 69
86 McCahery & Renneboog, supra note 84, 5
87 PAUL GOMPERS & JOSH LERNER, *THE VENTURE CAPITAL CYCLE* (1999), 38
88 The term is coined by Gompers and Lerner through the title of their book; see supra note 72
90 For an overview of the rights and obligations of each group that are spelled out in the partnership agreement that establishes the VC fund see William Sahlman, *The Structure and Governance of Venture-Capital Organizations*, 27 JOURNAL OF FINANCIAL ECONOMICS 473, 489ff.
and the VC firm affects the contract between the latter and the start-up firm there will be special reference in the text.

B. The Staged Investment of Venture Capital

1. Integrating Governance Design into the Screening Game

A flashback to Part I would remind us that corporate governance institutions are put in place to deal with the dimensions of the incompleteness of the contract between the members of a firm. Corporate governance mechanisms provide a governing framework for pursuing strategic objectives and economic tasks that might otherwise prove unfeasible. Without these institutions it would be impossible for the suppliers of finance to corporations to assure themselves of getting a return on their investment. Whether these institutions will attain their goal or not, depends not only on giving the right incentives to the manager (for our purposes to the entrepreneur), but also on choosing the right entrepreneur since the very beginning. Therefore, the browse for the most effective process of screening entrepreneurs, with whom the VC is going to enter into a contractual relationship, is essentially a reflection on the design of another governance institution. The need for screening derives from the need to deal with the problem of adverse selection, yet another dimension of the incompleteness of contracts. Since

91 Shleifer & Vishny, supra note 34, 737 define corporate governance as the ways, in which financiers make sure that they will get a return on their investment. This could be considered as a teleological definition for corporate governance, namely a definition that focuses on the ultimate purpose of this institutional edifice. It does not, however, tell us how these institutions work and what makes them necessary, in order to achieve this result.; see also George Triantis, Debt Financing, Corporate Decision Making and Security Design, 26 CANADIAN BUSINESS LAW JOURNAL 93, 93: “the goal of corporate governance is to ensure that managers act as perfect agents of their principals, the firm’s shareholders”.

92 Mark Roe, The Institutions of Corporate Governance, in THE HANDBOOK OF NEW INSTITUTIONAL ECONOMICS (C. MENARD & M. SHIRLEY eds., 2008), 373
incompleteness is the driving force behind all institutions of corporate governance in private companies, it follows that the screening mechanism is itself such an institution.

The challenge for the VC in the design of this mechanism is to obtain the unraveling of information; the mechanism should be calculated to result in the disclosure of the entrepreneurs’ private information about the quality of their project. The VC should always have in mind that the courtship with the entrepreneur is essentially a screening game, as game theory puts it; the informed player, the entrepreneur, moves second and always in response to contracts offered by the uninformed player, the VC.

In economics literature it has been repeatedly postulated that a mandatory legal rule that would compel a disclosure on behalf of the informed party is all that is needed to ensure that the unraveling result will occur. Nonetheless, in our case the entrepreneurs possess private nonverifiable information, which means that, even if the information is revealed, neither the VC nor any third party, such as a court, has a direct way of checking the truthfulness of the disclosure. In these situations information is best conveyed by self-selection, namely on the basis of inferences drawn by observing the actions of the entrepreneur. Where a simple message would not work, a signal does work; actions speak louder than words. Therefore, what the VC should do is find a way to induce the

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93 For the unraveling result see e.g. Masahiro Okuno-Fujiwara et al., Strategic Information Revelation, 57 REVIEW OF ECONOMIC STUDIES 25
94 For screening games in general see RASMUSEN, supra note 53, 277ff.
96 DOUGLAS BAIRD, ROBERT GERTNER & RANDAL PICKER, GAME THEORY AND THE LAW (1994), 122
97 Joseph Stiglitz, Information and Economic Analysis: A Perspective, 95 THE ECONOMIC JOURNAL 21, 24
98 ERIC RASMUSEN, GAMES AND INFORMATION: AN INTRODUCTION TO GAME THEORY (2007), 327
entrepreneurs to signal their ability and the quality of their projects; to convey the private information by means of their actions.

The mechanism that is usually used by VCs, in order to induce the signaling on behalf of the entrepreneurs is staggered financing or else staged investment. The amount of the initial investment is usually small (seed capital) and additional investments (development, start-up and expansion financing prior to going public\(^99\)) are contingent on observable measures of financial and non-financial performance\(^100\). Staggered financing allows the VC to reserve an exit option and provide its investment with a “wait-and-see” flexibility\(^101\). The higher the risk of the start-up firm, the higher the value of this option for the VC\(^102\). The investment decision is delayed for future points, where the level of certainty about the future prospects of the firm increases. The VC periodically reevaluates the prospects of the firm and reserves the right to either further invest in the project, if it thinks that it is in its interest or discontinue the financing\(^103\). Venture capital staged investment is a good example of a partial equilibrium model that is embedded in a

\(^99\) Seed capital is the initial investment of a small sum in the entrepreneur who has an attractive idea; the development stage includes financing for the construction of a prototype; in the start-up stage of financing the firm is provided the resources for commercial production and marketing promotion of its product; expansion financing is often the last stage of investment before underwriters are involved and the firm is taken public, although bridge financing, which fills the gap between expansion financing and the IPO might be required some times; see Swee-Sum Lam, *Venture Capital Financing: A Conceptual Framework*, 18 JOURNAL OF BUSINESS, FINANCE & ACCOUNTING 137, 138-139

\(^100\) Klausner & Litvak, *supra* note 70, 60; Steven Kaplan & Per Strömberg, *Financial Contracting Theory Meets the Real World: An Empirical Analysis of Venture Capital Contracts*, 69 REVIEW OF ECONOMIC STUDIES 1, 2

\(^101\) Han Smit & Lenos Trigeorgis, *Real Options: Principles of Valuation and Strategy, in Venture Capital Contracting*, *supra* note 69, 228

\(^102\) Wang & Zhou, *supra* note 76, 132

\(^103\) Paul Gompers, *Optimal Investment, Monitoring and the Staging of Venture Capital*, 50 JOURNAL OF FINANCE 1461, 1462
Bayesian universe, where parties have an initial “malleable” belief on the information they do not possess and they revise it as the interaction with the entrepreneur unfolds\textsuperscript{104}.

Before examining the screening function of staged investment, we should first touch upon another reason that purports to affect the decision of the vast majority of VC firms to stage the infusion of their capital in the entrepreneurial firms\textsuperscript{105}.

2. Real Options Theory and Staged Investment

Investing in a start-up firm is highly uncertain. Usually the value of such firms is locked in growth options\textsuperscript{106} and with the standard Discounted Cash Flow (DCF) analysis they might appear to have a negative present value (NPV). A negative NPV, though, suggests that the VC should not make the investment in the project at all. If this is the case, why would a rational VC ever provide financing to a start-up firm? Does investment-decision making in the VC industry indeed rely on traditional DCF valuations?

The traditional DCF has lost its popularity as a project selection criterion\textsuperscript{107}. VCs have turned to options thinking, so as to capture the value of managerial flexibility in their valuation of a start-up firm. DCF is a static method of financial valuation and is unable to accommodate the flexibility that the start-up firm will obtain, when the VC will

\textsuperscript{104} SALANIE, supra note 9, 3
\textsuperscript{105} Kaplan & Strömberg, supra note 100, 12, find that almost 73% of the venture capital financings explicitly include some type of contingency.
\textsuperscript{106} Carl Kester, Today’s options for tomorrow’s growth, 62(2) HARVARD BUSINESS REVIEW 153, 153; Triantis, supra note 68, 313
\textsuperscript{107} Takato Hiraki, Corporate Governance, Long-Term Investment Orientation, and Real Options in Japan, in REAL OPTIONS IN CAPITAL INVESTMENT: MODELS, STRATEGIES AND APPLICATIONS (L. Trigeorgis ed., 1995), 151

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infuse it with active management. Options thinking creates a fertile ground for a more dynamic approach to the financial valuation of start-up firms that will emphasize the total strategic value of an entrepreneurial project and will not let short-term negative cash flows deter the investment. By quantifying the value of managerial flexibility in a world of uncertainty this new method of financial valuation allows the VC to view its engagement with the entrepreneur not as a one-time investment, but as a relationship that might give rise to upside opportunities. These opportunities should be treated as corporate real options, namely as rights to proceed with (the option of expanding the investment), terminate (the option to discontinue the investment in midstream), or revise the future investment plans. As more information are revealed due to the progress of the project, the VC can decide whether it will exercise the right to continue or terminate the investment. An investment move that creates such rights should be given a higher value than the traditional net present value approach would suggest. Even investments with negative NPV might end up being beneficial to undertake, if the option values are valued properly.

Real options theory with its financial valuation method allows for strategic adaptability and is thus superior to traditional DCF analysis in settings of extreme uncertainty. This makes it conducive to innovative industries, in which the vast majority of VC firms choose to invest. Real options theory emphasizes the contingent feature of the VC investment and thus, if followed, it induces the VC at the time of the pre-money

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109 Smit & Trigeorgis, *supra* note 101, 228
110 Avinash Dixit & Robert Pyndick, *The Options Approach to Capital Investment*, 73(3) *HARVARD BUSINESS REVIEW* 105, 105
valuation\textsuperscript{111} and of the investment decision to stagger the financing to the entrepreneurial firm. In other words, real options theory as a concept and as a method of financial valuation presupposes the staging of the investment. Without staged investment there would be no options to value and the only financial valuation method would be DCF, which would show most start-up firms as having a negative NPV, thus discouraging any kind of VC investment.

3. Staged Investment as a Screening Strategy

i. The traditional view of staged financing as a monitoring device

Staging the commitment of capital in a start-up firm can indeed be a very efficient control mechanism. When the VC sets performance milestones that the entrepreneur has to obtain, in order for the financing to proceed to the next stage, a strong incentive device is in place that can help confront the “shirking” problem in the agency relationship between the VC firm and the entrepreneur\textsuperscript{112}. This is why staged capital infusion is believed\textsuperscript{113} to be serving a disciplining function equivalent to that of debt in the public firm setting\textsuperscript{114}. In addition to this, experimental game theory has showed that in a labor relation repeated interaction with the same player increases effort levels as compared to

\textsuperscript{111}Pre-money valuation is defined as “the product of the number of shares of common stock outstanding prior to the venture round multiplied by the price per share set in the new financing round”; see Josh Lerner, \textit{The Importance of Patent Scope: An Empirical Analysis}, 25 RAND JOURNAL OF ECONOMICS 319, 326

\textsuperscript{112}Nonetheless, at the same time staged financing has been accused as inducing the entrepreneur to focus on short-term performance; see Thomas Hellmann, \textit{Financial Structure and Control in Venture Capital}, Chapter 2 from PhD dissertation, available at http://strategy.sauder.ubc.ca/hellmann/pdfs/

\textsuperscript{113}GOMPERS & LERNER, supra note 87, 139

\textsuperscript{114}For the role of debt as a monitoring and incentive device in public firms see Michael Jensen, \textit{Active Investors, LBOs and the Privatization of Bankruptcy}, 2 JOURNAL OF APPLIED CORPORATE FINANCE 35
one-shot interactions\textsuperscript{115}. Sequential financing rounds allow for this repeated interaction to emerge and thus give space for this kind of result to be realized.

Although, traditionally, venture capital literature views staged investment as a monitoring device conducive to deal with the problem of moral hazard costs\textsuperscript{116}, I argue here that it should also be viewed as a screening strategy that withstands the adverse selection problem.

The default argument of those who concur with this view is that making finance contingent on a performance milestone will deter an entrepreneur with a low-quality project to approach the VC\textsuperscript{117}. Inserting this contingency in the financing contract shifts the risk of failure from the VC to the entrepreneur and it would thus be “foolish for entrepreneurs to accept such contract terms, if they were not truly confident of their own abilities and deeply committed in the venture”\textsuperscript{118}. It is well substantiated in corporate theory that a party’s agreement to assume a risk signals this party’s private information about the probability and the severity of the risk\textsuperscript{119}.

\textit{ii. A behavioral approach to staged investment: Looking for entrepreneurial intrinsic motivation}

While the aforementioned arguments are plausible, I argue that by using a behavioral approach to the entrepreneur’s decision-making process in applying for financing, one can understand better why staged investment serves as a screening tool.

\begin{flushright}
\textsuperscript{115} Armin Falk, Simon Gächter & Judit Kovacs, \textit{Intrinsic Motivation and Extrinsic Incentives in a Repeated Game with Incomplete Contracts}, 20 JOURNAL OF ECONOMIC PSYCHOLOGY 251
\textsuperscript{116} Wang & Zhou, \textit{supra} note 76, 132
\textsuperscript{117} Klausner & Litvak, \textit{supra} note 85, 60
\textsuperscript{118} Sahlman, \textit{supra} note 90, 510
\textsuperscript{119} Albert Choi & George Triantis, \textit{Strategic Vagueness: The Case of Material Adverse Change (MAC) Clauses}, YALE LAW JOURNAL (forthcoming) (on file with author)
\end{flushright}
Neoclassical economic models assume that people dislike working and thus have a tendency to shirk\textsuperscript{120}; therefore the only way to induce them to expend effort is by providing them with extrinsic incentives, such as monetary rewards\textsuperscript{121}. However, empirical surveys show that pecuniary compensation is not of the greatest importance to workers and that people undertake certain activities because of intrinsic motivation and without expecting an extrinsic reward\textsuperscript{122}. Intrinsic motivation pushes employees to expend more effort in their work than required\textsuperscript{123}. In the human resources literature it has been claimed that excessive compensations and incentive payment schemes can seriously undermine a worker’s intrinsic motivation\textsuperscript{124}, which seems to be the foremost element that empowers production.

In the venture capital world there are two categories of entrepreneurs: those who are motivated and will pursue their project because they see intrinsic benefits in it and those who do not derive intrinsic utility from working on the project, but would be willing to pursue it, if they had sufficient extrinsic rewards. According to the aforementioned empirical studies the former category of entrepreneurs is more likely to expend greater effort when working on the project, while entrepreneurs in the latter category are undertaking the project more because of the pecuniary reward and less for the job satisfaction. Obviously, it is in the interest of the VC to sign a financing contract

\textsuperscript{120} Bruno Fey, \textit{Shirking or Work Morale? The Impact of Regulating}, 37 \textsc{European Economic Review} 1523, 1523;
\textsuperscript{121} Gary Becker & George Stigler, \textit{Law enforcement, malfeasance, and the compensation of enforcers}, 3 \textsc{Journal of Legal Studies}, 1; Edward Lazear, \textit{Performance Pay and Productivity}, 90 \textsc{American Economic Review} 1346
\textsuperscript{122} James Baron, \textit{The Employment Relation as a Social Relation}, 2 \textsc{Journal of the Japanese and International Economies}, 492;
\textsuperscript{123} Edward Deci, \textit{Effects of Externally Mediated Rewards on Intrinsic motivation}, 18 \textsc{Journal of Personality and Social Psychology} 105, 108
\textsuperscript{124} James Baron & David Kreps, \textit{Strategic Human Resources} (1999), 99
with the intrinsically motivated entrepreneurs rather than with those who will only respond to the money offer. The structure of a staged “back-end loaded” investment is conducive to discourage the low motivated entrepreneurs from approaching the VC, since at first sight such an investment does not appear to include a sufficient extrinsic reward\textsuperscript{125}. Thus, staggered financing that starts with a small capital infusion in the first round, but gradually increases as the venture meets performance milestones, can serve as a screening device inducing low motivated entrepreneurs to withdraw from the pool. Intrinsically motivated entrepreneurs with a capability of greater production signal their motivation by staying in the pool and thus VCs can successfully overcome the adverse selection problem simply via the terms of the financial contract they offer.

