



Department of Business and Management
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**CONTRACTUAL INCOMPLETENESS AND HOLD-UP
ISSUES: ANALYSIS AND POSSIBLE SOLUTIONS**

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Introduction

The development of this work was set up in a circular format so that themes expressed in the first paragraph of the first chapter were then taken up to the end.

Before getting to the heart of the work, i.e. hold-up issues, a step-by-step path was created to provide all the necessary preliminary information. The beginning explores into transaction costs and the reasons that create incomplete contracts. In the second part, the focus will shift to hold-up issues and how to try to limit these related risks. The conclusion of the paper as mentioned will take up themes from the first chapter, including transaction costs, and then conclude the analysis on vertical integration used as a tool to limit or eliminate hold-up issues.

Despite being a relatively young discipline, business theory, over the last century, has expressed itself in various forms. The search for a unified theory still remains a difficult challenge in which characteristics such as contractualisation of relationships, incompleteness of agreements, market transactions and internal development of business processes must manage to coexist following a coherent analytical logic. The best way to approach a satisfactory result, therefore, will be to get to know the different approaches and to delve into the factors that impede an efficient company-market relationship.

The existence of transaction costs, closely linked to the existence of contractual gaps, play a central role in the definition of market principles. Contractual incompleteness is often detrimental to the market in a broad perspective of the term, but it is also unproductive for the parties who construct an agreement with such gaps.

The unproductiveness of this type of contractual relationship is justified by hold-up issues that manifest themselves through ex ante and ex post opportunistic behaviour. When a decision is made to continue a relationship despite an information gap, there is a risk that one of the two parties may abandon the relationship or threaten to do so in order to obtain an advantageous renegotiation of the contractual terms.

The main task of this work will therefore be to investigate why such problems occur, but above all to investigate the remedies to the hold-up risk. These remedies will not only be contractual in nature but, as we shall see, will also develop in a strategic-decisional manner.

For a better understanding we will use the General Motors - Fisher Body case as an example. This economic relationship, which occurred between two companies in the automotive sector, will allow us to really understand what a hold-up problem is. The same case study will also help us to understand what and if any solutions exist to eliminate such situations of contractual opportunism.

CHAPTER 1 - Contractual Incompleteness

1.1 From Coase to Williamson - Transactional Costs

A highly debated topic in economics in recent years is certainly the analysis of the so-called theory of the firm; a young discipline that has had several contributions from numerous economists around the world in recent years. Precisely because of all this research, we now have a vast and rich material for analysis. The starting point of the study of the firm is to recognise it as an actual and not an imaginary institution, delving into its various behavioural and decision-making characteristics.

The first concrete contributions to theory of the firm emerged around the 1930s. At that time, there was a distinct shift from the traditional economic model in which the enterprise was regarded as a 'black box'. This economic approach recognised the firm as merely a means with a production function and with various theoretical interpretations were associated. This type of economic thinking could be likened to a straitjacket against the development of new behavioural organisational aspects of the firm.

The one who created the first principles of a theoretical analysis, starting in the 1930s, was undoubtedly Ronald H. Coase, undergraduate at the London School of Economics. Coase's strongly contributed to the birth of a new theoretical approach called neo-institutionalist theory. Indeed, not satisfied with the 'black box' theory, he decided to delve deeper into the motivations and reasons why a firm exists. Likely, Coase wanted to open this black box and search in depth for the distinctive features that regulate the individual and organisational processes of economic agents. An important part of this in-depth procedure involved the study of possible cognitive limitations, imperfect procedures and limited information that can cause errors and systematic problems.

Coase's preliminary studies began under the supervision of Arnold Plant, professor of industrial organisation of the Department of Commerce at LSE. Plant's contributions concerning the problems and risks associated with business practices, many of which are still unresolved, aroused enormous interest in Coase, as he stated in his essays.

Adding to the curiosity and motivation to undertake these studies, Ronald H. Coase confirmed his main doubts by quoting an essay by D.H Robertson (1928) where he states that firms are "islands of conscious power in oceans of unconsciousness like lumps of butter coagulating in buttermilk". So Coase's central question at the time is that if markets are so good at allocating resources why do firms exist?

After reading many articles and learning a lot from Arnold Plant, Coase decided to investigate the different ways in which a company can develop and organise itself. His focus dwelt on research into vertical integration and the analysis of price mechanisms that regulate the market. In order to

understand all these different notions, Coase felt the need to break away from what he called 'blackboard economics', i.e., an approach that was theoretical and unable to touch on the external factors that gravitate around the economic world.

After about five years of study, the British economist sought to give meaning to the word firm by focusing his attention on all that is intrinsic to this entity. The heart of Coase's thought emerges in "The Nature of the Firm" (1937) stating that "The purpose of this paper is to bridge what appears to be a gap in economic theory between the assumption (made for other purposes) that resources are allocated by means of the price mechanism and assumption (made for other purposes) that this allocation is dependent on the entrepreneur-coordinator. We have to explain the basis on which, in practice, this choice between alternatives is effected¹ "

The literary essence, therefore, in *The Nature of the Firm* essay is to provide an analytical explanation as to why an economic activity is organised in the form of a firm and not in a form acquired through the market, rather than to explain which particular or specific activities are organised in each firm rather than in another.

Coase made another important economic contribution by defining a famous theorem² through which he came to the conclusion that if property rights were precisely allocated, and if it were possible for the parties to come to an agreement, an efficient solution could be achieved to the problem of externalities and social costs (e.g. pollution). This would eliminate the causes that generate externalities and thus market failure. For example, if a factory is allowed to pollute or if neighbors could always assert their right not to be harmed, it would be possible to reach a compensatory agreement in such a way as to satisfy both parties. The drafting of this theorem testifies once again to Coase's relentless attempt to understand what the relationships that regulate the market really are. At the London School of Economics, readings from Philip Wicksteed's 'Commonsense of Political Economy' and Frank Knight's 'Risk Uncertainty and Profit' enabled the British economist and other students to understand the basic principles of cost theory. Coase's research revolves around the origin of these costs associated with different market transactions.

Before arriving at any kind of consideration, it is essential to understand that these costs taken into account in the analysis of the equilibrium of the enterprise are themselves costs associated with negotiation, the search for relevant resources, the execution of a transaction and the difficulties in

¹ Coase R.H. (1937): "The Nature of the Firm": p.389.

² According to Coase's theorem (proposed in 1960) which allocation of property rights to either party leads to an efficient solution. In fact, he argues that it is not necessarily true that public intervention is needed to remedy the effects of externalities. If, therefore, the assumptions of the Coase Theorem are true (no transaction costs, property rights need not be ambiguously defined, there is perfect and symmetric information), the pareto-optimal equilibrium, i.e. the social optimum, can be achieved without state intervention but through a solution that is purely market-based and thus based on the bargaining ability of individuals.

concluding a long-term contract. These costs are called transaction costs. The lessons learned at LSE and the insights gained from studying opportunity costs were the basis of Coase's total approach to defining transaction costs.

The concept of transaction cost was explicitly introduced by Coase in his articles 'The Nature of the Firm' (1937) and 'The Problem of Social Cost' (1960) but has remained virtually ignored for over thirty years by the various economic literatures.

There is no single definition of the concept of transaction cost. One interesting explanation defines transaction costs as the set of costs incurred by the parties involved in an exchange to define, initiate, control and complete a transaction. In a more integrative way, we can define this economic concept as the sum of three essential elements:

- 1- costs of market use
- 2- management costs of the hierarchical structure (enterprise)
- 3- costs for interaction with the public administration

The services required to complete transactions are offered on the market by different types of professionals: accountants, tax advisors, labour consultants, legal advisors, marketing experts, technology experts and so on. While the demand for these services constitutes a cost for the applicant, it also represents an income for the provider.

Another way to define these costs is to break them down into six recognised essential forms: such as research costs, negotiation costs, approval costs, control costs, enforcement costs and insurance costs. The development of this theory of the enterprise associated with the analysis of these types of costs has characterised the last four decades and is still universally recognised as 'Transaction Cost Economics'. Issues of social costs, contracts and proprietary rights of the enterprise are also part of this doctrinal movement.

The economic literature supported by Coase, therefore, asserts that the existence of transaction costs is at the origin of the firm, understood as a hierarchical organisation that carries out internally a series of activities that can be done and concluded through market exchanges. Put more simply, the enterprise is an alternative to the market because it saves transaction costs. They, in fact, make up a very large percentage of the total production costs that an institution has to bear.

In Table 1.1 you can find a summary of what are the key points of the enterprise theory advocated by Coase:

Economic reasons for the firm	The ability of firms to engage in more transactions at a lower cost than that associated with market trading, in environments characterised by uncertainty, is the main reason for the firms'existence.
Role of the entrepreneur	The central role of the entrepreneur lies in being the focus of the management of exchanges of labour and goods. His dominant leadership role is shown in the way he himself adapts production factors to market changes (economic and organisational)
Nature of internal contracts	The focus is on long-term contracts, the substance of which is defined in advance while the framing details are decided afterwards
Optimal size of the firm	The optimal size of a firm coincides with the moment when the costs of organising one more transaction within the firm are equal to the costs of organising the same transaction in the market.

Table 1.1 - Main elements of Coase's theory of the firm.³

Besides Ronald Coase, the other great exponent of the neo-institutionalist economic literature was Oliver Williamson (1932-2020), an American economist and former professor at the University of California and Berkley. In 2009, he was awarded the prestigious Nobel Prize in Economic Science, together with Elinor Ostrom for his analysis of economic governance specialising in recognising the limits of the firm.

A disciplinary trespasser, so Oliver Williamson has always been called by his colleagues for his ability to connect the theories of industrial economics to the organisation strategy of corporatist thought and the contractual paradigms of legal studies. This ability allowed him to set up numerous studies with the analysis of transaction costs in economic behaviour at the heart of their thinking.

Williamson was the first to make a clear distinction between different transaction costs: ex ante and ex post transaction costs. The former are costs to be incurred to safeguard and negotiate an agreement

³ Nicita A. Scoppa V. (2015): "Economia dei contratti", Carocci editore.

when drafting a complex document in which numerous eventualities are anticipated. It is therefore necessary to stipulate and agree in advance on the adjustments to be made so that the document can be as complete as possible. Ex post transactional costs, on the other hand, concern costs that are incurred when contractual alignment defects or organizational costs have to be corrected. Also associated with them are all the dispute management procedures that arise because of the commitments made by each party. The clearest example of this type of expense are monitoring costs. A brief summary of the main features of this cost differentiation can be found in Chart 1.2.

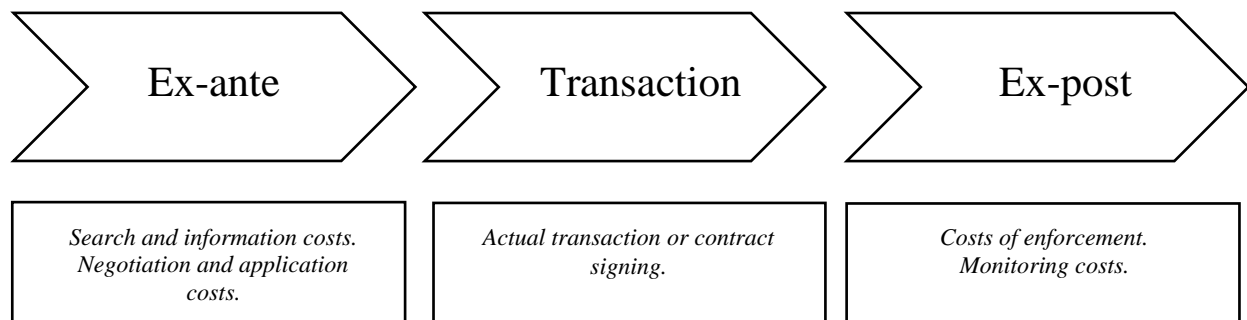


Chart 1.2: Ex-ante and ex-post transaction costs

Williamson in "Markets and Hierarchies" in 1975 deepened and above all supplemented the analysis previously carried out by Coase. His starting point is aligned with Coase's; in fact, both began their thinking by criticising neoclassical economics and treating transaction costs in the same analytical manner. Williamson started from a general analysis of organisational structures identified as simple groups belonging to corporate structures. The approach taken, therefore, is closely linked to organisational market failures that are caused by human factors (opportunism and bounded rationality) and environmental factors (uncertainty and complexity). These considerations, therefore, on the one hand distance themselves from the neoclassical approach where there is no obsessive pursuit of self-interest, and on the other hand introduce the concept of bounded rationality. It was precisely this awareness of mankind that allowed Williamson to define the economic agent as 'contractual man' in *The Economic Institutions of Capitalism* (1985).

As we shall see throughout the first chapter, transaction cost theory has made an important contribution to the emergence of economic neo-institutionalism and developed within it, integrating the various cognitive theories applied economic phenomena: theories of rationality and limited information, theories of uncertainty and the nature of institutions.

Furthermore, in this analytical perspective, Williamson argues that the nature of business organisations is linked to their economic viability. Thus, considering the bounded rationality that governs the evaluation of contracts or agreements drawn up for the transfer of commitment and responsibility, agents tend to specialise in such a way as to reduce the costs involved in transactions, thereby minimising the risks of opportunism. In this way, organisations are more functional than the market in reducing these risks.

Transaction costs, therefore, add up to direct production costs, increasing the total cost of production and reducing, given the price, the producer's net benefit. It is automatic to guess that in the event that transaction costs are not considered excessively high, the best solution will be to forego the exchange and break the agreement or contract.

Williamson, with an evocative comparison, compares the behaviour of transaction costs to the effects of friction in physics, pointing out that they should be a starting point of theoretical analysis and not a conclusion.

“Transaction costs are the economic equivalent of friction in physical systems. The manifold success of physics in ascertaining the attributes of complex systems by assuming the absence of friction scarcely requires recounting here. Such a strategy has had obvious appeal to the social sciences... Plainly, policy analysis needs to start somewhere, and the frictionlessness assumptions on which much of neoclassical economics relies is often a useful beginning. It is one thing, however, to begin with frictionlessness and another thing to end there.”⁴

Having finished all this economic literature, starting with Coase and arriving at Williamson's considerations, it is essential to state that the most important element of this analysis is the identification of a single paradigmatic problem, that of cost minimisation (ex ante and ex post). This problem is the key criterion to explain both the existence of the enterprise with respect to market transactions and the different internal organisational arrangements of the enterprise or the internal markets of the firm. The institutional organisations of the enterprise make it possible to transform existing bilateral relationships between two or more autonomous agents in the market into a network of vertically regulated relationships within a firm, thus saving transaction costs.

The firm, therefore, increasingly identifies itself as a complex universe of economic relations whose particular composition can give rise to different organisations and systems of allocation of ownership and internal control.

⁴, Williamson O. (1985): *“The Economics of Organization: The Transaction Cost Approach”*, University of Pensilvania.

Transaction costs within a given community depend on social norms (customs, habits and conventions) and legal norms (laws and regulations) that govern human interaction in its multiple modes of being (interaction between individuals, interaction with the public administration, interaction between firms, interaction within firms). Social norms arise spontaneously within a community when the members of the community (or at any rate their majority) become aware that it is convenient, even from a private point of view, to follow certain behaviours in order to reduce risks and transaction costs. In general, the greater the frequency of these behaviours, the more the social norm is internalised by individuals who consider it normal and natural to behave in a certain way in given circumstances. Legal norms, on the other hand, provide a legal sanction (civil and criminal) for those who do not respect them. Compliance with legal norms depends on several elements: on the community-wide sharing of the values intrinsic to the norm; on the sanctions imposed on those who do not comply; and on the likelihood of law enforcement, i.e., the likelihood of identifying and convicting the perpetrator of a crime.