\textit{iii. The problem of “soft-budget constraints”}

Although the aforementioned screening strategy might seem to work perfectly well in terms of dealing with the adverse selection problem, a certain fraction of the economic literature would suggest that it fails to do so due to the so-called “soft-budget constraint” syndrome. The term was coined by Janos Kornai within the scope of the study of the economic behavior in socialist economies\textsuperscript{126}, where loss-making enterprises\textsuperscript{127} were being consistently refinanced despite the obvious inefficiency associated with this

\textsuperscript{125} In an analogous setting Delfgaauw & Dur argued that it may be in the interest of the firm to offer a low wage so as to discourage relatively low motivated workers from applying for a vacancy; Josse Delfgaauw & Robert Dur, \textit{Signaling and Screening of Workers’ Motivation}, 62 \textit{JOURNAL OF ECONOMIC BEHAVIOR AND ORGANIZATION} 604
\textsuperscript{126} Janos Kornai, \textit{The Soft Budget Constraint}, 39 \textit{KYKLOS} 3
\textsuperscript{127} Mathias Dewatripont & Gerard Roland, \textit{Soft Budget Constraints, Transition, and Financial Systems}, 156 \textit{JOURNAL OF INSTITUTIONAL AND THEORETICAL ECONOMICS} 245, 245
practice\textsuperscript{128}. Despite its intellectual origins the concept of soft-budget constraints has become pertinent in microeconomic theory as well\textsuperscript{129}. It refers to the dynamic incentive problem of a funding source that cannot credibly commit at the time of the initial investment not to refinance a failing company\textsuperscript{130}.

Here is how the soft-budget constraint syndrome works: A funding source (e.g. the government or a bank) agrees to finance an organization (e.g. a utilities enterprise or a firm) that needs capital to sustain its operations. In order to induce the managers of the funded organization to expend optimal effort, the funding source commits not to provide further financing after the initial investment, if the organization fails to produce the cash flows that will assure a return on the source’s investment. However, when the funded firm ultimately fails to provide a return on the investment, the funding source is tempted to refinance the firm despite the failure\textsuperscript{131}. As a rational agent the source knows that the initial investment, which produced a zero payoff\textsuperscript{132}, is now a sunk cost\textsuperscript{133}, namely a cost that cannot be recovered once incurred. If operations of the funded firm were discontinued, then this investment would certainly be lost forever\textsuperscript{134}; the only chance to recoup and salvage\textsuperscript{135} this past investment is to refinance the failed firm, because then the payoff might be positive. In other words, the only way the funding source can be better

\textsuperscript{128} GUN ERIKSSON SKOOG, THE SOFT BUDGET CONSTRAINT: THE EMERGENCE, PERSISTENCE AND LOGIC OF AN INSTITUTION (2000), 2; Janos Kornai et al., Understanding the Soft Budget Constraint, 41 JOURNAL OF ECONOMIC LITERATURE 1095, 1096
\textsuperscript{129} Id. at 1095
\textsuperscript{130} Dewatripont & Roland, supra note 127, 246; Kornai et al., supra note 128, 1099
\textsuperscript{131} Dewatripont & Roland, supra note 127, 246
\textsuperscript{132} Kornai et al., supra note 128, 1108
\textsuperscript{133} Dewatripont & Roland, supra note 127, 246
\textsuperscript{134} Kornai et al., supra note 128, 1099
\textsuperscript{135} GOMPERS & LERNER, supra note 87, 38
off given the situation is by refinancing the firm\textsuperscript{136}. It is often better to attempt a turn-around by means of a follow-on financing than simply to cut losses by terminating the investment\textsuperscript{137}. There is, thus, \textit{ex post} an irresistible force that pushes the financier to essentially bailout the financed firm. The funding source is averse to liquidation and would prefer to renegotiate the terms of financing\textsuperscript{138}.

Therefore, from an \textit{ex ante} point of view it is in the interest of the funding source to commit not to continue the financing, if the firm proves to be a bad investment. From an \textit{ex post} perspective, however, the only rational decision for the funding source is to refinance the failed firm\textsuperscript{139}. This divergence of the \textit{ex ante} and \textit{ex post} perspectives results in the funding source’s inability to credibly commit at the time of the initial investment to discontinue the financing in case the firm fails. The threat of termination would deter managers of firms with poor prospects to approach the funding source for financing, but given that no such threat can credibly be declared, firms with low-quality projects will not withdraw from the pool of applicants for financing\textsuperscript{140}.

The soft-budget constraint variable can completely alter the outcomes of the venture capital screening game that we modeled under II.B.3.iii. Entrepreneurs with poor motivation and low-quality projects would still approach the VC, since they know that a

\textsuperscript{136} Mathias Dewatripont & Eric Maskin, \textit{Credit and Efficiency in Centralized and Decentralized Economies}, 62 \textsc{Review of Economic Studies} 541, 541
\textsuperscript{138} See Hart & Moore, \textit{Default and Renegotiation} and Oliver Hart & John Moore, \textit{A Theory of Debt Based Upon the Inalienability of Human Capital}, 109 \textsc{Quarterly Journal of Economics} 841; the two authors note that when the liquidation damages not only the firm but also the interests of the investors, then the latter might prefer to renegotiate the financial contract than to suffer the losses of liquidation.
\textsuperscript{139} Klausner & Litvak, \textit{supra} note 85, 61
\textsuperscript{140} Dewatripont & Maskin, \textit{supra} note 127, 541; Kornai et al., \textit{supra} note 128, 1110

39
rational VC would not ultimately follow the initially planned structure of staged investment and terminate the financing due to low performance. That means that entrepreneurs would no longer be subject to the negative payoff that liquidation would earn them after the termination of financing\textsuperscript{141}. Consequently, they do not have an incentive to withdraw from the pool and thus they nurture the adverse selection problem.

Therefore the question arises: is there a governance mechanism, whose design can invalidate the soft-budget constraint problem and preserve the efficient screening function of staggered financing? What corporate governance institution can put a hard budget constraint in place that will make poor quality entrepreneurs withdraw from the pool?

\textit{iv. The VC partnership agreement as a hard budget constraint}

The corporate governance institution that introduces a hard budget constraint to the VC’s investment in a single start-up firm is not a creature of the contract between the VC firm and the entrepreneur, but of the contract between the VC firm and the limited partners of the VC fund. In other words, it is a mechanism that derives from a covenant of the VC partnership agreement. Thus, the VC fund’s \textit{modus operandi} indirectly contributes to the attainment of the VC firm’s screening strategic objective.

Empirical research in the field of VC partnership agreements\textsuperscript{142} has shown that there are restrictions on verifiable components of the inefficient behavior that VC firms can develop during the life of the fund\textsuperscript{143}. The soft-budget constraint syndrome is

\begin{itemize}
  \item \textsuperscript{141} Kornai et al., \textit{supra} note 128, 1110
  \item \textsuperscript{142} Gompers \& Lerner, \textit{supra} note 87, 37ff.
  \item \textsuperscript{143} Triantis, \textit{supra} note 76, 313
\end{itemize}
addressed specifically by putting a cap in the amount that the VC fund can invest in a single venture\textsuperscript{144}. Usually, this limitation is expressed by means of a threshold in the percentage of the committed capital (: the capital invested in the fund) that can be invested in any one company\textsuperscript{145}.

In addition to this, VC partnership agreements include provisions that govern the reinvestment of the profits of the fund. VC firms may not reinvest capital gains at their own discretion; most of the time they are required to distribute them to the fund investors\textsuperscript{146}. Reinvestment is often conditioned on the advisory board’s prior approval or is altogether prohibited after a certain date or after a certain percentage of the committed capital is already invested\textsuperscript{147}. The fund investors have an incentive to negotiate this kind of covenant with regard to the reinvestment of profits not only in order to introduce hard budget constraints in the fund’s portfolio management, but also because there is the possibility that the VC firm will want to reinvest in order to increase its management fees. The compensation structure of VC firms consists not only from carried interest (: a flat percentage of a fund’s profits on invested capital), but also from management fees that are calculated either on the basis of the value of committed capital or on the basis of the value of managed capital\textsuperscript{148}. Especially, in the latter case (managed capital)

\textsuperscript{144} \textsc{Gompers \& Lerner, supra note 87, 38}: “these provisions are intended to ensure that the general partners do not attempt to salvage an investment in a poorly performing firm by investing significant resources in follow-on funding”; Klausner \& Litvak, \textit{supra} note 61; Triantis, \textit{supra} note 74, 313
\textsuperscript{145} \textsc{Gompers \& Lerner, supra note 87, 38}
\textsuperscript{146} Klausner \& Litvak, \textit{supra} note 85, 61
\textsuperscript{147} \textsc{Oren Fuerst \& Uri Geiger, \textit{From Concept to Wall Street: A Complete Guide to Entrepreneurship and Venture Capital} (2002), 216; Gompers \& Lerner, \textit{supra} note 87, 39}
distributing profits will reduce the management fees\textsuperscript{149}; thus, the VC firm normally would have the incentive not to distribute, but to reinvest the capital gains, so that these dollar amounts stay under management and can be taken under account for compensation calculation purposes.

This corporate governance structure that ensues from the VC partnership agreement leads indirectly to optimal contracting between the VC firm and the entrepreneur. Entrepreneurs with low-quality projects will not count on the soft-budget problem of the VC and thus will prefer to withdraw from the pool of potential financing recipients. The VC partnership agreement, thus, becomes a determinant of the unraveling result and sets an organizational constraint that renders VC funds in general better positioned as financial intermediaries—than, for example, banks—to fund start-up companies.

III. Infusing Governance through Security Design: Why Convertible Preferred Stock?

A. Venture Capital’s Investing Vehicle of Choice: Convertible Preferred Stock

It is well documented in the theoretical\textsuperscript{150} and empirical literature\textsuperscript{151} on venture capital that the most commonly used type of security in US VC financing is convertible preferred stock. This is a remarkable pattern, since in other corporate finance contexts

\textsuperscript{149} Gompers & Lerner, supra note 87, 39 no11
\textsuperscript{150} Jeffrey Trester, Venture Capital Contracting under Asymmetric Information, 22 Journal of Banking and Finance 675; Sahlman, supra note 90, 473;
\textsuperscript{151} Kaplan & Strömberg, supra note 100, 287; Gompers, supra note 103, 1462
Convertible preferred stock seems to be a financial instrument in decline, just a small source of financing. It is also at odds with the trend in Canadian and European venture capital financing, where straight debt or straight equity are equally important financial instruments for investing in start-up firms.

Convertible preferred stock is a mode of senior participation that provides the VC with a claim on the returns of the start-up firm in the form of a cumulative dividend and also gives it the option to convert the security into common stock. In the standardized convertible preferred stock financing term sheets, that VCs commonly use, there are four essential characteristics attached to this type of security: (i) a dividend and liquidation preference; (ii) a redemption right; (iii) convertibility; and (iv) control rights. As it has been brilliantly noted, the combination of these elements in a single security creates a regime that could be summarized in the phrase “heads I win, tails you lose”; in other words, the VC manages to share in the upside of the investment, but also to get downside protection.

152 William Bratton, Venture Capital on the Downside: Preferred Stock and Corporate Control, in Venture Capital Contracting and the Valuation of High Technology Firms, supra note 84, 108
153 Ramanial Pradipkumar et al., A Simple Approximation of the Value of Callable Convertible Preferred Stock, 25 Financial Management 74, 74
156 Bratton, supra note 152, 109; McCahery & Renneboog, supra note 84, 12
157 Hei Wai Lee & Raymond Figlewicz, Characteristic of Firms that Issue Convertible Debt versus Convertible Preferred Stock, 39 Quarterly Review of Economics and Finance 547, 547
In the following lines, I provide a brief descriptive overview of the aforementioned four fundamental elements of convertible preferred stock that VCs use, without yet touching upon the corporate governance implications of each element. The overview does not aspire to be comprehensive and analyze all possible variations of these four attributes, but instead presents the most common forms that the latter take in VC contractual packages.

1. Dividend and Liquidation Preference

A preferred stockholder may be granted a right to cumulative or non-cumulative dividend. Under a non-cumulative structure unpaid preferred dividends do not accrue, while under a cumulative structure missed dividend payments remain a liability of the issuer. In the venture capital context cumulative structures are prevalent when designing convertible preferred stock, which means that if the firm skips dividend payments then any dividends to common shareholders will be paid only after the VC has received back the accrued dividends plus the current dividend.

Apart from dividend preference, Kaplan’s & Strömberg’s seminal survey of the venture capital contracting world showed that 212 out of the 213 rounds of VC financing that were studied featured some form of liquidation preference embedded in the

Nonetheless, such a payoff structure can create the potential for expropriation of the entrepreneurs by VCs, see in general Vladimir Atanasov et al., *VCs and the Expropriation of Entrepreneurs*, Working Paper 2006, available at SSRN http://ssrn.com/abstract=905923


Seminar on New Ventures: Organization, Financing, and Operations, 9 DELAWARE JOURNAL OF CORPORATE LAW 253, 275

Klausner & Litvak, *supra* note 85, 64

Richard Mann, *Starting from Scratch: A Lawyer’s Guide to Representing a Startup Company*, 56 ARKANSAS LAW REVIEW 773, 819

Kaplan & Strömberg, *supra* note 100, 286
security issued to the VC\textsuperscript{165}. With such a preference the VC has a senior priority to all junior stockholders (the entrepreneur and the managers\textsuperscript{166}) in receiving the proceeds from an event of liquidation (merger, consolidation, change of control etc.) of the start-up firm\textsuperscript{167}. In other words, upon such an event the VC can recoup its investment before the entrepreneur receives anything from the value of the venture. With regard to this aspect convertible preferred stock held by VCs is a “debtlike”, fixed claim for the amount of the liquidation preference\textsuperscript{168}. To be more precise, VCs normally have a choice surrounding the liquidity event; they are entitled to whichever of the following two turns out to be the greater in monetary terms: (a) a multiple of the initial purchase price\textsuperscript{169} of the preferred stock augmented with the additional accruing, cumulative dividend\textsuperscript{170}, or (b) the consideration available to them as common shareholders, if they select to convert the preferred stock to common\textsuperscript{171}.

Although regular convertible preferred stock is sufficient for the VC to take precedence over common stockholders in the event of a liquidation, a significant number of VCs bargain for an increased form of liquidation preference attached to a more exotic type of security: the participating convertible preferred stock. In the aforementioned study of Kaplan and Strömberg participating convertible preferred stock appears in 82 of

\begin{thebibliography}{99}
\bibitem{165}Klausner & Litvak, \emph{supra} note 85, 64
\bibitem{167}JOSEPH BARTLETT ET AL., \textit{ADVANCED PRIVATE EQUITY TERM SHEETS AND SERIES A DOCUMENTS} (2003), 4-5
\bibitem{168}Klausner & Litvak, \emph{supra} note 85, 65; McCahery & Renneboog, \emph{supra} note 84, 12; Jesse Fried & Mira Ganor, \emph{Agency Costs of Venture Capitalist Control in Startups}, 81 \textit{NEW YORK UNIVERSITY LAW REVIEW} 967, 982
\bibitem{169}Richard Mann, \emph{supra} 163, 858
\bibitem{170}Michael Woronoff & Jonathan Rosen, \emph{Effective vs. Nominal Valuations in Venture Capital Investing}, 2 \textit{NEW YORK UNIVERSITY JOURNAL OF LAW AND BUSINESS} 101, 120
\bibitem{171}Miller et al., \emph{supra} note 159, 3-21
\end{thebibliography}
the 213 financing rounds. With the additional participation right, which is embedded in this kind of security, the VC may first receive the cumulative dividend to which it is entitled as a preferred shareholder and then “play again” in the remaining enterprise value by sharing in the residual proceeds of the liquidation on an “as-converted basis”. In other words, the VC does not have to choose between receiving the liquidation preference and converting its preferred stock to common, but can have the best of both worlds by first receiving the principal amount of the preferred stock and then sharing in the distributions to the common shareholders on a pro rata basis, as if it were one of them.