This need for regulatory regulation gives rise to the need to study the nature and essence of specific contracts. As we shall see in the following paragraphs, regulating the problems caused by transaction costs makes it possible to create clear and effective contractual arrangements.

Within an firm, a production factor does not need to enter into a series of agreements with the other factors with which it must cooperate, as would be necessary if this cooperation were the result of the market mechanism. Internalising therefore only allows a single contract to be formed, allowing one authority (the so-called entrepreneur) to direct the resources, thus saving substantial bargaining costs. It is precisely the correlation between these transactions and contracting that creates additional issues for analysis that interest the leading economists of the neo-institutional movement. Indeed, as we shall see, firms exist because they are able to carry out certain transactions at a lower cost than that associated with market contracting. This saves financial resources and entrusts the hierarchical management of resources to the entrepreneur, who protects himself from potential risks caused by inefficiencies due to market behaviour.

1.2 Introduction to the Economics of Contracts

In principle, the transaction is governed by a contract. Contract and transaction share three essential principles: conflict, mutuality and order. Conflict concerns the private interest pursued by each contracting party seeking its own welfare. Mutuality emerges as there is a dual intention of the parties involved to bind themselves by signing a legal agreement. Finally, order is the framework around which this type of balanced relationship between the parties develops.

Economic exchanges can be considered the heart of modern economies. Not all of these economic exchanges, however, whose purpose is to increase welfare and values, take place in perfect markets. The existence of perfectly competitive markets ensures that the economic system achieves a situation of efficiency or Paretian optimum. In this case, in fact, all mutually beneficial transactions can be realised by the parties in the most efficient manner through the regulation of the contract that has the force of law.⁵

The most efficient organisational system is identified as the one that provides the parties with the maximisation of the total surplus, i.e. the sum of their net benefits. In order to delve deeper into contractual regulation, it is necessary to understand the basic mechanisms around which contracts revolve. The modern economy, based on the integration of specialisation and division of labour, creates a multitude of economic exchanges that require regulation concerning cooperation and coordination between agents.

In today's economic world, most companies belong to an imperfect market, where companies do not sell homogeneous products. In this case, individual buyers and sellers can influence price behaviour, creating barriers to market entry or exit. But they most often show themselves in imperfect situations. In this context of uncertainty of the environment in which trades take place, the general characteristics of the markets in which they take place are not extremely relevant in influencing whether or not trades close. For this reason, it was necessary to introduce and study the stipulation of contracts to regulate the behaviour of economic agents in a turbulent and varied environment. Contracts, therefore, have always been considered the means by which firms can engage with individuals or other enterprises themselves in order to increase their value.

For an economist, a contract is an agreement through which the parties make reciprocal commitments in terms of their behaviour, a bilateral 'coordination' arrangement.⁶

This definition, however, needs clarification: “*all contracts are agreements but not all agreements are contracts.*”

For an agreement to be considered a contract, three conditions must be fulfilled:

- 1- the parties are competent to make the contract
- 2- their consent is free
- 3- their object is lawful

⁵ *The Coase theorem states that if the parties are free to bargain, in the absence of transaction costs, a situation of Paretian efficiency can be achieved, even in the presence of externalities and regardless of the distribution of initial endowments.*

⁶ *Sugata Bag, Palgrave Macmillan, (2018): "Economic Analysis of Contract Law. Incomplete Contracts and Asymmetric Information".*

Contract law is essentially based on legal means whereby people bind themselves so that given promises are kept and there is cooperative behaviour on the part of all economic agents. The analysis of this contract law is of particular interest when institutions are evaluated and designed that promote this cooperative behaviour and do not discourage or restrict it. The economics of contracts, therefore, creates a transparent mechanism for describing and regulating the analytical framework of different economic arrangements.

Considering the substance of a contract, it is easy to identify two constituent elements: actions and conditions. Actions mainly concern the performance to be achieved or delivered and all talk of payments in the agreement; conditions, on the other hand, concern past contingencies, disputes between the parties involved, and both specific and general information.

It is neither correct nor fair to regard a contract as an instrument through which the parties wish to create a commitment. Rather, contracts are themselves to be regarded as commitments, whether they are made explicit or by implicit guarantees.

The enterprise is configured as an economic institution governed through various forms of contracts (e.g. owners and management, workers, supplier firms, consumers and so on). The increasingly in-depth study of the characteristics of economic relations and the nature of individuals since the early 1970s has given rise to a new strand of economic literature called contract economics. This branch of economic theory studies incentive problems and continues to be relevant today. As evidence of this, the 2016 Nobel Prize in economics went to Oliver Hart and Bengt Holmstrom for their contributions on contract economics.⁷

This type of literature has focused on the actual contractual and institutional structure governing economic relations and has made it possible to provide an explanation for a large number of previously ignored economic phenomena (such as, for example, the creation and evolution of public and private economic institutions).

In turn, it is easy to deduce that the economic literature on contracts is inextricably linked to the theories of the firm, economic organisations, and all related institutions. In the theory of general economic equilibrium, it is assumed that exchanges take place through imperfect competitive markets and that each agent respects the terms of every transaction in which it is involved.

The main reason for the emergence of contractual agreements revolves around the possibility of being able to avoid harmful and inefficient behaviour of market agents, whether formal (explicit) or informal (implicit or relational), and to protect the parties with regard to the way the transaction is executed and the way the surplus will be divided.

⁷ <https://www.nobelprize.org/prizes/economic-sciences/2016/press-release/>

In order to have a clear idea of what the costs and benefits of regulating an established agreement will be, it is essential to understand the general advantages and limitations of the various contractual forms that emerge in different institutional contexts.

Oliver Williamson recognised early on the need to regulate the contractual economic system, placing great emphasis on the regulatory legal system, stating that: "Most studies in the exchange assume that contractual disputes are regulated by effective legal rules that the judiciary enforces in a competent, refined and inexpensive manner."

When a contract is entered into by two persons, they both seek the maximisation of their private interest by coordinating and governing their actions. Contractual mutuality emerges as it is in the common interest to sign a written agreement but at the same time there is a careful search to create a balanced relationship between the parties.

1.3 Incomplete contracts

1.3.1 Full contracts and perfectly competitive markets

Most economic transactions are governed by contracts; think of a supply contract between companies, a lease or an insurance contract. Typically, the interests of the contracting parties are divergent; a well-written contract is the instrument by which this conflict can be mitigated.

Contract theory revolves around the behaviour and actions of the parties involved. Contracts, therefore, are classified according to both the substance and the manner in which these agreements are made. The starting point, therefore, is surely to understand whether economic agents are bound by implicit or explicit agreements. Explicit contracts are mainly enforced by the government authority and some other institution; implicit contracts are based on a tacitly defined agreement whose essence is deduced on the basis of the activities and behaviour of the parties involved. The main difference between the two types lies in the manner in which consent and evidence are communicated.