The VC can, thus, enjoy the benefits of converting to common stock without actually having to convert and hence lose its liquidation preference right.

2. Redemption Rights

The convertible preferred stock, participating or non-participating, that VCs use for their investments in start-up firms is often called puttable convertible preferred because of the redemption right that is customarily attached to it. The VC can only realize on its investment upon a liquidity event, but due to provisions in the VC fund partnership agreement it cannot wait for such an event for an indefinite period of time; there is pressure on the VC firm to liquidate the investment within a predetermined period.

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172 Kaplan & Strömberg, supra note 100, 285
174 David Denis, Entrepreneurial Finance: An Overview of the Issues and Evidence, 10 JOURNAL OF CORPORATE FINANCE 301, 305
175 BARTLETT ET AL., supra note 167, 4-7
176 Klausner & Litvak, supra note 85, 64. In Kaplan’s & Strömberg’s survey redemption provisions are present in 78.7% of the VC financings, supra note 100, 292
period of time\textsuperscript{177}. Thus, the financial contract, embodied in the securities issued to the VC, provides the latter with an additional safeguard to protect its interests\textsuperscript{178}; an alternative exit strategy. If a liquidity event, such as an IPO or a trade sale, does not take place until a specific point in time (usually because the firm is performing poorly) the VC may put the convertible preferred back to the firm and cash out its investment at the liquidation preference amount\textsuperscript{179} (the amount invested plus any cumulative dividends)\textsuperscript{180}. In other words, the put right provides the VC with guaranteed liquidity. With regard to this aspect convertible preferred stock features another “debtlike” characteristic, since the redemption of the VC’s claim resembles to the repayment of principal to the creditor at the maturity of a debt claim\textsuperscript{181}.

The put right allows the VC to exit a so-called “living dead” investment, namely a self-sustaining firm, which nonetheless does not promise to yield the expected return at the end of the holding period\textsuperscript{182}. Without this exit option the VC would be locked into an illiquid investment.

3. Convertibility

Consistent with the “heads I win, tails you loose” theme that underlies the design of convertible preferred stock in VC financings, the VC not only wishes to be protected

\textsuperscript{177} Miller et al., supra note 159, 3-30  
\textsuperscript{179} Douglas Cumming, Contracts and Exits in Venture Capital Finance, 21 REVIEW OF FINANCIAL STUDIES 1947, 1955  
\textsuperscript{180} In some VC financing contracts the amount, to which the venture capitalist is entitled after exercising the put option is the greater of the liquidation preference amount and the fair market value of the shares; see Bartlett et al., supra note 167, 4-8 and Kaplan & Strömberg, supra note 100, 292  
\textsuperscript{181} Kaplan & Strömberg, supra note 100, 292  
\textsuperscript{182} John Ruhnka et al., The “Living Dead” Phenomenon in Venture Capital Investments, 7 JOURNAL OF BUSINESS VENTURING 137
in the downside, but it wants to be able to capture part of the venture’s upside gains\(^{183}\). Pure preferred stock would prevent it from attaining the latter goal and hence customarily the VC puts a term in the financing contract, pursuant to which it has the option to convert its preferred shares into common shares. VCs have both automatic and voluntary conversion rights\(^{184}\). In the majority of VC financings preferred stock automatically converts to common immediately before the closing of an underwritten IPO\(^{185}\); in most cases, though, for this automatic conversion to occur, the IPO price is required to be a specified multiple of the venture’s share price at the time of the seed financing. In general, though, such conversion takes place at the option of the VC, usually upon the realization of a trade sale or the reach of a milestone in financial performance\(^{186}\).

Normally, a VC financing contract will contain some kind of anti-dilution protection with regard to the conversion price and ratio\(^{187}\). Between the point of the seed financing and the time of—for instance—the IPO other issuances of preferred stock might take place and they will normally be either price-dilutive (when the financing occurs at reduced valuation) or equity-dilutive to the Series A preferred, which were issued to the seed financier\(^{188}\). Therefore, provisions in the financing contract feature an adjustment formula that establishes a conversion ratio, which helps minimize the dilutive effect of

\(^{183}\)Klausner & Litvak, *supra* note 85, 64-65; McCahery & Renneboog, *supra* note 84, 12

\(^{184}\)CAMP, *supra* note 158, 141

\(^{185}\)Ippolito, *supra* note 160, 2; Miller et al., *supra* note 159, 3-28; Klausner & Litvak, *supra* note 85, 65; ERIC KOESTER, WHAT EVERY ENGINEER SHOULD KNOW ABOUT STARTING A HIGH-TECH BUSINESS VENTURE (2009), 301

\(^{186}\)Ippolito, *supra* note 160, 2

\(^{187}\)Kaplan & Strömberg, *supra* note 100, 290 find that 94.7% of all VC financing rounds in their sample contained some sort of anti-dilution protection.

\(^{188}\)BARTLETT ET AL., *supra* note 167, 4-7
such down-rounds. These mechanisms subject the conversion prices and ratios on either a “ratchet” or “weighted-average” basis. In brief, the former technique allows the shares of the VC to be repriced on the basis of the pricing done by later financiers, so that the conversion ratio of the initial preferred shares can fall automatically to the exact lowest price at which the company issues new shares. This adjustment mechanism does not take into account the number of shares issued in subsequent financing rounds and thus ignores the real dilutive effect that new issuances have on Series A; even if a single share is issued in Series B, the “ratchet” automatic adjustment will occur.

Contrarily, the weighted-average formula does allow for the actual impact of the newly issued shares on total capitalization to be taken into consideration when calculating the adjustment of the conversion rate and thus cares both about the price and the number of the shares issued in subsequent financing rounds; under this approach, the conversion price per Series A preferred share is reduced to the weighted-average price of the securities issued.

Anti-dilution provisions help VCs to be more certain of the amount that they are going to receive as a return on their investment in the venture, since in this way they can shield their investment from a decrease in economic value. Therefore, such contractual provisions combined with the liquidation preference and the redemption rights that often

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189 McCahery & Renneboog, supra note 84, 12; CAMP, supra note 158, 145
190 CAMP, supra note 158, 145; BARTLETT ET AL., supra note 167, 4-8
192 Jerome Katzin, Financial and Legal Problems in the Use of Convertible Securities, 24 BUSINESS LAWYER 359, 365
193 Woronoff & Rosen, supra note 191, 119
accompany VC financing convertible preferred stock produce a debt-like payoff structure\textsuperscript{194}.

4. Control Rights

As it was discussed in Part I (B.3) within the scope of the analysis of the stricto sensu incompleteness of contracts, the allocation of control rights is of extreme importance in financing contexts that are characterized by severe informational asymmetries, such as the one of the VC industry. In the empirical VC literature three types of rights fall under the term “control rights”: (i) voting rights; (ii) veto (or negative control) rights; and (iii) board rights\textsuperscript{195}.

First, VCs typically receive voting rights computed on the basis of the number of common shares, which they would hold if their preferred stock were converted into common\textsuperscript{196}. Thus, VCs vote their preferred stock with the common shareholders on an as-converted basis\textsuperscript{197}.

In addition to regular voting rights, VCs typically negotiate for veto rights over major corporate actions\textsuperscript{198}. These rights, which are included in articles of the firm’s charter known as “protective provisions”\textsuperscript{199}, provide the VC with the power to block key decisions, such as the sale of the company’s assets\textsuperscript{200}, the timing of the IPO\textsuperscript{201} or any

\textsuperscript{195} Kaplan & Strömberg, supra note 100, 288
\textsuperscript{196} KOESTER, supra note 185, 289; Black & Gilson, supra note 28, 253
\textsuperscript{197} ROBERT WALTER, FINANCING YOUR SMALL BUSINESS (2004), 159
\textsuperscript{198} Miller et al., supra note 159, 3-28
\textsuperscript{199} Fried & Ganor, supra note 168, 987
\textsuperscript{200} Id.
\textsuperscript{201} Bob Zider, How Venture Capital Works, HARVARD BUSINESS REVIEW (November-December 1998) 131, 134
amendments to the charter that would adversely affect its privileges\textsuperscript{202}. Protective provisions are articulated in a way that does not allow the company to proceed with a certain transaction before the consent of a specified percentage of the preferred shareholders is expressly given\textsuperscript{203}. To be sure though, the VC being alone in the class of preferred shareholders enjoys automatically the statutory privileges of class voting that DGCL §242(b)(2) provides, even if there is no explicit provision in the contract with regard to veto rights.

The extent of the VC’s control over the start-up company is a resultant not only of its voting rights, but also of its so-called “board rights”\textsuperscript{204}. A specific percentage of the board seats are reserved for or controlled by the VC, so that the latter is able to monitor more efficiently the firm’s operation\textsuperscript{205}. The explicit right of the VC to appoint a specific number of members in the board coupled with its \textit{de facto} power to control the election of the “independent directors” effectively gives it the power to actually initiate major corporate actions, such as trade sales and IPOs\textsuperscript{206}.

\textbf{B. The Theories of Capital Structure and their Application in VC Financing: Governance Features of Convertible Preferred Stock I}

\textit{1. Solving the Enigma of Convertible Preferred; Standardization, Mimetic Isomorphism and Corporate Governance}

Delivering the foregoing overview of the unique features that convertible preferred stock has in the VC context was feasible because of the large-scale standardization of VC contracts in the US. As a general matter, the phenomenon of

\textsuperscript{202} \textsc{Koester, supra} note 185, 289
\textsuperscript{203} Miller et al., \textit{supra} note 159, 3-28; Mann, \textit{supra} note 163, 861-862
\textsuperscript{204} Kaplan & Strömberg, \textit{supra} note 100, 288
\textsuperscript{205} Fried & Ganor, \textit{supra} note 168, 987
\textsuperscript{206} \textit{Id.}
standardization of the corporate documentation does provide a plausible explanation of why market participants choose one financial instrument over another. It is true that in this nexus of contracts that the modern corporation is, charters, bond indentures or loan agreements are often not tailored to the specific firm’s circumstances, but are picked from a variety of predetermined contractual packages that are easily adaptable for use in cases that share similar characteristics. Therefore, it is likely that many VCs attach the aforementioned attributes to the securities, with which they invest in start-up ventures, mainly because this is the way the VC industry works. In other words, the reason why these patterns are observed in a great deal of VC financing rounds could be what institutional theory calls “mimetic isomorphism”.

While mimetic isomorphism and the correlative phenomenon of standardization provide a plausible explanation for the repetitive character of corporate finance patterns in the VC industry, they cannot explain why these patterns initially developed. As it was noted in the foregoing analysis, the most common practical justification that is put forward for the use of convertible preferred stock by VCs is that it provides both downside protection and significant upside potential.

Although this explanation is perfectly plausible and captures absolutely the essence of a VC investment, it does not account for the corporate governance implications that the use of convertible preferred stock has for start-up firms. To shed light on this aspect of convertible preferred stock, I attempt in this section of the paper to

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207 See in general Marcel Kahan & Michael Klausner, Standardization and Innovation in Corporate Contracting (or “The Economics of Boilerplate”), 83 VIRGINIA LAW REVIEW 713
208 Barbara Cornelius, The Institutionalisation of Venture Capital, 25 TECHNOVATION 59
209 Paul DiMaggio & Walter Powell, The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields, 48 AMERICAN SOCIOLOGICAL REVIEW 147, 152
210 See e.g. JAMES SCHELL, PRIVATE EQUITY FUNDS: BUSINESS STRUCTURE AND OPERATIONS (1999), 1-17
conceptually integrate the use of this financial instrument by VCs into the analytical framework of contract theory that I developed in Part I. To put it differently, my goal in the following analysis is to show that convertible preferred stock is another arrow in the quiver of a VC that helps it cope with the *lato sensu* incompleteness of contracts and as such it is in effect an additional apparatus for corporate governance design in start-up ventures.

A convenient way to show how convertible preferred stock operates as an additional corporate governance institution in VC-backed firms is by first reconciling its function with the axioms of the theories of capital structure that have been put forward in the corporate finance literature.


The cornerstone of modern corporate finance literature and thinking on capital structure is the Modigliani-Miller theorem\(^{211}\), which postulates: “in an ideal world, where there are no taxes, or incentive or information problems, the way a project or a firm is financed does not matter\(^{212}\)”. In other words, when markets are complete the type of securities issued is indifferent and not important for the success of the project or the firm\(^{213}\); the value of the firm will be constant across all financial packages. The

\(^{212}\) Hart, *Financial Contracting*, 1080
argumentum a contrario that derives from the Modigliani-Miller theorem is that in the real world, where there are bankruptcy costs, informational asymmetries and tax subsidies on the payment of interest, financial structure cannot be indifferent for a firm. Consequently, given the imperfection of markets, there will indeed be capital structures that will help the firm and its investors to maximize their utility and capital structures that might render the firm and its financiers worse off; there will be optimal and suboptimal capital structures. This hypothesis has led a great number of authors over the last thirty years to try to develop a theory of the determination of the optimal capital structure.

Several theories of capital structure emerged that attempted to resolve the puzzle of why firms obtain capital through the particular forms that were observed for such long periods of time. Various models were proposed to explain the driving forces behind capital structure patterns: models based on taxation considerations, on differing expectations among investors, on private information, on incomplete markets and transaction costs, even models that focused on wealth constraints and the transfer of control in bankruptcy.

The common underlying theme of all the theories of capital structure was the effort to determine how to optimally partition the cash flows from the firm’s assets across

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216 Robert Townsend, *Optimal Contracts and Competitive Markets with Costly State Verification*, 21 JOURNAL OF ECONOMIC THEORY 265; Diamond, supra note 79, 393; Douglas Gale & Martin Hellwig, *Incentive Compatible Debt Contracts: The One-Period Problem*, 52 REVIEW OF ECONOMIC STUDIES 647


218 Jaime Zender, *Optimal Financial Instruments*, 46 JOURNAL OF FINANCE 1645
financial claims with different characteristics\textsuperscript{219}. In the beginning, these theories constrained the scope of the capital structure decision by basing it on the dichotomous choice between debt and equity\textsuperscript{220}, which in this framework were both viewed as standardized, exogenously given securities\textsuperscript{221}. For a long period of time the financial structure decision was simply a question of the optimal mix of traditional debt and equity\textsuperscript{222}. Nonetheless, the development of financial engineering and innovation\textsuperscript{223} softened the differentiation between the two paradigm instruments in the corporate finance literature and demonstrated that corporate securities should not be viewed as necessarily exogenous\textsuperscript{224}. Financial innovation and contracting flexibility\textsuperscript{225} indicated that firms can attain their financial and strategic goals not only by trying to compose the optimal financial package through the choice among a finite array of exogenous instruments, but also by going one logical step back in the financing process and endogenously tailor the financial contracts, which the various corporate securities represent, so as to meet their needs\textsuperscript{226}. Especially, the emergence during the 80s of hybrid instruments, such as puttable common stock, puttable convertible bonds, adjustable rate

\begin{thebibliography}{99}
\bibitem{219} Arnoud Boot & Anjan Thakor, \textit{Security Design}, 48 \textit{JOURNAL OF FINANCE} 1349, 1349
\bibitem{220} Alexander Triantis & George Triantis, \textit{Conversion Rights and the Design of Financial Contracts}, 72 \textit{WASHINGTON UNIVERSITY LAW QUARTERLY} 1231, 1231
\bibitem{221} Milton Harris & Artur Raviv, \textit{The Role of Games in Security Design}, 8 \textit{REVIEW OF FINANCIAL STUDIES} 327, 328
\bibitem{223} Triantis, \textit{supra} note 91, 103
\bibitem{224} Franklin Allen & Douglas Gale, \textit{Optimal Security Design}, 1 \textit{REVIEW OF FINANCIAL STUDIES} 229, 229-230
\bibitem{225} Triantis & Triantis, \textit{supra} note 220, 1231
\bibitem{226} Harris & Raviv, \textit{supra} 221, 328; Harris & Raviv, \textit{supra} note 222, 65
\end{thebibliography}
preferred stock\textsuperscript{227}, liquid yield option notes (LYONs)\textsuperscript{228} etc., paved the way for firms to stop struggling with mixing debt and equity and to create value by overcoming the financial barriers that they faced. Thus, the attention of financial economists shifted from optimal capital structure to optimal security design.

The main implication of blending the theories of capital structure with the concept of security design was the acknowledgment of the fact that the securities issued by a firm do not only have cash flow features, but also governance features\textsuperscript{229}. The roots of this approach are found in an article written by Oliver Williamson\textsuperscript{230}, who in the framework of the discussion of the traditional dichotomy between debt and equity noted that these two should not be treated as alternative financial instruments, but rather as alternative governance structures\textsuperscript{231}. Security design is a process that does not merely tailor financial instruments, so as to help investors with different risk preferences to meet their investment goals, but is also a means to attain corporate governance objectives.

Harris and Raviv have conducted a comprehensive survey of the numerous theories of capital structure that have been put forward and they have identified that there are overall four categories of potential determinants of capital structure\textsuperscript{232}. Of these four categories, I choose to examine two as particularly relevant for the venture capital

\begin{footnotesize}
\textsuperscript{227} For an overview of the various corporate securities that emerged in the 80s as a result of a boom in financial engineering see John Finnerty, \textit{Financial Engineering in Corporate Finance: An Overview}, 17 \textit{FINANCIAL MANAGEMENT} 14, 17; For a more recent survey of innovative financial instruments see John Finnerty, \textit{Corporate Securities Innovation: An Update}, 12 \textit{JOURNAL OF APPLIED FINANCE} 21
\textsuperscript{228} LYONs were developed by Merrill Lynch and were puttable convertible zero coupon bonds that provided investors with a package of debt and stock options; see in general John McConnell & Eduardo Schwartz, \textit{The Origin of LYONs: A Case Study in Financial Innovation}, 4 \textit{JOURNAL OF APPLIED CORPORATE FINANCE} 40
\textsuperscript{229} Triantis, \textit{supra} note 91, 103; Triantis & Triantis, \textit{supra} note 220, 1232
\textsuperscript{230} Oliver Williamson, \textit{Corporate Finance and Corporate Governance}, 48 \textit{JOURNAL OF FINANCE} 567, 567, 572
\textsuperscript{231} \textit{Id.;} see also Aghion & Bolton, \textit{supra} note 39, 474
\textsuperscript{232} Milton Harris & Artur Raviv, \textit{The Theory of Capital Structure}, 46 \textit{JOURNAL OF FINANCE} 297, 297
\end{footnotesize}
financing setting: the one that views a firm’s capital structure as an agency-cost mitigating mechanism and the one that considers it as a signaling mechanism. But, before engaging in their analysis, I believe that a brief reference to a distinct set of capital structure theories that rely on tax considerations is useful as a starting point for the discussion. The goal is not to describe in a comprehensive way the tax benefits of the use of convertible preferred stock, but rather to give the reader a sense of the role that tax considerations can play in an investor’s choice of security for investment and in the design of a start-up firm’s capital structure.

3. Taxation and Capital Structure Choice; The Tax Effects of Convertible Preferred Stock in VC-backed firms

Modigliani and Miller were again the first that attempted to establish a theory that defines an optimal capital structure. Their model was based on tax considerations; on the existence of taxation benefits for certain financial instruments. They indicated that because of the favorable tax treatment of interest payments, the value of the firm will rise as the level of substitution of debt for equity financing rises; a leveraged structure maximizes the value of the tax shield. However, as they acknowledge in the end of their paper, their argument is most likely deficient in the sense that it does not explain why firms are not capitalized exclusively with debt, given that it is supposed to be so advantageous.

\[233\] Franco Modigliani & Merton Miller, Corporate Income Taxes and the Cost of Capital: A Correction 53 AMERICAN ECONOMIC REVIEW 433
\[234\] Debt payments are excluded from income in computing corporate income tax.
\[235\] Modigliani & Miller, supra note 233, 442; see also EUGENE FAMA & MERTON MILLER, THE THEORY OF FINANCE (1972), 172 and Jensen & Meckling, supra note 19, 332-333
\[236\] Several years after Modigliani and Miller praised “sole debt” capital structures, Gilson and Whitehead provided a different reason, why such structures are optimal; Ronald Gilson & Charles Whitehead,
Although taxation considerations fall largely outside the scope of the discussion on corporate governance, there is no doubt that companies do respond to taxation conditions with their financing and investment decisions. It is highly unlikely that a firm’s capital structure will not be affected at least partially by some tax rules that subsidize the use of a particular financial instrument over another. Consequently, it comes as not surprise that some authors have put forward a tax explanation for the use of convertible preferred stock in VC financings.

Their starting point is the fact that convertible preferred stock is not the financial instrument of choice in other developed economies. Therefore, there must be some US-specific reason for the use of convertible preferred stock by VC firms. To be more precise, advocates of this opinion assert that if convertible preferred stock were truly the best way to cope with the problems of incomplete contracting—as I will try to show in the parts to follow—then its use would be universal and not constrained within the US. Thus, tax rules might constitute a domestic variable that should be examined as a potential determinant of the choice of convertible preferred stock for the financing of start-up firms.

Deconstructing Equity: Public Ownership, Agency Costs, and Complete Capital Markets, 108 COLUMBIA LAW REVIEW 231. The two authors postulated that risk management can substitute for risk capital that shareholders offer and therefore equity financing is expected to be gradually “deconstructed” in the sense that an increasing number of firms will prefer to go private and be capitalized almost exclusively with debt, while using sophisticated risk management techniques to enjoy the benefits that equity financing used to offer.

238 Sahlman, supra note 90, 510; Ronald Gilson & David Schizer, Understanding Venture Capital Structure: A Tax Explanation for Convertible Preferred Stock, 116 HArvard Law Review 874
239 See Hege et al., supra 155; Cumming, supra 155; Lerner & Schoar, supra 155; Armin Schwienbacher, Venture Capital Investment Practices in Europe and in the United States, 22 FINANCIAL MARKETS AND PORTFOLIO MANAGEMENT 195
240 Gilson & Schizer, supra note 238, 888; However, as it will be shown in Part IV the use of convertible preferred stock does exist in other countries, but it is not the ubiquitous security of choice.
A careful look at US tax law reveals that the use of convertible preferred stock can help reduce the tax that managers of the start-up firm have to pay on their equity-based compensation. A lower tax burden on the manager of the venture for the stock options she receives as a consideration for her services helps the incentivizing effect of equity-based executive compensation not to be weakened.

Here is how convertible preferred stock becomes part of an efficient tax planning: the firm’s managers are provided with unvested stock options as part of their compensation. Given the compensatory character of this arrangement, the manager is obligated to pay tax at the income tax rate for these stock options. The amount of tax to be paid is computed on the basis of the grant-date value of the stock. Thus on the one hand, for tax purposes it is beneficial for the manager to report a low grant-date stock value. On the other hand, for financial purposes she wants the stock valuation to be as high as possible, because this will affect the amount of funds that will flow into the company as a result of the VC’s investment. The solution, in order to attain both goals, is to finance the company not through the purchase of common stock, but through the purchase of preferred stock. The price paid by the VC for the latter does not signify the exact value of the common stock, since the two types of securities have different payoff structures that lead to a different valuation; convertible preferred allows for a higher and more certain return on the investment and thus it is necessarily priced more favorably than common stock, which with an aggressive tax-reporting position can be reported at a

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241 26 U.S.C. § 83(a)
242 Fried & Ganor, supra 168, 984
243 Gilson & Schizer, supra 238, 890
lower value than the actual one. As a result the manager is able to report a low taxable income at the grant date, when she will be taxed on the basis of the high income tax rate and when the share will appreciate in value in the future, she will be able to report the profits as capital gains and thus be taxed for the greatest portion of her compensation at a lower tax rate.

However, as it is evident from the structure of the foregoing scheme, only the manager benefits from tax savings, while the VC as a taxpayer does not enjoy any advantage. For the VC this whole tax planning is in essence another corporate governance mechanism, namely another way to attain the goal of aligning the manager’s objectives with its own interests. As it was mentioned above, this tax scheme allows the incentive attributes of the equity-based compensation not to be watered down. If a significant portion of the incentive compensation that the manager receives had to be paid to the IRS, then its incentive effects would become weaker and the difference between stock options and a fixed salary would be negligible. But, by using convertible preferred stock as the vehicle of investment, the VC manages to preserve the incentivizing power of stock options, which is very important to cope with the problem of moral hazard. In essence, the tax device that convertible preferred stock puts in place indirectly helps an important corporate governance institution not to lose its value.

244 Fried & Ganor, supra 168, 985
245 Gilson & Schizer, supra note 238, 889-890
4. Capital Structure as an Agency Cost-Mitigating Mechanism

i. The disciplining effects of debt

The first group of theories of capital structure identifies the desire to alleviate conflicts of interest among the members of the firm as the driving force behind the choice of a capital structure by a firm. The equilibrium capital structure is determined so as to minimize the sum of agency costs; the corporate finance patterns of a firm are designed in such a way, so that the problems of moral hazard can be mitigated. The most cited paper in this group of theories of capital structure is actually the same paper that introduced the notion of agency costs and established the contractarian approach to the firm: Jensen’s and Meckling’s Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure. The paper explains the financial structure of a firm on the basis of the incentives that return patterns associated with different financial instruments trigger to the managers. Debt contracts reduce the amount of free cash flows available to managers by requiring the company to make fixed payments at specified dates. In general, the intervention of creditors binds managers to delivering targeted levels of performance. Given that free cash flows are traditionally considered as a source of agency costs, it follows that the existence of debt in a firm’s financial structure can contribute to the reduction of agency costs and hence to the maximization of the firm’s

247 Jensen & Meckling, supra note 19, 305. Other papers that view the capital structure of a firm as a result of the desire to control agency costs within the firm include Milton Harris & Artur Raviv, Capital Structure and the Informational Role of Debt, 45 JOURNAL OF FINANCE 321; Rene Stulz, Managerial Discretion and Optimal Financing Policies, 26 JOURNAL OF FINANCIAL ECONOMICS 3; David Hirshleifer & Anjan Thakor, Managerial Conservatism, Project Choice and Debt, 5 REVIEW OF FINANCIAL STUDIES 437
248 Hellwig, supra note 246, 2
value\textsuperscript{249}. Removing free cash from the corporation means removing an opportunity for the insiders to inflate their private benefits\textsuperscript{250}.

However, while a highly leveraged structure mitigates the conflicts of interest between managers and equityholders, it acerbates the conflict between debtholders and equityholders\textsuperscript{251}. Debt contracts assign priority to debtholders over equityholders in the sense that equityholders cannot get a return on their investment until after the debtholders’ claim is satisfied\textsuperscript{252}; the payment of a dividend before the payment on the loan is prohibited. It is in this way that the contractual structure of the firm renders equityholders the residual claimants. From this structure it follows that in the presence of debt the value of equity is like an option\textsuperscript{253} (whose value is an increasing function of the variance of the underlying asset\textsuperscript{254}), so that equityholders have the incentive to increase the risk of the firm by investing in risky projects that have the potential of yielding a large return and leaving some residue for them to catch; equityholders can only benefit from such an investment, since they capture the upside, but should the project fail, they will not suffer any loss. Thus, a leveraged capital structure might result in the firm exchanging its low-risk assets for high-risk investments\textsuperscript{255}, even if this reduces the NPV


\textsuperscript{250} Triantis, *supra* 76, 318

\textsuperscript{251} Harris & Raviv, *supra* note 222, 68

\textsuperscript{252} Triantis & Triantis, *supra* note 220, 1232

\textsuperscript{253} It is in essence a call option in the sense that shareholders have the option to buy back the underlying assets of the firm from the debtholders; Ian Ayres, *Optional Law: The Structure of Legal Entitlements* (2005), 2

\textsuperscript{254} Fischer Black & Myron Scholes, *The Pricing of Options and Corporate Liabilities*, 81 *Journal of Political Economy* 637, 637

\textsuperscript{255} See in general David Mauer & Sudipto Sarkar, *Real Options, Agency Conflicts and Optimal Capital Structure*, 29 *Journal of Banking and Finance* 1405
of the firm as a whole\textsuperscript{256}. Projects with positive NPV may be abandoned, if their only benefit accrues to the debtholders\textsuperscript{257}. Thereupon, the equity cushion, upon which debtholders relied when they extended credit to the firm, is gone leaving both the creditors and the common shareholders worse off\textsuperscript{258}. In finance theory this is known as the “asset substitution problem” and is considered to be an agency cost of debt financing\textsuperscript{259} that counterbalances its benefits.

\textit{ii. Replicating the incentive-compatible cash flow structure of debt with convertible preferred stock; Placing convertible preferred on the debt-equity continuum}

Given that the highly uncertain environment of VC financing gives rise to increased agency problems, VCs will be keen on designing a capital structure for the VC-backed firm that will embrace the philosophy of this first group of theories\textsuperscript{260}. In order to cope with the problem of moral hazard, VCs are expected to use the financial structure of the firm as a mechanism that complements the other incentive schemes that are used to discipline managers\textsuperscript{261}. After all, it is well documented in literature that the interaction between securities and incentives is central to VC financial planning\textsuperscript{262}.

\begin{itemize}
\item \textsuperscript{256} Richard Green, \textit{Investment Incentives, Debt and Warrants}, 13 JOURNAL OF FINANCIAL ECONOMICS 115, 115
\item \textsuperscript{257} Stewart Myers, \textit{Determinants of Corporate Borrowing}, 5 JOURNAL OF FINANCIAL ECONOMICS 147, 149
\item \textsuperscript{258} Clifford Smith & Jerold Warner, \textit{On Financial Contracting: An Analysis of Bond Covenants}, 7 JOURNAL OF FINANCIAL ECONOMICS 117, 118-119
\item \textsuperscript{259} Harris & Raviv, \textit{ supra} note 222, 69
\item \textsuperscript{260} The fact that agency problems between the entrepreneur and the venture capitalist are very important determinants of venture financing contract designs and hence of the capital structure that will ensue from this contract is emphasized by Steven Kaplan and Per Strömberg, \textit{Characteristics, Contracts and Actions: Evidence from Venture Capitalist Analyses}, 59 JOURNAL OF FINANCE 2177, 2178
\item \textsuperscript{261} Mathias Dewatripont & Jean Tirole, \textit{A Theory of Debt and Equity: Diversity of Securities and Manager-Shareholder Congruence}, 109 QUARTERLY JOURNAL OF ECONOMICS 1027, 1027
\item \textsuperscript{262} Rafael Repullo & Javier Suarez, \textit{Venture Capital Finance: A Security Design Approach}, 8 REVIEW OF FINANCE 75, 78
\end{itemize}
A first option for VCs would be to take advantage of the disciplining effect that debt has and thus purchase debt instruments for their investment in a start-up firm. However, as it has been noted in the VC literature\textsuperscript{263}, straight debt is an inappropriate vehicle of investment in firms that are in the initial stages of development; among other reasons, because these ventures do not generate sufficient working capital to repay a loan and because their value is locked in growth options rather than in tangible assets that can be foreclosed on, if the firm defaults on the repayment of the loan\textsuperscript{264}. In general, debt capital is only suitable for companies with earnings and assets\textsuperscript{265}. Contrarily, equity capital can absorb uncertainty more easily\textsuperscript{266}.