If we shift the focus instead to the substance of contracts, it is fair to define when a contract is defined as complete. In economic theory a complete contract is a contract that specifies the parties' rights, duties, and remedies under every possible state of the world⁸

A contract, therefore, is defined as complete when it establishes, for each possible present or future situation, the mutual obligations of the parties with regard to performance and payment. Compliance with these obligations, moreover, is ensured by the verification capacity of an external authority (judge or court) and the possibility of imposing sanctions on any defaulting parties. Judicial and legal

⁸ Eisenberg M. A. (2018): "Foundational Principles of Contract Law", Oxford University Press, p.497.

regulation therefore guarantees both economic agents the perfect execution of contractual agreements without incurring additional costs for the parties. A complete contract is a contract that can be completed or verified ex post, irrespective of the accuracy and descriptive completeness it contains.⁹ The possibility of concluding only complete contracts is related to the existence of perfectly competitive markets.¹⁰ They ensure that the economic system achieves a situation of Paretian optimal efficiency, in which each contracting party reaches an efficient point of resource allocation. In addition to recognising situations of perfectly competitive markets, the ideal neoclassical model bases its assumptions on principles of perfect rationality of agents and their ability to make correct predictions. To accept economic agents as perfectly rational would be to recognise them as omniscient persons, and it is therefore clear that this assumption is completely unreal. Those who enter into contracts rarely write and close agreements that are complete in the Arrow-Debreu sense¹¹. The jurisdictional environment around contract law accepts this as puzzling because many relevant events and actions are unverifiable.

Market relations with these characteristics are approved by standard economic theory, which recognises that there are no uncertainties, information problems or specific investments. The exchange, therefore, can be made between anonymous parties, without any contractual safeguards.

Determining the optimal choice is an important point of reference for comparisons and efficiency evaluations of contracts concluded in the presence of information asymmetries. In this context, it is also recognised that there is a judicial legal system that guarantees the enforcement of any contractual agreement.

A decision maker who behaves rationally in a condition of perfect knowledge will always choose the alternative that will lead him to maximise his utility or profits. In such a view there are no transaction costs, since the individual or the enterprise is in a perfect knowledge condition. However, as any empirical reference to reality shows, the information available to the decision maker is often incomplete and even if the subject wished to maximise the little information available to him, he would not succeed perfectly because the alternatives and the assessment of their consequences that

⁹ Hart, Holmstrom (1987) and Shavell (1997), Milgrom and Roberts (1992) define complete as a contract that is always susceptible to being 'completed' by the parties through the selection of some agreement or institutional rules that enable an efficient exchange to take place.

¹⁰ Perfect competition is a form of market (competition) in which producers and consumers are unable to influence the market prices of goods and services. It is a market form characterised by a large number of sellers and buyers. Each individual economic operator occupies only an infinitesimal part of the demand or supply of goods. Under these conditions, the behaviour of the individual operator (buying or offering) does not allow him to influence and vary the market price. In perfect competition, economic actors are price-takers because they take into account the price level determined by the market, by the free and simultaneous bargaining between buyers and bidders.

¹¹ The Arrow-Debreu model states that, in a market economy, if certain assumptions and conditions (perfect competition and demand independence) are met, there will be a set of prices such that the aggregate supply equals the aggregate demand for every good in the economy. The AD model forms a crucial part of general equilibrium theory.

he would be able to make would themselves be incomplete. All these considerations made, constructing the ideal neoclassical type, obviously cannot but belong to an unrealistic vision of the economic model.

Economic relations are inevitably enclosed in contexts of uncertainty, as we shall see, it is no longer assumed that subjects have perfect and symmetrically distributed information, but they often face situations of information imbalance.

1.3.2 Incomplete contracts and opportunistic behaviours

The definition of a complete contract leads to define as incomplete all those types of agreements in which there is not a connection between the parties with regard to information and shared behaviour. A contract is defined as incomplete when it is signed by two or more parties, the terms of which are observable by the parties to the contract but not verifiable and enforceable with certainty by a third party (a judge or an arbitrator) in the event of a dispute arising between the parties.

An incomplete contract, therefore, is an agreement whose terms are not verifiable, either in part or in full, by the third party who is to settle the dispute. The agreement is thus not executable in its entirety in accordance with the contractual will of the parties involved, expressed at the time of the formation of the contract.

Any contract can be virtually defined as incomplete because it would be prohibitively expensive or impossible to outline and negotiate all the possible consequences and combination of factors that may modify the agreement. The term 'incomplete', therefore, is used conventionally to emphasise the presence of rules concerning the possible unenforceability of an agreement.

The law on incomplete contracts covers when a contract has too many gaps or is too indefinite to be enforceable, when and how a court of law is supposed to fill in gaps in a contract, what is the effect of a provision in an agreement contemplating the subsequent performance of a definite contract, and when there is a duty to bargain in good faith to make an incomplete contract sufficiently complete or to achieve a definite contract contemplated.

Due to the simple fact that contractual promises between the parties (absence of full verifiability of contractual terms inducing the contracting parties to break promises made to the other party), contractual incompleteness is often associated with a potential inefficiency of the economic system. This procedure implies that very often it is convenient for one of the two economic agents to renegotiate the contractual terms or even break off the relationship. Pursuing this procedure of uncertainty may lead the contractual parties, under certain circumstances, to forego the realisation of a mutually beneficial contract, thus inhibiting a potential pareto-efficient exchange. The economic

agent, therefore, has an incentive to forego the transaction altogether, especially in the presence of specific investments, since it is the combined presence of specific investments and contractual incompleteness that fuels the services for negotiating contractual terms. The two terms *relation specific investments* or *idiosyncratic investments* refer to those durable investments that the parties make in connection with a specific economic transaction, the value of which (opportunity cost) for alternative uses, or for an alternative user, is lower than the value of the investment in its specific use; hence the parties' interest in continuing the economic relationship, since, if it were to be terminated for some reason, the economic values invested would be sacrificed.

The presence of specific investments causes the relationship between these two economic agents to appear externally as a bilateral monopoly. Once specific investments have been made, each party is highly dependent on the other because if the relationship were to break down, it would suffer as a loss specific investment that cannot be transferred, by definition, to other uses (lock-in effect).

In these cases, as we shall see later, there is the obvious interest of both parties in keeping the contract alive as long as possible. There is, therefore, a constant attempt to resolve the issues, to which changes in circumstances may give rise, through successive adaptations and renewals. The presence of the bilateral monopoly situation requires a process of adaptation since the contract always runs into problems; one of the two agents, whether supplier or buyer, will find themselves in a strategically favourable position that will allow them to appropriate additional gains each time the other party makes a proposal to adjust the contract.

However, one also often observes contracts that seem 'excessively' incomplete. This happens in two different senses. First, contracts sometimes make actions less sensitive to verifiable events than would seem optimal. For example, a manager may receive a fixed salary, even when it is possible to condition payment on verifiable measures of performance. Secondly, even more surprisingly, contracts often do not specify verifiable obligations of the parties. For instance, a managerial employment contract may not contain any explicit provision on working hours. All these considerations inevitably give rise to opportunistic behaviour in order to pursue and improve one's own situation.

One of the fundamental points of the economics of contracts and institutions lies in the observation that economic actors tend to behave opportunistically, cunningly pursuing personal and collective ends. Consequently, in order to realise their own interests and improve their material well-being, they are inclined to disregard stipulated agreements, break their word and omit or falsify information in their possession.

The first to speak of opportunism was Williamson who defined this behaviour as the cunning pursuit of purely selfish ends.¹² Moreover, again from this analytical perspective, according to Williamson (1985), the nature of organisations is linked to their cost-effectiveness. Given the limited rationality, the risks involved in calculating and evaluating the contracts or agreements drawn up for the transfer of rights or the assumption of commitments or responsibilities, induces individuals to specialise, with the aim of reducing the costs they face in transactions, thus minimising the risks of opportunism.

The incomplete or erroneous transmission of information or, more generally, the distortion of reality, carried out to achieve one's own private ends, is part of all opportunistic behaviour that goes hand in hand with deceptive market practices. This is why opportunism is one of the main causes of the state of uncertainty in which economic agents have to operate.

If there were no selfish aspirations (maintaining honesty and spontaneously and faithfully fulfilling every commitment made) and cognitive limitations, most contract-related uncertainties could probably be resolved without too much difficulty.