Apart from the economic unsuitability of debt for VC investments, there is also a legal risk associated with debt: unlimited liability of the creditor. If the VC used straight debt for its investment in the entrepreneurial firm, then it wouldn’t be able to attach to its security all these control rights that were discussed above without running the risk of being found itself liable for the liabilities of the firm. As the Restatement Second of Agency section 14 (O) puts it: “A creditor who assumes control of his debtor’s business for the mutual benefit of himself and his debtor, may become principal”. Based on this concept several courts have in the past characterized a creditor as the principal and the

\textsuperscript{263} Douglas Cumming & Sofia Johan, Venture Capital and Private Equity Contracting (2009), 402; Triantis, supra note 71, 318
\textsuperscript{264} Josh Lerner, Venture Capitalists and the Oversight of Private Firms, 50 Journal of Finance 301, 302
\textsuperscript{265} Mann, supra note 163, 817
\textsuperscript{266} Maria Brouwer & Bart Hendrix, Two Worlds of Venture Capital: What Happened to U.S. and Dutch Early Stage Investment?, 10 Small Business Economics 333, 333
debtor as the agent, when the former dominates the latter to the extent that the borrowing firm functions solely to achieve the purposes of the dominant lender.\textsuperscript{267}

Thereupon, the ubiquitous security used for investment in start-up firms is not debt, but convertible preferred stock; a hybrid security that represents a combination of debt and equity interests.\textsuperscript{268} A financial instrument that shares elements of both paradigm debt and paradigm equity.\textsuperscript{269} Just like for any other hybrid security, the question that arises in this context is whether the convertible preferred stock that VCs use resembles more to debt or equity. If the range of existent corporate securities would be represented by means of a continuum that has straight debt at the one extreme and straight equity at the other, where exactly would convertible preferred stock lie? Can this type of hybrid security replicate the incentive-compatible allocation of the cash flow rights of debt? What debtlike characteristics does it have that can potentially produce some of the disciplining effects that straight debt has on management?

In response to the foregoing questions I will attempt to identify whether the cash flow patterns associated with the convertible preferred stock that VCs use can provide managers of the start-up venture with the incentives that debt does according to Jensen’s and Meckling’s model. To put it differently, the main goal of the following analysis is to

\textsuperscript{267} See Margaret Hambrecht Douglas-Hamilton, \textit{Creditor Liabilities Resulting from Improper Interference with the Management of a Financially Troubled Debtor}, 31 \textit{BUSINESS LAWYER} 343; See also Jenson Farms Co. v. Cargill, Inc., 309 N.W.2d 285 (Minn 1981) and K.M.C. Co., Inc. v. Irving Trust Co., 757 F.2d 752 (6th Cir. 1985)
\textsuperscript{268} Richard Harroch, \textit{Start-up \& Emerging Companies: Financing \& Operating The Successful Business} (2000), §1.05
\textsuperscript{269} Triantis, supra note, 71, 318; The term “paradigm equity” is used by Standard \& Poor’s in \textit{Corporate Criteria-Equity Credit: What it is, and How you Get it. Factoring Future Equity into Ratings. Tax Deductible Preferreds and Other Hybrids. A Hierarchy of Hybrid Securities} (2005), 1 (on file with author)
check whether convertible preferred stock can replicate the corporate governance implications of debt in the start-up firm’s capital structure.

A superficial approach of the issue would suggest that convertible preferred stock establishes a payoff structure that is closer to common equity rather than to paradigm debt. To be sure, in the corporate finance literature one can locate continua that look like the following (Figure 1)\textsuperscript{270}:

\begin{center}
\begin{tabular}{llllll}
Straight \hspace{1cm} Zero-coupon \hspace{1cm} Traditional \hspace{1cm} \textbf{Convertible} \hspace{1cm} Mandatory \hspace{1cm} Common \\
fixed-income \hspace{1cm} convertible \hspace{1cm} convertible debt \hspace{1cm} preferred stock \hspace{1cm} convertible preferred \hspace{1cm} preferred \\
\hline
Debt Characteristics \hspace{1cm} Equity characteristics
\end{tabular}
\end{center}

This depiction might well be plausible for the \textit{typical} convertible preferred stock that investors can find in the public securities markets, but is probably not accurate with regard to the idiosyncratic convertible preferred stock that VC-backed firms issue to VCs and that we described above under III.A. In fact, as it will become evident in the lines to follow, the VC convertible preferred purports to be more debtlike or at least appears to be conducive, through the \textit{suis generis} contractual rights attached to it, to produce the incentives that pure debt produces.

To substantiate my argument, I am going to use insights from the analytical framework that the rating agency Moody’s has established in order to classify publicly

\textsuperscript{270} This figure is based on the one provided by \textsc{Nick Calamos, Convertible Arbitrage} (2003), 26.
traded hybrid securities into equitylike and debtlike. Despite the fact that Moody’s methodology is employed to assess the character of hybrid securities that are traded in public securities exchanges, it is my strong conviction that the criteria used for this classification can be applied even in our case, where we seek to identify the character of a security issued by a private firm.

Moody’s has established a continuum of five baskets (A-E). Securities that belong to basket A are treated as 0% equity and 100% debt. At the other extreme securities assigned to basket E are treated as 100% equity and 0% debt. The rest of the hybrid securities are classified into intermediate baskets on the basis of their equitylike or debtlike features. To accomplish this task the security in question is broken down into its basic characteristics, which are then compared to the following three attributes of paradigm equity: (i) no ongoing payments; (ii) no maturity; and (iii) significant loss absorption. The hybrid securities are subsequently scored based on the strength of their resemblance to pure common equity. The more remote their features are compared to the three foregoing characteristics, the more debtlike is the instrument.

To identify whether the idiosyncratic convertible preferred stock that VCs use is close to common equity or not, I analyze briefly each of these three elements in turn and then I seek the points of intersection or points of divergence between convertible preferred and equity.

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**No ongoing payments**: A fundamental element of common equity is that the issuer can skip a dividend payment without triggering an event of default. This provides the issuer with substantial financial flexibility, which is particularly valuable in periods of financial distress or in the initial stages of development. As far as VC-style convertible preferred stock is concerned, there is no doubt that it entitles its holder to dividends, which means that in principle there is no contractual obligation for the start-up firm to make a fixed payment. Nonetheless, the fact that in the VC context this security usually has cumulative rights to dividends attached to it significantly compromises the benefits of financial flexibility. If the purpose of VC-style convertible preferred was to replicate common stock more closely, then the parties should have agreed upon a non-cumulative structure rather than upon a cumulative one. With the liability of accrued dividend hanging over the firm, the managers do not have so much the incentive to accumulate cash and liquid assets (free cash flows), which will give them greater discretion over future decisions. Therefore, the agency costs associated with free cash flows are somewhat reduced due to the existence of cumulative dividends.

**No maturity (no principal repayment)**: Paradigm equity does not give the security holder the right for repayment in full. “Common stock does not have to be repaid.” There is no fixed claim on the firm’s cash flow, like there is in the case of a debt claim, where a demand for repayment of the principal exists. Again, the practice of VC financings has undermined this attribute of common stock, since the redemption right attached to the convertible preferred stock makes the issuer face “a potentially major

274 New Instruments Standing Committee (Moody’s Investors Service), supra note 249, 149
275 Triantis, supra 91, 95
276 New Instruments Standing Committee (Moody’s Investors Service), supra note 249, 147
claim on cash flow, similar to the payment in full of an obligation due at maturity.\footnote{Id at 150; see also text accompanying note 178} Consequently, the potential for the managers to accumulate a pool of liquid reserves with all its resultant problems is reduced, much like it happens in companies with highly leveraged structures.

**Significant loss absorption:** Common shareholders absorb the risk of a potential performance shortfall by means of their position as residual claimants of the firm.\footnote{Polito, supra note 272, 321-322} As they have contracted for the rights to net cash flows,\footnote{Eugene Fama & Michael Jensen, *Agency Problems and Residual Claims*, 26 JOURNAL OF LAW & ECONOMICS 327, 328} they have undertaken the risk of any distressed situation. Their claim is subordinated to all other claims on the firm’s assets. VCs as preferred shareholders are never found in this situation, since they have seniority over common stockholders with regard to dividend payments and distribution of assets in the case of liquidation; unpaid accrued dividends must be paid before any value is paid out to common shareholders.\footnote{Francesca Cornelli & Oved Yosha, *Stage Financing and the Role of Convertible Securities*, 70 REVIEW OF ECONOMIC STUDIES 1, 2}

This income stream attached to preferred stock is itself actually an incentive scheme for the managers;\footnote{Dewatripont & Tirole, supra note 261, 1028} an incentive scheme identical to the one that a debt payoff structure creates. The founder and the managers, holders of the common stock, know that, if the firm does poorly then they will either get less than their pro rata share of the company’s value or even nothing, if this value is less than the liquidation preference.\footnote{Fried & Ganor, supra 168 , 983} Thus, much like when there is debt in the capital structure, the managers-equityholders have an increased incentive to build value for the firm. In other words, shifting the

\begin{footnotes}
\footnotetext[277]{Id at 150; see also text accompanying note 178}
\footnotetext[278]{Polito, supra note 272, 321-322}
\footnotetext[279]{Eugene Fama & Michael Jensen, *Agency Problems and Residual Claims*, 26 JOURNAL OF LAW & ECONOMICS 327, 328}
\footnotetext[280]{Francesca Cornelli & Oved Yosha, *Stage Financing and the Role of Convertible Securities*, 70 REVIEW OF ECONOMIC STUDIES 1, 2}
\footnotetext[281]{Dewatripont & Tirole, supra note 261, 1028}
\footnotetext[282]{Fried & Ganor, supra 168 , 983}
\end{footnotes}
residual risk on the managers by means of the use of preferred stock reduces entrepreneurial opportunism and increases the managers’ incentive to create value\textsuperscript{283}. Nevertheless, the dividend and liquidation preference that preferred stock carries might result in the asset substitution syndrome that is caused by managers, who want to maximize the value of their residual claim while financing operations with senior instruments\textsuperscript{284}. Similar to what happens, when the firm has debt obligations, the managers, whose compensation is partially equity-based, might want to engage in highly risky projects hoping that, should they succeed, their will be in the end some value left to be distributed to them. At this point is where convertible preferred stock proves itself superior as a corporate governance mechanism when compared to straight debt, because not only it is conducive to generate the same beneficial corporate governance implications that debt does, but it can also shield the company from these problems of risk alteration\textsuperscript{285}. The latter is accomplished by means of the convertibility feature attached to the security. The put component impedes the distortionary risk-taking incentives of managers, since they know that, even if their risky project succeeds, the VC might convert its preferred into common and thus they will have to share the payoffs with the VC\textsuperscript{286}. Convertible preferred stock reduces the manager’s share, when high profit is realized and thus makes excessive risk taking less appealing\textsuperscript{287}.

All in all, the idiosyncratic convertible preferred stock that VCs use as a vehicle for their investment in start-up firms purports to be more debtlike rather than equitylike,

\textsuperscript{283} Sahlman, supra note 90, 510
\textsuperscript{284} Green, supra note 256, 116
\textsuperscript{285} Triantis, supra note 76, 319
\textsuperscript{286} Jensen & Meckling, supra note 19, 354; Green, supra note 241, 125
\textsuperscript{287} See Green, supra note 255, 117ff.
if one uses the criteria that Moody’s Tool Kit puts forward for assessing the character of hybrid securities. The cash flow structures associated with VC-style convertible preferred stock are conducive to replicate the income streams attached to debt instruments and thus the start-up firm is able to benefit from the disciplining effects that debt has according to Jensen and Meckling. In addition to this, convertible preferred stock appears to mitigate to a certain extent the asset substitution effect that might arise in firms with highly leveraged structures and thus one could postulate that while it promotes the beneficial corporate governance implications of debt, it prevents the unraveling of the latter’s detrimental effects. Consequently, convertible preferred stock proves to be an efficient corporate governance mechanism that addresses satisfactorily the problems caused by moral hazard, one of the three major dimensions of the *lato sensu* incompleteness of contracts.

5. Capital Structure as a Signaling Mechanism

i. Leverage signaling models

The second group of theories of capital structure views a firm’s capital structure as a response to the problem of adverse selection that can arise in financial markets due to asymmetric information. Insiders possess more information about the firm’s assets and investment opportunities than outside potential capital suppliers. For many authors, a

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firm’s choice of a specific capital structure signals to market participants the private information that insiders have about the quality of the firm\textsuperscript{289}. By looking at a company’s financial structure, investors can draw inferences about the firm’s profit profile. In other words, one of the driving forces behind a firm’s determination of its financial composition is its desire to convey private information to the market about its expected earnings and thus signal its type. Authors in this set of approaches to the theory of capital structure have identified equity as a negative signal and debt as a positive one. In the majority of models put forward in the literature, there is a positive correlation between firm quality and leverage.

The issuance of equity is viewed by market participants as a signal that the firm’s equity is overvalued\textsuperscript{290}. This assertion is backed by event studies that show that the announcement of equity issues is associated with negative event returns\textsuperscript{291}. To the contrary, a higher proportion of debt is perceived as a signal of higher quality and, therefore, should the firm decide to issue more of it, its weighted cost of capital is expected to be reduced\textsuperscript{292}.

Among the several debt signaling models that are proposed in theory, I have chosen to refer to two; one that cannot be applied in the VC context and one that can be applied. The non-applicable model will help illustrate more the nature of convertible preferred stock and the fact that although it can replicate some of the corporate governance implications of debt, it cannot be a complete substitute for debt in all aspects.

\textsuperscript{289} Harris & Raviv, supra note 221, 80
\textsuperscript{290} Myers & Majluf, supra note 59, 188, 209-210
\textsuperscript{291} ROBERT BRUNER, APPLIED Mergers & Acquisitions (2004), 572
\textsuperscript{292} Harris & Raviv, supra note 222, 85
By means of the applicable model it will be demonstrated that convertible preferred stock apart from being valuable for dealing with moral hazard problems, is also a significant arrow in the quiver of VCs to address the problem of adverse selection, the other dimension of the incompleteness of contracts.

According to the first of the two approaches, the reason why debt is viewed as conveying such favorable information is that as the level of debt increases, the risk of insolvency increases as well and thus the company faces a higher probability of having to cope with the various costs surrounding the event of bankruptcy; given that lower quality firms incur necessarily higher expected bankruptcy costs, they will naturally be deterred from using highly leveraged structures, whereas the remoteness of the event of bankruptcy for high quality firms lowers their expected bankruptcy costs thus allowing them to issue more debt\textsuperscript{293}. Hence, low quality firms find it more costly to incur higher levels of debt, than do firms with higher expected cash flows, for which bankruptcy is less likely\textsuperscript{294}. High quality firms can send a credible signal to market participants by loading their capital structure with more debt, while low quality firms (“lemons”) have no incentive to mimic this\textsuperscript{295}, because it would be way too costly. Consequently, pursuant to this view market participants can sort high quality from low quality firms by looking at the level of debt in each firm’s capital structure\textsuperscript{296}.

\begin{footnotesize}
\begin{enumerate}
\item[Harris & Raviv, supra note 221, 311]
\item[Jeremy Stein, Convertible Bonds as Backdoor Equity Financing, 32 JOURNAL OF FINANCIAL ECONOMICS 3, 7]
\item[Linda Klein et al., Debt vs. Equity and Asymmetric Information: A Review, 37 FINANCIAL REVIEW 317, 320]
\item[According to this theory of capital structure issuing debt will reduce the cost of capital of the issuing firm, since market participants tend to discount less in pricing debt securities for they expect the venture not to be so overvalued. To the contrary, equity is perceived as a sign of overvaluation of the venture and thus investors tend to apply a higher discount in pricing stock; see Myers & Majluf, supra note 59, 187]
\end{enumerate}
\end{footnotesize}
Apparently convertible preferred stock cannot fulfill this function, because its issuance does not give rise to the risk of a bankruptcy penalty. Although it is definitely a debtlike financial instrument, a default on the payment of a preferred dividend does not trigger an event of default that can force the issuer into bankruptcy. This is a major difference between this hybrid security and paradigm debt. Therefore, this model has no value in the VC context, as long as VCs have convertible preferred as their investment vehicle.

According to the second of the two approaches, when a firm chooses to obtain external finance through debt rather than equity, it means that its management retains a higher proportion of ownership in the firm. If the firm were of low quality, then the insiders wouldn’t choose to act in this way, because a larger equity stake would be costly to a risk-averse manager. Contrarily, a manager who is confident about its firm’s potential chooses to keep a larger portion of equity because she considers it as less risky and thus less costly, given the profit profile of her firm. Thus, higher levels of debt give a positive credible signal to capital suppliers, who can use this reasoning to sort out good firms from bad firms.

ii. Reversing the signaling game; Sorting out entrepreneurs by using convertible preferred stock

By relying on the axioms of the second of the two leverage signaling theories of capital structure, VCs have the potential of developing a screening mechanism complementary to the one of staged investment that we examined in Part II. However, in order to accomplish this function the signaling game that was described above must be

297 Leland & Pyle, supra note 65, 372
reversed and be transformed into a screening strategy. This is because in the VC financing setting the entrepreneur (the informed party of the game) does not have the bargaining power to move first and choose its capital structure on her own, when she is approaching the VC to ask for financing\textsuperscript{298}. Therefore, the entrepreneur is not able to signal—in the game theoretic sense— to the VC by loading its capital structure with more debt than equity. Thus, the informed agent cannot move first and thereupon the model cannot work in exactly the same way, as it was described above.

Nonetheless, the VC can still take advantage of the signal that debt conveys so as to structure the following screening game: given that the VC has the bargaining power to move first and to dictate its preferred terms in the financial contract\textsuperscript{299}, it can offer to the informed start-up firms a menu of incentive compatible choices (contracts), from which they will self-select revealing their private information through their choice\textsuperscript{300}. Those that will choose the contract that will load their capital structure with convertible preferred stock, which will necessarily leave more space to the managers to take an equity stake in the company, will reveal their confidence in the potential of their venture. In essence, convertible preferred does here what debt does according to the second of the two models: it screens good firms from bad firms by letting their management show how much confidence they have in their firm.

\textsuperscript{298} The bargaining power of the VC can be “significant, but not decisive”, see Bratton, supra 152, 920
\textsuperscript{299} As Steven Kaplan asserts “if you don't write the contracts a certain way, the VCs won't give you any money...”; \textit{Bargaining Power: Effective Venture Capital Contracts Come in Many Forms, CAPITAL IDEAS} (May 2004) [summary of the research conducted by Steven Kaplan & Per Strömberg, supra note 100, published at \url{http://www.chicagogs.edu/capideas/may04/contracts.html}]
\textsuperscript{300} RASMUSEN, supra note 53, 267
C. Financial Contracting Theory and its Application in VC Financings: Governance Features of Convertible Preferred Stock II

The foregoing analysis makes evident that the VCs have developed a sophisticated financing process\textsuperscript{301}, which successfully addresses two major challenges of contracting: moral hazard and adverse selection. However, going back to Part I and the mapping of the impasses of contracts, we see that there is one more contractual problem that VCs have to deal with: the \textit{stricto sensu} incompleteness of contracts; the fact that the parties to a contract cannot possibly specify fully all future contingencies that will affect their relationship. In this section I am going to scrutinize how VCs struggle against the problem created by these unspecified future eventualities and what marks does this struggle leave on the corporate governance structure of the VC-backed firm.

1. Advanced Security Design: Separating Cash Flow and Control Rights

It has been stated in the financial contracting literature that incentive problems alone cannot help shape a satisfactory theory of capital structure\textsuperscript{302}. Therefore, authors that belong to this stream of thought have introduced an additional consideration in the financial structure design process: the allocation of decision or control rights. This theory postulates that cash flow rights and control rights should not be necessarily viewed as two sides of the same coin, but they should be thought of as independent instruments that can well be separated\textsuperscript{303}.

\textsuperscript{301} Klaus Schmidt, \textit{Convertible Securities and Venture Capital Finance}, 58 \textit{Journal of Finance} 1139, 1139
\textsuperscript{302} Hart, \textit{Financial Contracting}, 1083
\textsuperscript{303} Id. at 1089
Indeed, one of the key issues in designing securities in the framework of the VC contracting process is separately allocating cash flow and control rights between the investors and the entrepreneur\textsuperscript{304-305}. In fact, one of the reasons why VCs choose convertible preferred in order to invest in the entrepreneurial firm is because it allows them greater flexibility to obtain that separation\textsuperscript{306}. In regard to this aspect, the VC financing process seems to be taking under account this first axiom of financial contracting theory.

In general, separation of cash flow from control allows corporate planners first to create income streams that incentivize the managers to exert optimal effort (see III.B) and then, independently from the financial structure that is established by these return patterns, to provide a certain class of investors with control over the firm’s decision mechanisms. If we were to provide a simple definition of the separation of cash flow and control we would state that it is the process, by which the right to the residual income from an asset is detached from the residual right to control the fate of this asset\textsuperscript{307}. This again turns to the idea that was discussed above (III.B.2) that securities need not to be determined exogenously and taken with the rights that are customarily attached to them.


\textsuperscript{305} For the range of mechanisms available to (public) firms to separate cash flow from control see in general Lucian Bebchuk, Reinier Kraakman & George Triantis, \textit{Stock Pyramids, Cross-Ownership and Dual Class Equity: The Mechanisms and Agency Costs of Separating Control From Cash-Flow Rights in CONCENTRATED CORPORATE OWNERSHIP} (R. Mock ed.,1999) 445


\textsuperscript{307} See HART, \textit{supra} note 14, 63-64
under their paradigm form, but can be developed and engineered endogenously so that they can help the issuer or the investor achieve its strategic and financial goals.

By using covenants in the financing contract VCs allow themselves without being the residual claimants of the firm to have significant control over a certain number of board seats, voting power on an as-converted basis, veto rights over major corporate transactions and even the right to replace the CEO\(^{308}\) (which can actually be the result of having majority of the voting power or of the board seats). Thus, an idiosyncratic quasi-dual class structure is established within the start-up firm. This allocation of control rights affects the corporate governance structure of the firm in a much more direct way than the allocation of cash flow rights. While the design patterns of the latter simply affect the incentives of the members of the firm, the designation of the former instantly assigns the levers by which some of these members will decide the usages of the firm’s underlying assets\(^{309}\). However, although in “custom-made” combinations the two types of rights may not go hand in hand like when securities are left intact with their exogenous characteristics, their allocation still remains largely interdependent in the sense that the desideratum when designing cash flow rights is to provide those who are assigned the control rights with optimal incentives to make the right decisions\(^{310}\). Income streams and control rights are thus correlated even when they are separated, in the sense that the allocation of the former ensures the success in the allocation of the latter\(^{311}\).

\(^{308}\) Black & Gilson, supra note 28, 253
\(^{309}\) Triantis & Triantis, supra note 220, 1232; HART, supra note 14, 30
\(^{310}\) Dewatripont & Tirole, supra note 261, 1028
\(^{311}\) See Jaime Zender, Optimal Financial Instruments, 46 Journal of Finance 1645
Picking the right persons within the firm to entrust them with the decision-making authority over the firm’s actions is vital, for it determines whether the players respond efficiently to the contractual challenge of inherent *stricto sensu* incompleteness. Since certain actions and the circumstances under which they are taken are frequently noncontractible, the best the parties to the corporate contract can do is at least specify who will have the decision-making authority over these eventualities; and they should make sure that the person who is assigned the authority has the optimal incentives at this point to maximize the firm’s utility. Since all potential conflicts of interest between the manager and the suppliers of capital cannot be resolved through *ex ante* contracting, the firm’s value partially depends and on the allocation of control rights.

In the following lines I will examine, which criteria financial contracting theory suggests that parties to a financial contract should use in order to obtain an optimal allocation of control rights and I will evaluate whether the control assignment patterns observed in VC investments follow these criteria.

2. Financial Contracting Theory and the State-Contingent Optimal Allocation of Control Rights

The framework of inquiry of the models articulated in financial contracting theory is the *stricto sensu* incompleteness of contracts. Many events, on the basis of which significant governance effects are going to be shaped, cannot be adequately specified in

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312 Sujoy Mukerji, *Ambiguity Aversion and Incompleteness of Contractual Form*, 88 AMERICAN ECONOMIC REVIEW 1207, 1207
313 Aghion & Bolton, *supra* note 39, 490
314 See Hart, *Financial Contracting*
advance\textsuperscript{315} and thus they will be necessarily omitted from the initial financing contract. Still parties can include in their contract a provision that will touch upon these noncontractible events and will transfer control either to the investor or the entrepreneur upon their occurrence. Thus, it follows that control rights will be necessarily contingent on the incidence of future variables. In line with this concept, financial contracting theory\textsuperscript{316} has established a “contingent control model” on the optimal allocation of decision-making authority. In other words, according to the financial contracting literature the optimal balance of control between the manager and the investors is not flat, but state-contingent.

The model that has been cited the most for the purposes of analyzing the financial contract between the VC and the entrepreneur is the one of Aghion and Bolton\textsuperscript{317}. The reason that Aghion’s and Bolton’s model is chosen as the center of analysis in the VC literature is that it assumes a single entrepreneur, a single investor and a single project; assumptions that are very close to the reality of VC investments. The starting point of the model is that the entrepreneur derives both pecuniary (: cash flows) and non-pecuniary benefits (: private benefits of control) from the project, while the investor can only benefit from the project’s cash flows. The two have different utility functions and thus there will be unavoidably conflicts of interest during the course of their relationship. But, if control rights are allocated properly between the two, then at least the impact of these conflicts of interest on the total value of the firm can be minimized\textsuperscript{318}. Consequently,

\begin{itemize}
    \item \textsuperscript{315} Bratton, supra note 152, 902
    \item \textsuperscript{316} See Hart, \textit{Financial Contracting}
    \item \textsuperscript{317} Aghion & Bolton, supra note 39
    \item \textsuperscript{318} Hart, \textit{Financial Contracting}, 1085-1086
\end{itemize}
given the assumptions that the allocation of decision rights should be state-contingent and that this allocation will determine the impact that conflicts of interest have on the success of the project, the question posed by financial contracting theory can be formulated as follows: in what states of the world it will be optimal to give the control rights to the entrepreneur and in what states of the world it is the investor that should be vested with decision-making authority?

To answer this question a corporate planner should realize which states of the world create suboptimal incentives for either the entrepreneur or the outside investor. At the point, where a certain state of the world, a certain financial condition, creates the incentive for the entrepreneur-manager to underinvest or to increase the riskiness of the project, control should be transferred to the outside investor\(^{319}\). Thereupon, in the initial contract verifiable indicia should be ascertained that will signal that the incentive to invest inefficiently is present in the entrepreneur and that at this point a transfer of control should occur.

One of the ways to realize when the entrepreneur will have the tendency for suboptimal decision-making is to look at the kind of income stream that is attached to the instrument she holds. In the case of VC-backed firms this instrument is almost always common stock; the entrepreneur is usually an equityholder. Equityholder control is generally optimal in good states of the world, when the firm is solvent and not financially constrained\(^{320}\). This is because under these circumstances equityholders truly are the residual claimants of the firm and thus have an incentive to maximize cash inflows. It

\(^{319}\) Zender, supra note 218, 1646

\(^{320}\) Aghion & Bolton, supra note 39, 490; Dewatripont & Tirole, supra note 261, 1028; Triantis & Triantis, supra note 220, 1252
follows then, that when the financial performance of the VC firm is good, the control should stay with the entrepreneur. However, when the firm is entering the zone of insolvency and there is the threat that the cash flows it generates will not be sufficient so as to produce a dividend after the payments to creditors, then equityholders, if in control, will invest inefficiently by increasing the riskiness of the project (see III.B.4.i). At this point control should be transferred to debtholders because it is them that have now become the residual claimants. In VC-backed firms, where VCs claims are, as it was proved above (see III.B.4.ii), debtlike, it is to the VCs that decision-making authority should be transferred in bad states of the world.

Based on this observations the contingent control model of Aghion and Bolton suggests that when an entrepreneurial firm is not financially constrained, control should remain with the entrepreneur-common stockholder, while during hard times it should be assigned to outside investors that hold debt or debtlike claims. Thus, if control rights were depicted as lying on a pendulum programmed to swing to pre-specified directions at pre-specified points in time, it should be programmed to swing towards the entrepreneur when the proxies for financial performance look good and to the outside investor when performance is measured as poor. Aghion and Bolton advocate that this particular kind of contingent control allocation can be obtained naturally with debt financing in the sense that the exogenously given allocation of control rights that paradigm debt establishes does lead to the above optimal distribution of decision-making authority.

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321 This is exactly the reason why the Delaware Chancery Court in Credit Lyonnais Bank Nederland v. Pathe Communications Corp, 1991 Del. Ch. LEXIS 215, at *109 n. 55 (Del. Ch. Dec. 30, 1991) stated that when the corporation is entering the zone of insolvency the directors also owe a fiduciary duty to creditors and not to the shareholders only.
322 Yerramilli, supra note 178, 1
323 Aghion and Bolton, supra note 39, 490
Therefore, what remains to be examined is whether the covenants embedded in VC convertible preferred stock are designed in a way that achieves the kind of allocation of control rights that financial contracting theory claims is optimal for entrepreneurial firms. Does the pendulum of control rights swings to the direction of the VC in bad times and towards the entrepreneur in good times? Does convertible preferred stock proves not only to have the motivational properties of debt (see III.B), but also its (optimal) “control-allocational” attributes?

3. Optimal Programming of the Control Rights Pendulum in VC Contracts

As a general matter, the nature of the VC’s involvement in the start-up firm is widely acknowledged to be state-contingent. The strategy of staged investment, which was analyzed in Part II is the foremost element of the contingency pattern. In addition to this, empirical data show that cash flow rights are also allocated on a state-contingent basis. The general pattern is that when the performance of the VC-backed firm improves the entrepreneur captures a larger fraction of the total cash flows, while when the venture performs poorly then it is the VC that is entitled to a larger proportion of the total cash flows. To illustrate this motive, it suffices to look at the layout of some cash

324 See e.g. Thomas Hellmann & Maju Puri, Venture Capital and the Professionalization of Start-up Firms: Empirical Evidence, 57 JOURNAL OF FINANCE 169, 185
326 Kaplan & Strömberg, supra note 100, 295; Kaplan & Strömberg, supra note 325, 427; Black & Gilson, supra note 28, 253; Bengtsson & Sensoy, supra note 194, 1
flow rights, such as the convertibility option, the anti-dilution protection, the redemption right\textsuperscript{327} and the dividend and liquidation preference.