As we shall see in the next section, if bounded rationality did not exist, problems would never arise in contract performance. In this way, contractual negotiations would be concluded with all-encompassing agreements that are able to foresee and regulate in detail all possible events that could alter the relationship. All issues relevant to the parties would be resolved *ex ante* by transcribing the necessary clauses within the agreement. The clauses defined *ex ante* would thus ensure the execution of the contract in such a way as to maximise the joint profit as well as the correct behaviour at the time of possible contract renewals. All these considerations on the opportunistic aspirations of economic agents gave rise to the theory of incomplete contracts as support for modern economic theory precisely because economic agents have limited rationality.

1.3.3 Information asymmetries

Contract economics has shown that most contexts with information asymmetries can be represented as a situation in which the principal delegates to the agent the performance of a certain task. In the impossibility of observing the characteristics, the principal agent designs, by means of a contract, an incentive scheme to induce the agent to adopt behaviour in line with the proposing interest (moral hazard), or to disclose the information in his possession (adverse selection). In this context, an

¹² *Williamson believes that opportunist agents resort to behaviour such as 'deceiving, cheating, stealing, misleading, misrepresenting, obfuscating, pretending, distorting, and confusing in order to achieve their ends.*

incentive scheme typically provides for payments and contractual terms conditional on certain variables that indirectly reflect the choices made by the agent

The reasons why contracting parties agree to enter into and conclude a contract may be many and varied. The main causes for the incompleteness of a contract are attributable either to the subjective character of the contracting parties or to the economic transaction of the two parties.

As stated earlier, the interests pursued by economic agents are never the same; in fact, either both or one of them can exploit information asymmetry by behaving opportunistically, forcing the results of the exchange in their favour. In microeconomics, information asymmetry can be defined as a condition in which information is not shared evenly between individuals belonging to the same economic process.

Information theory identifies in detail two types of information asymmetries: private information or moral hazard.

Situations of pre-contractual opportunism, called private information problems¹³, are identified when prior to contractual conclusion, one of the two economic agents possesses more information and knowledge about the object of exchange than the other contracting party. It is evident that one of the two agents is in a better information condition. The variable of interest to the principal is exogenous, i.e. not subject to change by the agents; in this case, problems arise as agents belonging to a certain category attempt to receive better information, damaging the entire information relationship. An example of a market where adverse selection issues are frequent is the used car market.¹⁴ The seller clearly has more information than the buyer, who only has a vague idea of the product offered. The price, therefore, that consumers are willing to pay tends to reflect the average quality traded on the market, but at the average price considered, sellers are not willing to sell cars of good quality; that is why only cars in poor condition are often eventually traded on the market, which are sometimes offered with incomplete information in order to be sold. Goods of poor quality tend to exclude rival goods from the market because, in order to obtain the necessary information to be able to compete on an 'equal footing', buyers would have to incur very high costs, which means that such a market tends to fail. Thus, it can be said that cases of adverse selection occur in a situation where one side of the market is unable to observe the quality of the goods offered due to hidden information that generates blatant inefficiencies.

¹³ *Adverse selection is sometimes referred to by the terms hidden knowledge or hidden quality.*

¹⁴ *Akerlof, G. A., (1970) "The Market for "Lemons": Quality Uncertainty and the Market Mechanism", The Quarterly Journal of Economics, Vol. 84, No. 3, pp. 488-500.*

The typical principal-agent strategy to control adverse selection problems is to offer a menu of different contracts in order to induce agents, through specific choices, to reveal their characteristics (screening procedures). A pertinent example is that of insurance agencies that provide the customer with a wide choice of contract proposals characterised by lower premiums to those who accept limited insurance cover, thus highlighting lower risk. This problem is developed within a model of Rothschild and Stiglitz (1976), i.e. in the context of a competitive insurance market where two types of risks exist and where adverse selection is important.

The paper *Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information* shows extensively that what consumers lose in terms of variety of choice between contracts, they gain more than proportionally through better contract terms and pricing.

Post-contractual opportunism is commonly referred to as moral hazard occurs, when subsequent to the conclusion of the contract (when the parties share the same information) one of the two agents performs an action not observable by the other, which affects the utility of both.

The impossibility of observing the behaviour of the other party allows the other economic agent to pursue its own ends at the expense of the principal agent with evidently dishonest behaviour. In the case where information is symmetric (observability), relevant problems of moral hazard may arise, but in this case the external authority is unable to verify some of the fundamental variables. In these situations, it is not possible for the principal agent to enforce compliance with the contract since it does not have the opportunity to prove before a judicial institution the actual behaviour of the other agent. Even though the information asymmetry is subsequent to the contract, moral hazard problems have an analytical structure that is fully equivalent to adverse selection models.

In the case of adverse selection, we are faced with hidden information that tends to destroy the market, while in the case of moral hazard we are faced with hidden actions that force the market to raise costs because they are priced on maximum risks.

The incentive schemes incorporated in the contracts under consideration are based on variables that can be verified by an external authority - e.g. the company's profits; the occurrence of a claim; the acquisition of a qualification - which ultimately guarantees the enforcement of the contract. The execution of incentive contracts is only permitted in contexts that guarantee this regulation and reward the loyalty of the two economic agents through the offer of future cooperation.

Underlying this castle of considerations regarding information asymmetries is the concept of trust. The market has always been seen as a no-holds-barred struggle in which each of the participants is able to use all kinds of methods and shortcuts to achieve his or her own prosperity. Consequently, it is evident that trust will always play a secondary role on the part of market agents. The only evidence

of mutual trust is written guarantees through rules that regulate the behaviour of the two contracting parties.

It is clear that in order to limit unfair behaviour as much as possible, in a relationship, agent and principal or shareholder and owner, it is essential to propose a contract whose benefits are closely related to the profits achieved by building a given relationship; similarly, companies incentivise their sales agents to commit themselves by paying them a percentage of sales achieved or by granting them a bonus linked to the achievement of a certain turnover.

1.3.4 Causes of contractual incompleteness

This section will briefly give a schematic account of the causes of contractual incompleteness. As previously analysed, the study of transaction costs, examined in neo-institutional economic theory, has been of fundamental help in understanding and investigating contractual problems related to opportunism and contractual incompleteness. In fact, the analysis of transaction cost theory predicts that, due to limits on the rationality of agents and deficiencies in the availability of information, the implementation of any economic relationship involves the incurrence of transaction costs, both *ex ante* and *ex post*.

Before classifying the reasons for contractual incompleteness, it is only fair to mention that the realisation of complete contracts becomes impossible when they are associated with it:

- *circumstances of limited rationality*
- *contractual opportunism ex post*
- *situations of uncertainty due to information asymmetries*
- *specific investments*

Contractual incompleteness leads to a detachment from full efficiency, i.e. market failure, and the attempt of actors to remedy it through particular contractual and institutional mechanisms.

Based on these factors, contractual economics has arrived at a classification of the reasons for contractual incompleteness:

- 1 Inability of the contenders to foresee every possible future contingency.
- 2 The difficulties of describing it unambiguously in the contract.
- 3 High bargaining costs to agree on each specific circumstance.

- 4 The difficulties of ensuring the correct application of the contract, both because of the legal costs and, above all, because of the asymmetric information existing between the parties (principle of non-observability), and the difficulties of transmitting this information, even if shared between the parties), to the external authority (principle of non-verifiability).

The importance of identifying four macro-categories of reasons for contractual incompleteness also makes it possible to create a schematic procedure on how to deal with this type of contractual characteristic.

In fact, the following chapter will analyse contractual situations in which an agent is exposed to uncertainty and the risk of renegotiation of contractual terms or termination of the contractual relationship.

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CHAPTER 2 - Can contracts solve the hold-up problem?

2.1 General features of the hold-up problem

It is difficult to think of being able to specify all possible contingencies of a contract ex ante. Numerous factors, starting with the characteristics of the external environment, can influence the entire agreement. If we had to choose the main one out of all the contractual difficulties, it would probably concern the conflicts of interest existing between the parties involved. Joint tensions linked to information asymmetries and an uneven knowledge of all contingencies lengthen the time it takes to conclude the contract.