Starting with the convertibility option, if the start-up firm turns out to perform well, then the VC may want to convert its preferred stock into equity and thus be entitled to a portion of the upside\textsuperscript{328}. To be sure, in most VC contracts when a firm’s good performance results in an IPO or an acquisition at a high price, then the conversion of the convertible preferred into common is mandatory, it occurs automatically. The result of the conversion is that now the entrepreneur does not have to wait for the VC to be paid its dividend or liquidation preference before she can receive anything from the distribution, but instead stands in the same place with the VC in terms of sharing in the firm’s cash flows; thus, after the conversion the entrepreneur is able to capture a larger proportion of the total cash flows than she did before.

As far as the redemption right is concerned, if the portfolio company performs poorly and no liquidity event takes place within a period of time specified in the contract, then the VC can put the stock back to the firm and cash out its investment. On the contrary, if the venture performs well and consummates an IPO or a profitable trade sale within the same amount of time, then the VC is not entitled to exercise the put option.

Turning to the application of anti-dilution provisions, their protection is triggered after follow-on financing rounds take place. If the start-up firm does not perform well,

\textsuperscript{327} It should be mentioned that Cumming & Johan, supra note 263 at 421 classify the redemption right as a control right. Although, there might be a “quiet” control feature in the put right that VCs customarily have, I follow here the Kaplan & Strömberg, supra note 100 at 288 definition of control rights as including only voting, board and veto rights.

then the follow-on financing will take place at a lower valuation. The anti-dilution protection will in this case allow the VC to get more shares, thus making sure that in this bad state of the world the cash flows, to which it is entitled are not reduced.

Finally, as far as the foremost characteristic of convertible preferred is concerned, the dividend and liquidation preference, the same contingency pattern applies. When the firm performs poorly, then its total cash flows are going to be small and thus the preference is going to allow the VC to capture a higher fraction of the (small) total sum. As the firm’s performance improves, then more is left for the common shareholder-entrepreneur to benefit from\textsuperscript{329}.

Apart from the cash flow rights that are allocated on a state-contingent basis, empirical data show that control rights as well are not held at all times by either the VC or the entrepreneur, but there is rather “a continuous variable that is adjusted and fine-tuned through a multitude of contingent provisions”\textsuperscript{330} that makes the possession of this type of rights conditional upon the occurrence of observable measures of firm performance\textsuperscript{331}. However, according to the axioms of financial contracting theory mere state-contingency of the control rights is not sufficient for the company to optimally respond to the challenge of the \textit{stricto sensu} incompleteness of contracts. Additionally, the pendulum of control rights should be programmed in such a way, so that more governance intervention is allowed to the VC when performance is poor and more to the entrepreneur when performance is good. Only this scheme will ensure that control will

\textsuperscript{329} Bengtsson & Sensoy, \textit{supra} note 194, 12
\textsuperscript{330} Andrei Kirilenko, \textit{Valuation and Control in Venture Finance}, 56 \textit{JOURNAL OF FINANCE} 565, 565
\textsuperscript{331} Patrick Bolton & Mathias Dewatripont, \textit{Contract Theory} (2005), 524
stand each time with the person that has the optimal incentives of maximizing the value of the venture.

One of the determinants of the programming of such a pendulum in firms is expected to be the level and the direction of informational asymmetries at the time the contract is drafted.\textsuperscript{332} Given the extreme uncertainties that exist in start-up investments and the concomitant severity of agency problems, the VC will naturally want to get control in more states of the world,\textsuperscript{333} at least until more (and positive) information about the prospects of the venture are revealed. As a general matter, this desire of the VCs tends to result in an unusual corporate governance structure of the VC-backed firm, where preferred rather than common shareholders control the board\textsuperscript{334} for the greatest part of the firm’s pre-IPO life.\textsuperscript{335}

Nonetheless, in Kaplan’s and Strömberg’s empirical study there is indeed evidence of accounting and performance indicia that are utilized in the drafting of covenants, pursuant to which control shifts gradually towards the entrepreneur as performance improves.\textsuperscript{336}

First of all, this control-shifting pattern is evident in the typical provisions governing the conversion feature of the VC preferred stock. As it was noted above, when

\begin{footnotesize}
\begin{enumerate}
\item Wouter Dessein, \textit{Information and Control in Alliances and Ventures}, 60 \textit{Journal of Finance} 2513, 2513
\item \textit{Id.}; Black & Gilson, \textit{supra} note 28, 253
\item Fried & Ganor, \textit{supra} note 168, 970
\item Due to this idiosyncratic corporate governance structure in VC-backed firms it has been postulated that the entrepreneurs are subject to an increased risk of expropriation by the VCs, see Atanasov et al., \textit{supra} note 159. Although it is contestable whether the data used in the aforementioned paper do indeed function as reliable proxies for the existence of an actual risk of expropriation, it is plausible that the status of the common shareholders in VC-backed firms is sufficiently vulnerable, so as to generate its own agency costs; Fried & Ganor, \textit{supra} note 168, 970.
\item Kaplan & Strömberg, \textit{supra} note 100, 294; Kaplan & Strömberg, \textit{supra} note 325, 427; Bratton, \textit{supra} note 152, 917
\end{enumerate}
\end{footnotesize}
performance improves the VC may opt to convert its preferred into common stock or if a major liquidity event takes place the preferred converts automatically. The conversion has implications for the VC’s cash flow rights, but it also has an impact on the scope of the VC’s control rights, since there are clauses in the charter that state that the increased control rights, such as disproportionate share of votes, reserved board seats and veto powers, that the VC used to have are lost upon conversion. The pendulum of control rights is thus programmed to swing towards the entrepreneur in case the firm is performing so good that the convertibility option is exercised. Therefore, in regard to this aspect the governance of the VC firm purports to be in alignment with the basic axioms of financial contracting theory.

Kaplan’s & Strömberg’s survey reports a series of other provisions found in VC contracts that espouse the proposition of financial contracting theory: the VC may vote for all of its preferred shares on an as-converted basis only if the venture’s EBIT (earnings before interest and taxes) are below a certain threshold; if net worth of the firm is below a certain threshold then the VC will get three more board seats; if the firm fails to pay out a certain fraction of its revenues as dividend, then the VC gets to elect the majority of the board etc.

But the most illustrative and archetypal contingent-control provision that embraces the principles of financial contracting theory is the fact that in a VC-backed firm control shifts entirely to the entrepreneur upon the IPO. Black & Gilson in a seminal

337 Gebhardt & Schmidt, supra note 328, 1-2
338 Kaplan & Strömberg, supra note 100, 294-295
paper on the importance of securities markets for the success of a VC industry\textsuperscript{339} claim that a foundational element of VC investments rests not in one of the explicit provisions of the financial contract, but in an implicit contract between the VC and the entrepreneur that control will shift to the latter entirely upon a successful IPO\textsuperscript{340}. This is feasible due to the dispersed ownership structure that US firms tend to have after they go public that essentially allows the managers to pull the strings in the firm’s operations. To be sure, Black & Gilson claim that it is easier to infuse a VC contract with this implicit state-contingent control device, than it is with difficult and costly to negotiate explicit provisions that condition control shift on specified financial milestones\textsuperscript{341}.

All in all, empirical evidence shows that VC contracts are structured in a way that allows for control rights to be allocated in the way financial contracting theory deems optimal. This is a sign that VC-backed firms implement corporate governance structures that efficiently address the contractual challenge of \textit{stricto sensu} incompleteness.

\section*{IV. The Mandatory Model of Corporate Law in Europe and its Implications for Venture Capital}

\subsection*{A. Comparing the US and the European VC Industry}

The past few years have seen a growing number of papers in the area of comparative corporate finance scholarship, which attempt to identify and shed light on the differences in VC financings around the world\textsuperscript{342}. As far as the comparison between

\begin{footnotesize}
\begin{enumerate}
\item Black & Gilson, \textit{supra} note 28
\item \textit{Id.} at 245, 261ff.
\item \textit{Id.} at 263
\item See e.g. Bascha & Walz, \textit{supra} note 304; Cumming, \textit{supra} note 155; Douglas Cumming, \textit{United States Venture Capital Financial Contracting: Evidence from Investments in Foreign Securities}, \textit{in ADVANCES IN}
the US and the European VC industry is concerned, authors in the overwhelming majority of papers tend to focus on two remarkable disparities: (i) the non-prevalence of convertible preferred stock in European VC financings; and (ii) the considerably lower rates of return on VC investments in Europe, when compared to the US. As an American commentator puts it “venture capital is the one technique our competitors in other industrial countries have yet to master.” Several ideas have been put on the table to explain this divergence and they implicate historical, institutional, political, legal and cultural considerations. Elements of truth are found in all arguments and it is thus most likely a combination of factors that has led to the observed gap between Europe and the US, as far as the size, performance and transactional practice of the VC industry is concerned.


343 For a comparison between the US and the Japanese VC markets see Curtis Milhaupt, The Market for Innovation in the United States and Japan: Venture Capital and theComparative Corporate Governance Debate, 91 NORTHWESTERN UNIVERSITY LAW REVIEW 865, 874ff.

344 See e.g. Kaplan et al., supra note 342, 2

345 See e.g. Hege et al., supra note 155, 1

346 JOSEPH BARTLETT, VENTURE CAPITAL: LAW, BUSINESS STRATEGIES, AND INVESTMENT PLANNING (1988), 12

347 See Allan Williams et al., International Labour Mobility and Uneven Regional Development in Europe: Human Capital, Knowledge and Entrepreneurship, 11 EUROPEAN URBAN AND REGIONAL STUDIES 27
First of all, it takes some time for institutions of financial intermediation to develop\textsuperscript{348} and therefore it seems plausible to assert that the VC industry in the US had more time to mature, since it essentially appeared after World War II, while the spread of VC to Europe didn’t occur until the early 80s\textsuperscript{349}. To be more precise, with time comes learning about optimal or effective contracts\textsuperscript{350} and therefore the US VCs were able to experiment by spreading learning costs over time and gradually fine-tune a sophisticated financing process that optimally tackles the challenges of contracting\textsuperscript{351}. This might help explain the first point of divergence, namely that European VCs tend not to use so often the financially optimal security of convertible preferred stock but instead use the less complex instrument of common equity\textsuperscript{352}.

In addition to this, Europe lags behind in terms of size of securities markets, which are deemed essential for the development of a robust VC industry. Active stock exchanges not only provide the VC with the profitable exit strategy of the IPO, but they also incentivize the entrepreneur, who aspires to regain control, if the firm goes public\textsuperscript{353}. Furthermore, deep securities markets allow the institutional investors that choose to invest in VC funds to hedge against the high risk of failure that VC investments usually have. Despite the establishment of the “Euro Neuer Markt” (EURO.NM), a cross-border

\textsuperscript{348} See Peter Temin, \textit{Financial Intermediation in the Early Roman Empire}, 64 \textit{Journal of Economic History} 705, 713ff.
\textsuperscript{349} Garry Bruton et al., \textit{Institutional Influences on the Worldwide Expansion of Venture Capital}, 29 \textit{Entrepreneurship Theory and Practice} 737, 739-740
\textsuperscript{350} Kaplan et al., supra 342, 25
\textsuperscript{351} John Armour, \textit{Law, Innovation and Finance, in Venture Capital Contracting}, supra note 84, 137
\textsuperscript{352} Kaplan et al., supra note 342, 2
\textsuperscript{353} See Black & Gilson, supra note 28
stock exchange that specializes in listing small companies and start-up firms\textsuperscript{354}, Europe as a general matter, relying more on a bank-oriented financial system, is unable to compete with the deep securities markets that form the backbone of the American economy. This results in a lower median excess return on VC investments in Europe\textsuperscript{355}. Given the importance of VC for technological innovation and economic development\textsuperscript{356}, this underperformance of the European VC industry has led to initiatives, such as the EU Commission’s Risk Capital Action Plan and the EU-sponsored research project of RICAFE ("Risk Capital and the Financing of European Innovative Firms")\textsuperscript{357}, which attempt to identify the weaknesses of VC financing in Europe and to provide a roadmap for overcoming them.

Moreover, as it was mentioned earlier in the paper (III.B.3), the non-prevalence of the use of convertible preferred stock in European VC investments is partially attributed to the fact that tax rules do not subsidize its use, as is the case in the US\textsuperscript{358}. To stimulate VC financing, some European countries have provided tax incentives for investors that hold participations in VC partnerships\textsuperscript{359} or have their funds invested in VC trusts\textsuperscript{360}, but apparently this type of incentives does not subsidize specifically the use of convertible

\textsuperscript{355} See Hege et al., supra note 155
\textsuperscript{356} William Bygrave & Jeffry Timmons, Venture Capital at the Crossroads (1992), 228
\textsuperscript{357} See Da Rin et al., supra note 342
\textsuperscript{358} See Gilson & Schizer, supra note 238
\textsuperscript{359} For tax incentives specifically targeted at VC in Austria see Wolf Temmel, Austria, in Global Venture Capital Transactions (B. Brechbühler & B. Wooder eds., 2004), 51
\textsuperscript{360} For tax incentives specifically targeted at investing in VC trusts in the UK see Armour, supra note 351, 145
preferred stock, which is a financially optimal instrument for start-ups and thereupon could help European VC investments to have a higher rate of return.

Finally, a small number of papers seek to evaluate the impact of legal factors – other than tax- on the development of a robust VC industry in a country. Some of these papers are simply an extension of the literature on the relationship between a country’s legal origin and its financial development\textsuperscript{361} and have as a reference point the seminal paper of La Porta, Lopez-de-Silanes, Shleifer and Vishny on law and finance\textsuperscript{362}. Other scholarly contributions examine the impact of bankruptcy law on the European VC transactional practice\textsuperscript{363}, while only a very small portion attempts to identify a link between a country’s corporate law and VC performance\textsuperscript{364}.

In the following sections by relying on the valuable inferences that were drawn within the scope of Parts I to III, I seek to explain the impact of the mandatory nature of European corporate law on VC transactional practice. With this analysis I aspire to add another layer of ideas to the aforementioned small part of the corporate finance literature that views a country’s corporate law as a determinant of the VC industry’s performance.

\textsuperscript{361} Cumming et al., \textit{Legality and Venture Governance around the World}, supra note 342; Pukthuanhong et al., \textit{supra} note 342. Some of the legal factors (quality of law and minority shareholder protection) that are examined by Kaplan et al., \textit{supra} note 341 are also taken by the traditional literature on legal origins and financial development, although the paper cannot be classified as a mere extension of this literature.

\textsuperscript{362} Rafael La Porta et al., \textit{Law and Finance}, 106 JOURNAL OF POLITICAL ECONOMY 1113

\textsuperscript{363} Kaplan et al., \textit{supra} note 342, 12; Armour, \textit{supra} note 351, 152ff.

B. The Enabling Character of US Corporate Law versus the Mandatory Nature of European Corporate Law

In a comparative corporate law discourse that would focus on public corporations, a reference to the old debate on the contrast between enabling and mandatory corporate law would be of little significance. This is because currently in most developed jurisdictions-and certainly in the US and in the EU-public companies are to a large extent subject to mandatory rules; rules promulgated either by a central regulator, like the US federal securities laws\textsuperscript{365}, or by self-regulatory organizations\textsuperscript{366}, namely by the various stock exchanges, where companies voluntarily choose to list their securities, but once they make this step they are subject to standards of mandatory nature\textsuperscript{367}. In addition to this, as far as public companies are concerned, transatlantic cross-listings function as a vehicle of convergence not only of the general character of corporate law, but also of its substantive content\textsuperscript{368}. However, in the framework of a discussion that focuses on venture capital, where one is concerned with the legal regime of small private companies, the comparison between enabling and mandatory corporate law seems to be still critical.