These difficulties in concluding a contract fall into mainly three categories:

- the struggle between individual incentives.
- strategic uncertainty.
- inefficient coordination and variations of these tensions at the contractual level.

The timing with which these agreements are made is another element that creates arguments between the individual interests of the parties involved. These situations of uncertainty and tension tie in with the first point in the list above. In fact, it very often happens that there is one party who is in a hurry to conclude the contract while the other economic agent involved obsessively searches for as much information as possible. At that point one of the two parties has to meet the other at the risk of putting itself at a partial disadvantage. Should neither party decide to adapt to the requirements of the other, the agreement would most likely be terminated.

Creating additional tensions in this context is the presence of specific investments that influence the parties' actions considerably. The attempt to induce trading partners to make such investments is a key step in the contract theory literature.

The presence of specific investments gives rise to strict constraints with respect to free competitive market exchange in which all resources are recognised as substitutable and homogeneous. In other words, the specificity of investments, in its many forms, makes parties entering into a transaction fearful of entering into an agreement that might subsequently be one-sided.

Defining the degree of specificity of a resource means identifying the way in which it can be reused in alternative ways without diminishing the value of the resource itself or without entailing switching costs. The degree of specificity of a resource can be zero in the case where a good is perfectly fungible (no adaptation or switching costs are required); when, on the other hand, use in alternative purposes reduces the value of a resource, then its degree of specificity is positive.

Williamson distinguishes four different types of resource specificity:

- 1- location specificity relating to resources that for geographical reasons are less valuable when used for transactions involving higher transport costs.
- 2- Physical or material specificity relating to the material characteristics of a resource in relation to other resources or other components of a given product or production process.
- 3- Human capital specificity related to investments in specialised learning-by-doing, the value of which decreases or nullifies if employed in alternative activities.
- 4- Dedicated or idiosyncratic resources related to customised investments aimed at a single activity or a particular clientele, for which the degree of specificity is highest.

Situations of contractual uncertainty in which the terms are unverifiable, added to the presence of specific investments, may push the parties away from a mutually beneficial contract, thus inhibiting a potential pareto-efficient exchange.

The difference between the value of the specific investment within the contractual relationship and the value of the same investment identified in the best alternative use produces a quasi-return that will constitute a constraint on the investor. The investor, in fact, binds himself to the particular contractual relationship generated by the investment, until such time as the gains expected from the execution of the contract are greater than the gains obtainable outside the contract in alternative uses. Such problems, as we shall see, fuel the risk of renegotiation of the contractual terms or even termination of the agreement. This situation is referred to as a hold-up problem where: the party that makes specific investments in the presence of incomplete contracts exposes itself, as a result, to the risk of or termination of the contractual relationship.

The first to recognize and define the hold-up problem were Klein, Crawford, Alchian (1978) and Williamson (1975). Their analyses were immediately recognised as a fundamental step in all economic (contractual and organisational) theory.

For hold-up issues to occur, two conditions are necessary. The first one requires that the parties to a future transaction agree on specific non-negotiable investments prior to the transaction in order to prepare for it. The second condition emphasises the fact that the optimal transaction cannot be specified with a priori certainty. The latter clause suggests the fact that the contract must be relatively flexible so that customisations can be made to the transaction to make it in the optimal form. Hence the presence of uncertainty, through parameters that are difficult to measure or contract objectively ex ante.

This situation clearly identifies an enormous risk of post-contractual opportunism, given the impossibility of obtaining full verification of contractual promises from a third party.

The hold-up issues highlight how the difficulties of writing complete contracts and the consequent frequent need to renegotiate, most often result in underinvestment.

The more one of the two economic agents engages in a transaction, the more it has to lose due to opportunistic behaviour. This is dictated by the fact that the other party may have an interest in negotiating more favourable terms of the contract, since the partner is engaged with investments in resources that can no longer be freed without cost if the enterprise ceases production (sunk costs).

Inevitably, a blackmail problem arises, the so-called hold-up, where the agent who becomes more vulnerable to the action of the other contracting party will prefer to renounce the investment in order to avoid it being devalued or having to forcibly accept the disadvantageous contractual terms.

The two economic agents, therefore, have incentives to delay or not make their investments at all. The purpose of this behaviour is to avoid committing themselves to the contractual relationship before they are certain that the other agent has also done so.

In any hold-up situation, each economic agent exercises its bargaining power by threatening the other party, and especially by weighing its costs and benefits. Threats can be of different kinds, but the main one in these situations is when the agent producing a good intimidates the other party by saying that it will stop producing if a compromise is not reached. This behaviour raises the cost of the market transaction, making contract negotiations more difficult and negotiations more frequent.

The task of hold-up theory, therefore, requires that all possible solutions be explored so that the often conflicting contractual requirements are simultaneously handled in such a way as to find a joint satisfactory outcome. A fundamental step in contract theory lies in understanding that hold-up does not always cause inefficiencies; rather, inefficiencies only occur if certain clauses are not fulfilled or if certain types of contracts cannot be written.

The temptation of hold-up issues becomes particularly attractive when faced with highly incomplete contracts because it is difficult to prove the violation of the attached constraints. It should also not be underestimated that stakeholders will tend to invest in safeguards to improve post-contractual positions, generating mistrust and leading to reduced investment in highly specific activities.

A common element of all these different types of remedies is that they aim at eliminating or reducing the scope for ex post opportunistic behaviour. This means, in other words, eliminating or reducing the incentive for the opportunistic agent to renegotiate contractual terms or abandon the contract.

Chapter 2.2 An example of hold-up issues

To understand the mechanism of hold-up disputes, there is no better way than to use examples of real business relationships. The situation will be represented by relying on a game-theoretic representation, considering agents acting in search of their own payoff. The tree game representation is the most common way for portraying such strategic interactions. This methodology is usually also called extensive-form representation¹⁵. The individual decisions of a player are identified by nodes while the possible decisions are depicted with branches. In this way, it is possible to depict the strategy of each individual player, which is defined as a complete contingent plan in the game. The complete contingent part of this definition concerns the specific description of the players' behaviour that they will take at each decision node. The representation in extended form must respect the chronological character in the sequence of events. Each sequence of decisions is followed by an indication of the associated payoffs so that the player, who has to decide, has a real understanding of the possible actions. With this procedure, a strategic equilibrium identified with the perfect Nash equilibrium both in the entire game and in the sub-games constituting the strategic interaction will be achieved.

In this context, we assume that each contracting party has the same information as the other party (bilateral observability hypothesis). Neither contracting party, however, is able to pass on all the necessary information to a third party responsible for settling any disputes that may arise at the time of the execution of the contract. The information set and the investments are therefore not verifiable. This circumstance, as stated by Hart and Moore, identifies the highest percentage of problems with underinvestment and opportunistic behaviour: “contractual problems arise because the parties' information, although observable to the parties, is not verifiable to outsiders.”¹⁶

As already mentioned, to help the understanding of the hold-up problem, it is essential to discuss the topic through an example. In this sense, we have decided to refer to a plausible situation based on the negotiation that began on 25 September 1919 between Fisher Body and General Motors. We use this example because this historical conflict is the best known in the debates on hold-up issues.

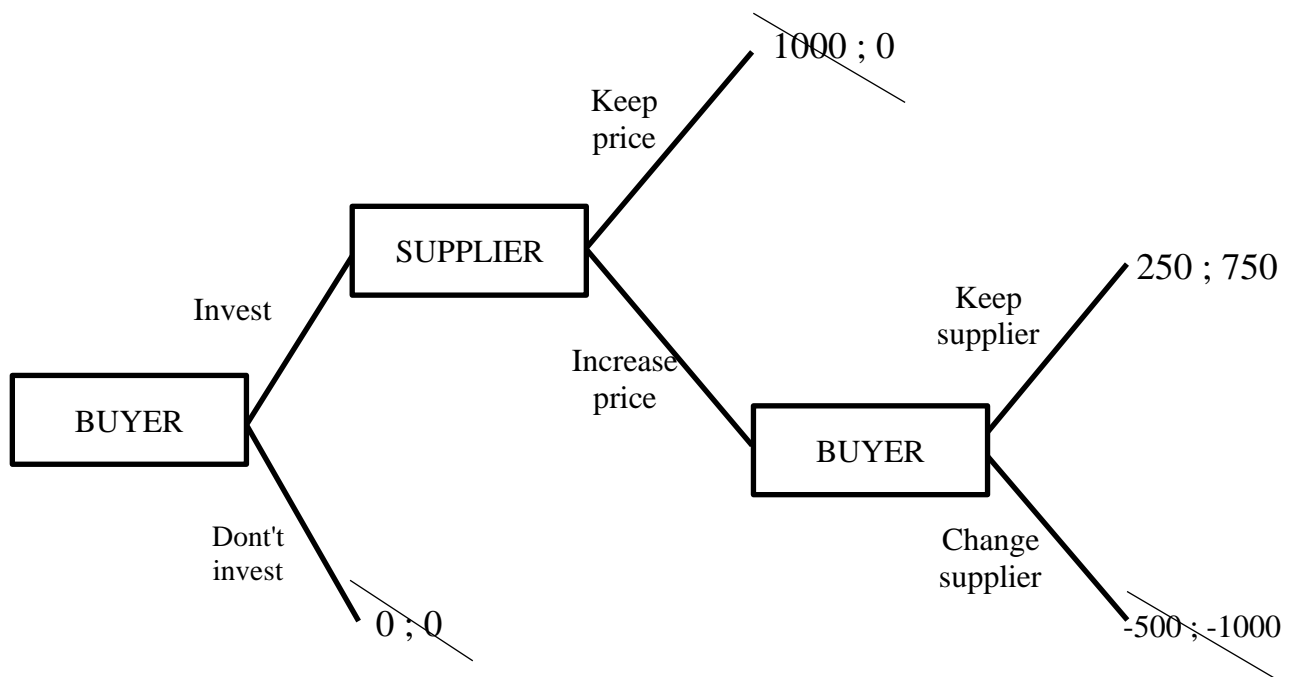
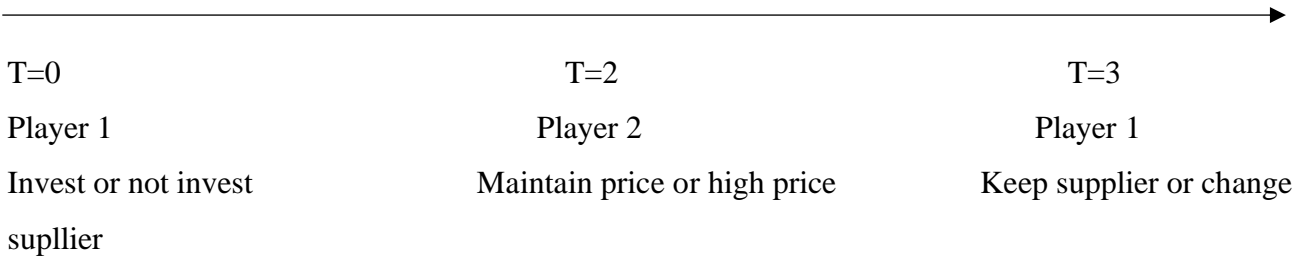
To improve understanding of this situation, it is important to first identify who are the players of the game are that we will then represent:

¹⁵ The extensive form was detailed in J. Von Neumann and O. Morgenstern, *Theory of Games and Economic Behavior* (Princeton, NJ: Princeton University Press, 1944).

¹⁶ ”, Hart O. and Moore J. (1988): “*Incomplete Contracts and Renegotiation*”, *The Econometric Society*, Vol. 56, No. 4, pp. 755-785.

- Player 1 - General Motor as the Buyer
- Player 2 - Fisher Body as the Seller

Furthermore, it is very important to construct a timeline of the events that occurred and consequently depict the example of the case between General Motors and Fisher Body in the extensive form.



Graph 2.2 - Game Tree GM-FB example

Since this is a sequential game, let us summarise the rational choices made:

At date 1 player 1, (henceforth p1) can decide whether or not to invest in Fisher's Body; should p1 decide to forgo the investment, the payoff associated with both economic agents is zero. If GM decides to invest, the game continues.

At date 2, Fisher Body can decide whether to keep the price agreed on 25 September 1919 or increase the price of the bodies due to the considerable increase in demand in the market. If Fisher Body keep

the original price, the payoff of 1000 goes to p1 while p2 gains 0. Obviously for p2 it is convenient to balance the associated payoffs by increasing the price of manufactured bodies.

At this point, at Date 3, if the buyer maintains the same supplier, Fisher Body can hold up GM by raising their price by 750 and leave p1 a profit of 250. If at Date 3 p1 decides to change supplier, GM loses 500 (buyer's investment costs) while p2 would lose 1000 (the gross value produced 1500 - 500 that is the investment cost).

As shown in Figure 2.2, the two players make decisions considering the associated payoffs. The choices the players make will not be independent but will be correlated with the previous decisions made by the other agent.

The best method used to calculate perfect subgame Nash equilibria in sequential games is called the backward induction procedure: "this is the process of analysing a game from the end to the beginning from consideration of any actions that are dominated, given the terminal nodes that can be reached through the play of the actions identified at successor nodes."¹⁷

For each game it will be possible to obtain a subset of strategy profiles, where at least one of these will be a Nash equilibrium.

Using this approach in the GM-FB case, therefore, one must proceed from the last decision node, where p1 will surely choose to keep supplier since the associated payoff 250 is greater than -500.

Consequently proceeding backwards the player will choose "same price" choice since 750 is greater than 0. Finally, the player at the beginning of the game will choose to invest since the payoff 250 is greater than 0.

Using the process of backward induction in this case, we have identified a single sequentially rational strategy profile (Invest, Keep Supplier - Increase price).

The top management of General Motors, therefore, was forced to accept the conditions imposed by Fisher Body involving a clear price increase. to maintain the competitive advantage GM therefore accepted such 'threats' It wants to keep the knowledge and resourcefulness of the Fisher brothers at all costs. This example shows how such bargaining procedures develop. The economic agent with the most market power is therefore given the opportunity to increase prices but at the same time risk that the customer may abandon him.

This example is only a small illustration of hold-up problems. Many times, one does not realise that one is in a situation even if one is not negotiating between companies or economic actors. For example, this risk is present in situations related to specific investments in human capital or simple contract negotiations in sports.

¹⁷ Watson J. (2013), "Strategy: An Introduction to Game Theory", Third edition.

2.3 Legal remedies to limit the risk of hold-up

2.3.1 Contractual Constraints and Clauses

The first method of limiting the hold-up problem concerns legal constraints between the parties involved. The literature on legal remedies regarding the risk of hold-up differentiates between two main results. In the first case, these results concern the association of binding clauses or obligations to contractual situations. In the second case, so-called 'simple contracts' are recognised, which specify a price and a quantity of the asset to be exchanged so that specific investments are efficient for both parties. These types of contracts, recognised as option contracts, will be discussed in more detail in the following section.¹⁸

The remedies listed above require a thorough evaluation before they can be associated with a given economic situation. This type of remedy intervenes mainly when a contract, possessing several shortcomings, can nevertheless be assessed by a third party. Also from a purely economic point of view, it is much easier to study the hold-up problem in the context of symmetric information. In that case, the buyer observes the seller's investment and can exploit the information to obtain a higher price. Contractual incompleteness is not an insuperable constraint for those who want to eliminate the risk of opportunistic behaviour. Such solutions, however, in most cases lead to an enormous increase in contractual rigidity that brings the so-called hold-up risk to the contrary. Excessive rigidity also inevitably leads to say any kind of efficient adaptation in the contractual dispute should there be a need to discuss terms.