US corporate laws, and in particular Delaware corporate law, reflect a facilitative rather than regulatory treatment of corporations made up largely of optional, default rules, which corporate constituencies may contract around in order to obtain a private ordering of their affairs\textsuperscript{369}. On the contrary, most European jurisdictions, especially those

\begin{thebibliography}{9}
\bibitem{365} Troy Paredes, \textit{A Systems Approach to Corporate Governance Reform: Why Importing U.S. Corporate Law isn’t the Answer}, 45 \textit{William & Mary Law Review} 1055, 1099
\bibitem{366} Howell Jackson & Edward Symons, \textit{Regulation of Financial Institutions} (1999), 751
\bibitem{367} Paredes, \textit{supra} note 365, 1101
\bibitem{368} Amir Licht, \textit{Cross-Listing and Corporate Governance: Bonding or Avoiding?}, 4 \textit{Chicago Journal of International Law} 141, 142
\bibitem{369} Richard Buxbaum, \textit{Facilitative and Mandatory Rules in the Corporation Law(s) of the United States}, 50 \textit{The American Journal of Comparative Law} 249, 249; Norman Veasy, \textit{Should Corporation Law}
\end{thebibliography}
of continental Europe, have cemented a rigid and mandatory structure of corporate law that fixes key features of corporate governance and corporate finance without having enough play in the joints. Consequentially, it comes as no surprise that when authors choose to depict the various national corporate laws on a flexibility/rigidity continuum, Delaware law is on the one extreme while most European jurisdictions on the other.

There are historically many reasons why such a different path was followed on the two sides of the Atlantic, but their comprehensive analysis here would fall outside the scope of the chapter. Perhaps it suffices to point to the emergence of a jurisdictional competition among the US states in the beginning of the 20th century that had them competing to attract firms by enacting corporation codes with a minimum of restrictive provisions. At the same time European legislators answered to the “founders’ boom” following the liberalization of entry requirements for companies with a backlash that established mandatory provisions for the organization of the internal affairs of a limited liability company.

Inform Aspirations of Good Corporate Governance Practices – or Vice Versa? 149 UNIVERSITY OF PENNSYLVANIA LAW REVIEW 2179, 2179
371 Id. at 826
373 For an analysis of the historical reasons that led to the establishment of the enabling approach to corporate law in the US see Buxbaum, supra note 367, 250-251; For an overview of the development of German corporate law, including references to the laws of other European jurisdictions see Hanno Merkt, Zur Entwicklung des Deutschen Börsenrechts von den Anfängen bis zum Zweiten Finanzmarktförderungsgesetz, in EINE ÖKONOMISCHE, RECHTSVERGLEICHENDE UND RECHTSPOLITISCHE UNTERSUCHUNG (K.HOPT & B. RUDOLPH eds.) (1997), 15
374 For the history of the regulatory competition in the US in the field of corporate law see William Carry, Federalism and Corporate Law: Reflections upon Delaware, 83 YALE LAW JOURNAL 663, 663-668
375 Pistor, supra note 370, 811
As a general matter, the optional or mandatory character of corporate law in a jurisdiction influences mainly the allocation of control rights among corporate constituencies\(^{376}\). The internal distribution of decision-making authority differs significantly in companies that function under a mandatory regime of corporate law, compared to firms that are governed by a set of suppletive rules\(^{377}\); the allocation of control rights cannot be changed by private agents where law is mandatory, whereas where rules are optional it can be contractually adjusted. In Europe there is a clear and fixed division of powers between the shareholders and the directors, while in Delaware this issue is left largely to the charter of each firm\(^{378}\). However, should the promoters of a Delaware firm choose to avoid the bargaining costs associated with tailoring a *suis generis* charter, they can follow the default rule that grants an extensive authority to the board with regard to the affairs of the corporation\(^{379}\).

Apart from control rights, the nature of corporate law also has an impact on several issues pertaining to corporate finance. In the great majority of European jurisdictions there are stringent rules that require a minimum capital or minimum par value of shares\(^{380}\), restrict authorized unissued capital\(^{381}\), establish preemptive rights for the shareholders\(^{382}\) or restrict the right of the company to repurchase its own shares\(^{383}\). In

\(^{376}\) *Id.* at 797

\(^{377}\) Alain François & Jeroen Delvoie, *De Wet Corporate Governance in het Licht van het Ruimere Corporate Governance Debat*, in *DE WET CORPORATE GOVERNANCE ONT(K)LEED* (K. Byttebier, ed.) (2004) 29

\(^{378}\) Pistor, *supra* note 370, 818

\(^{379}\) DGCL § 141(a)

\(^{380}\) See Luca Enriques & Jonathan Macey, *Creditors versus Capital Formation: The Case against the European Legal Capital Rules*, 86 CORNELL LAW REVIEW 1165

\(^{381}\) Katharina Pistor et al., *Innovation in Corporate Law*, 31 JOURNAL OF COMPARATIVE ECONOMICS 676, 682

\(^{382}\) Markus Berndt, *Global Differences in Corporate Governance Systems*, in *ÖKONOMISCHE ANALYSE DES RECHTS* (P. Behrens et al., eds.) (2002), 17-18
Delaware all of these issues are left either to the charter or to the discretion of the directors with minimal interference from statutory law. It is also worth mentioning that in Europe shareholders can make distributions to themselves in the form of dividend payments, while one of the hallmark features of Delaware corporate law is that management can withhold such payments.  

C. Does the Mandatory Nature of European Corporate Laws Directly Impede VC Contracting?

As it became evident in Parts II and III, successfully structuring VC transactions requires a great deal of contracting flexibility. Parties need to be able to separate cash flow from control rights, allocate the latter on a state-contingent basis, design securities in a way that incentivizes the entrepreneur and that provides the VC with downside protection. Therefore, they obviously need rules that would provide them with the opportunity to privately order their transaction and to fashion the governance structure of the start-up firm in a way that will increase the odds for success. Based on this reasoning several authors have argued that the mandatory character of corporate law in Europe compromises the contracting flexibility required for VC financings. At first sight this argument seems plausible; there must be some rules in European corporate statutes that prohibit VCs from structuring the transactions, in the way they would want. But, is this really the case? Is there anything special in European corporate laws that proscribes the attachment of the standard cash flow and control rights to the security that VCs hold? In

384 Enriques & Macey, *supra* note 380, 1169  

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other words, is it illegitimate for a VC to fully or partially replicate the characteristics of US-style VC convertible preferred stock in European jurisdictions?

Empirical data\textsuperscript{386} and surveys of national corporate laws on the characteristics, which are pertinent to VC transactions\textsuperscript{387}, show that all the features of US-style VC convertible preferred stock, with the exception of full-blown redemption rights\textsuperscript{388}, are indeed fully available by statute to European VCs. To be sure, convertible preferred stock is used in 53.8% of VC financings in countries of French legal origin and in 48.8% of VC financings in countries of German legal origin. Anti-dilution protections are found in 73.9% of the contracts in countries of French legal origin and in 50.0% of the contracts in countries of German legal origin. Liquidation preferences for more than the invested funds are present in 66.7% of the French legal origin VC financings and in 43.9% of the German, while state-contingent board control is found in 42.3% of French origin contracts and in 65.1% of the German origin contracts\textsuperscript{389}. Due to capital maintenance rules that are prominent in most European corporate statutes the percentage of

\begin{itemize}
\item \textsuperscript{386} Kaplan et al., \textit{supra} note 342, 31
\item \textsuperscript{388} For restrictions in share buybacks and hence in redemption rights in the UK see Eilis Ferran, \textit{COMPANY LAW AND CORPORATE Finance} (1999), 430ff. and Armour, \textit{supra} note 351, 150. For similar restrictions in the Netherlands see Vermeulen, \textit{supra} note 387, 31-32. For similar restrictions in Germany see Baums & Möller, \textit{supra} note 387, 44ff. For similar restrictions in Greece see Sabri, \textit{supra} note 383, 438
\item \textsuperscript{389} Kaplan et al., \textit{supra} note 342, 32. In countries of German legal origin the authors also include Korea, but this does not alter the big picture about VC financings in European countries with German legal origin.
\end{itemize}
redemption rights is low, but European VCs compensate with other senior exit mechanisms.

These data show that European corporate laws do not stand in the way of structuring a sophisticated VC financial contract and that it is both legitimate and feasible for a VC to replicate the features of the securities that US VCs use. Despite the fact that corporate statutes in Europe proscribe many other corporate finance transactions, thus compromising the contracting and financial flexibility of private European firms, there is no such effect with regard to VC transactions. European VCs may bargain for all the standard cash flow and control rights that US VCs successfully use without running the risk of having their contract repudiated by the court. In conclusion, the mandatory nature of many European corporate laws does not directly impede efficient VC contracting.

D. Contractual Path Dependence and Mandatory Corporate Law

Although European mandatory corporate laws do not specifically prevent US-style VC contractual structures from being transferred to most European jurisdictions, their general rigidity can be thought of as having an impact on the innovative capacity of European lawyers, who are those that are called to structure VC transactions.\textsuperscript{390}

As a general matter, a mandatory legal regime is expected to lead lawyers and law firms to underinvest in contract innovation. When lawyers are not used to opt out of the rules of a corporate statute, because in the great majority of cases they are not allowed to do so, then it is expected that because of anchoring bias they will be reluctant to

\textsuperscript{390} For the role that lawyers play in differences among countries with regard to the VC industry see Armour, \textit{supra} note 351, 139-141
expend effort and costs in transacting around the few optional rules that are left\textsuperscript{391}. Due to the fact that in Europe most of the rules are fixed, corporate law in general, including its few default rules, is viewed by legal practitioners as an “anchor”, as an established given reference point, adjustments to which are rare\textsuperscript{392}.

In other words, mandatory corporate law creates the problem of path dependence in commercial transactions; lawyers are locked in inefficient contractual structures and do not have the incentive to invest resources in acquiring innovative skills, which are necessary in order to structure efficient VC transactions. Instead, many of them preserve the status quo in VC financial contracts by using common equity\textsuperscript{393} and are hesitant to expend resources in learning Silicon-Valley contractual techniques by fear that the latter are either inapplicable in Europe or will be eventually repudiated by courts\textsuperscript{394}. To be sure, even a cost-benefit analysis might deter lawyers and law firms from investing in learning financially advanced techniques, since the knowledge gained will only be used in a minority of transactions that do not yield enough fees in order to compensate lawyers for the time and resources expended in training. Thus, European lawyers may rationally anchor in the usage of traditional financing techniques that result in suboptimal corporate governance structures in VC-backed firms.

The argument that a mandatory system of corporate law creates anchoring bias and thus acts as a deterrent to contract innovation is consistent with the general premise

\textsuperscript{391} About the concept of anchoring bias in behavioral psychology and decision theory see \textsc{Eustace Poulton}, \textsc{Behavioral Decision Theory: A New Approach} (1994), 187
\textsuperscript{392}\textsc{Marchel Kahan} & \textsc{Michael Klausner}, \textit{Path Dependence in Corporate Contracting: Increasing Returns, Herd Behavior and Cognitive Biases}, 74 \textsc{Washington University Law Quarterly} 347, 362
\textsuperscript{393} A status quo bias may also be present in this case; see \textit{id}. At 360
\textsuperscript{394} In fact in the civil codes of many continental countries there are provisions that allow courts to invalidate contracts, where one party seems to be getting the “lion share”, as abusive.
that is found in the law and development literature that countries with a highly mandatory statutory law exhibit less legal innovation than countries with a more enabling law. Legal innovation, namely the adjustment of a legal system to a dynamic environment, is a resultant not only of public lawmaking, but also of private lawmaking. That means that the general innovative capacity of a legal system does not depend only on the responsiveness of the legislator and the regulatory authorities to the changes in society, but also on the ability of lawyers to engage in creative legal engineering.

Michael Powell has identified four different levels, at which lawyers contribute to lawmaking and legal innovation. At the first and the second level, lawyers represent the private interests of their clients before legislative bodies and administrative agencies by being proactive and encouraging the authorities to enact laws that serve their clients’ interests. An example of this type of private interests representation is when lawyers associated with activist investors in 2007 coordinated the pass of the North Dakota Publicly Traded Corporations Act, which would serve their client’s goals. Thus, at the first and the second level lawyers can indirectly contribute to the innovation of the public lawmaking.

At the third and the fourth level lawyers engage in the development of private law. At the third level, lawyers are able to help shape the case law in certain field by presenting novel legal arguments to the court, whereas at the fourth level lawyers take

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395 Pistor et al., supra note 381, 678; Pistor et al., supra note 370, 794; Vermeulen, supra note 387, 33-34.  
397 Michael Powell, Professional Innovation: Corporate Lawyers and Private Lawmaking, 18 LAW & SOCIAL INQUIRY 423, 427.  
advantage of gaps in the law and engineer original devices, such as tax shelters, takeover defenses and hybrid securities that create value for their clients. It is at this fourth level that lawyers need innovative capacity the most and it is thus expected that a mandatory corporate law regime that restricts corporate finance options and cements governance structures does not encourage lawyers to engage in this category of activities, even when there are “optional isles” within the law that would allow them to do so. Thus, under a strict legal regime the contribution of lawyers to private lawmaking is expected to stop at the third level.

In a professional culture where practitioners are used to engineer mere compliance and not innovative devices, lawyers are not expected to grab the opportunity and be creative, when the law occasionally allows it. Consequently, the rigidity of European corporate laws has indirectly compromised the innovative skills that lawyers need in the VC arena to adopt or create new techniques. This might be an additional reason of why the sophisticated and innovative instrument of convertible preferred stock is not used more often in Europe; this might be an additional reason of why Europe lags behind in the VC race.

V. Conclusion

In a private company setting corporate governance institutions can be viewed as responses to the contractual challenges of moral hazard, adverse selection and incompleteness of contracts. As a consequence the features of corporate governance mechanisms are structured in a way that allows the corporate constituencies to deal with
contractual design exigencies. Contract theory is thus a determinant of corporate governance.

VC-backed firms provide a representative example of this philosophy of design of corporate governance institutions. The financing practices that VC firms implement and the securities that they hold are carefully designed so as to allow the members of the firm to surmount the contractual obstacles. Staged investment (or staggered financing) is a screening mechanism that induces entrepreneurs to signal their intrinsic motivation to the VC firm and thus allows the latter to tackle the adverse selection problem. Convertible preferred stock, the VCs’ investing vehicle of choice, allows the establishment of an incentive-compatible income stream, as it replicates the disciplining and agency cost-mitigating effects of paradigm debt while at the same time it eliminates the foremost agency cost of paradigm debt, the “asset substitution effect”. Consequently, with the “debtlike” security of convertible preferred stock VCs can cope efficiently with the problem of moral hazard. In addition to this, the covenants embedded in convertible preferred stock help to generate an optimal state-contingent allocation of control rights that is in alignment with the basic axioms of financial contracting theory. Thereupon, convertible preferred stock serves as a mechanism that challenges the problem of the incompleteness of contracts.

Finally, given that the design of efficient corporate governance institutions in a VC setting requires a great deal of contracting flexibility, we look at the mandatory nature of European corporate laws and seek to ascertain whether they directly impede VC contracting. Although no such evidence is found, it is argued that the overall mandatory nature of European corporate laws compromises the contract innovation capacity of
European lawyers, who paralyzed by anchoring bias do not invest in learning sophisticated VC financial and corporate governance design techniques that would let the VC industry in Europe flourish.

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