Recourse to an adjudicator's verification at the same time both ensures certain contractual guarantees and causes delays and high transaction costs. The contractual verification to be performed by a judge, therefore, must allow as much information to be gathered within the shortest possible time frame. In this sense, Kronman and Posner argued that the main aim in contract law is to reduce the costs of such an exchange process by spreading the risks among the parties involved and maximising their aggregate efficiency.¹⁹

In the Anglo-Saxon context, where the Common Law legal system model prevails, a practical legal education of the jurist prevails over an academic legal education in the Roman law tradition. In this context, the contractual remedy offered in the event of hold-up problems is compensation for damages. Thus, the breaching party must provide economic value to the other party to the agreement.

¹⁸ Williamson O. E. (1979): "Transaction-Cost Economics: The Governance of Contractual Relations", *Journal of Law and Economics*, Vol. 22, No. 2, pp. 233-261.

¹⁹ Kronman A. T., Posner R. A. (1979): "The economics of Contract Law", Little, Brown, Boston, pp. 67-72.

Damages as a remedy granted by the courts in the common law system can be divided into three types:

- 1- **Restitutionary damages:** the non-defaulting party is protected by recovering the benefits conferred on the other party before the default
- 2- **Reliance damages:** damages are awarded for the sudden loss of expectations generated by the performance of the contract. Such damages are either proportionate to the expenses incurred in relying on the performance of the contract or to any damages arising from the mere fact that a prospect in which one had relied was lost.
- 3- **Expectation damages or loss of bargain:** a sum of damages which puts the innocent party in the position it would have been in had the contract been performed by receiving the expected gains.

Neglecting the type of compensation executable by the court, it may happen that the monetary compensation may be inadequate to compensate for the damage suffered by the aggrieved party due to the breach of contract. In this case this issue is referred to as 'undercompensatory damage'.

It is obvious that the parties, aware of the risk of hold-up, may previously include in the contract the provision of a specific remedy to be applied in the event of a breach of the agreement. If this were to happen the parties could proceed in two different ways:

- a) Liquidated damages clauses.
- b) Contractual modifications or limitations of remedies

In the first case the two parties must acknowledge that, in the event of non-performance, the liable party must pay a certain sum to the other party as damages. The liquidated damages clause anticipates the moment of non-performance, fixing even earlier the amount for damages in the event that one of the two parties defaults. These situations, being created in contexts that are difficult to verify, present complexities in the ex-ante estimation of the probable damage expected, requiring a shared consensus prior to the conclusion of the contract. The reasonableness of the sum of money fixed by the clause is often a matter of debate. Sometimes it may be assessed in the context of the expected harm sometimes it is assessed in the context of harm occurring. In most cases the court prefers the first hypothesis and consequently the following damages are irrelevant.

In the case of contractual modifications or limitations of remedies, the parties agree to limit the traditional application of contractual remedies to the contractual context.

There are two other types of effective clear contractual remedies to the risk of hold-up: the deposit and the exclusivity clause.

The first protection instrument recognises that the party that is to make the investment receives an asset (very often money) from the counterparty, which must be returned at the end of the relationship. This technique, however, presents an obvious problem of verifiability. In fact, the deposit increases the specificity of the contractual relationship on the part of the party bestowing it, exposing it to the opportunism of the counterparty. Indeed, a party might be tempted not to make the specific (unverifiable) investment and at the same time withhold the security. His dual mechanism of opportunism is recognised in the economic literature as double moral hazard. If, however, there should be a firm intention to use the bail method, it could be paid to a third party. Even in this case, problems may arise in ensuring that the third party does not collude with one of the two agents.

A further form of protection against hold-up issues lies in the establishment of an exclusivity clause so that the party making specific investments undertakes not to contract with third parties in the future. Inserting an exclusivity clause has the same effect as a property right on the other party's assets. In this way, the assets discussed during the bargaining process can no longer be used in alternative transactions. The exclusivity clause, mentioned in the example in the previous paragraph, allowed Fisher Body to ensure that GM did not decide to abandon the contractual relationship in order to deal with a competitor at favourable prices. In the case of unilateral specific investments, the other party undertakes not to deal with any other party in the future; in the case of bilateral specific investments, this constraint becomes reciprocal, again taking the form of a bilateral monopoly. This clause is also an effective instrument for the protection of specific investments in incomplete contractual relationships as it is easily verifiable ex post.

2.3.2 Option contracts

A further method aimed at limiting the problem of under-investment and opportunistic behaviour concerns the creation of option contracts. Such contracts are counted among the legal solutions to hold-up problems, but a whole paragraph needs to be devoted to their literature. The first to mention option contracts as a solution to a hold-up problem were Noldöke and Schmidt in 1995.²⁰ They did not argue from the outset for the inevitability of hold-up problems but elaborated their thesis by taking

²⁰ Noldöke G., Schmidt K.M. (1995): "Option Contracts and Renegotiation: A solution to the Hold-up problem", *Journal of Economics*, vol. 16 (2), pp.163-179.

the model of Aghion, Dewatripony and Rey as an example.²¹ The latter developed the so-called ADR model and are still recognised as the first to link renegotiation practices to concrete solutions to limit hold-up problems. The three economists, in the presence of specific bilateral investments, argue that a third party or judge should establish an average price and quantity of exchange that should be set as the status quo in the renegotiation game, ensuring:

- a) the power of either party to perform one to the contract (full bargaining power).
- b) ensure the other party a minimum gain equal to the surplus associated with the new status quo point.

The contribution of Noldöke and Schmidt assumes that there is a third party verifying the delivery of the traded good by the seller, the hold-up problem can be limited through option contracts.

An option contract thus gives the seller the right (but not the obligation) to deliver a specified quantity of the good to the buyer and conditions the buyer's contractual payment on the seller's decision to deliver. Even more succinctly, an option contract is an agreement between two parties to facilitate a potential transaction by establishing ex ante a potential price and date. The name option contracts derives from the fact that it is one of the two parties who unilaterally decides whether to make the exchange.

The bargaining power is therefore all in the hands of the buyer who has the power of renegotiation and is therefore induced to make efficient investment choices (it is also common to find the term buyer-option contracts). Option contracts exist if and only if the criterion of observability by the court applies, i.e. the court must be able to verify whether the seller has delivered the goods to the buyer. The terms of payment and closing of the agreement must therefore be conditional on the delivery of the asset by the seller.

As already stated, this type of limitation of hold-up risk is clearly linked to renegotiation. It is evident that however simple the underlying principle of these contingent contracts may be, they can only be applied in cases where there is a possibility of verifiability of delivery of the goods. Where there is no verifiability, contractual incompleteness must be assumed as an inevitable feature of an exchange of goods. The problems of information thus bring to the surface all the limitations of option contracts. These limitations and problems were precisely recognised by the work of Noldöke and Schmidt in "Option contracts and renegotiation: a solution to the hold-up problem", recognising the difficulties of identifying the first best in complex conditions with no guaranteed verifiability criteria.

²¹ Aghion P, Dewatripont M, Rey P. (1994): "Renegotiation Design with Unverifiable Information", *Econometrica*, 62 (2) pp.257-282.

2.4 Indirect enforcement instruments

Contract and market negotiations, whether they take place in-house or telematically, rely on the use of indirect instruments of underestimated importance. Among these enforcement tools we recognise the role played by reputation and trust in ensuring the feasibility and security of an agreement. Their enormous importance also lies in the case of contractual incompleteness with specific investments since, in a context of repeated interactions, it is clear that they provide a higher percentage of security and assurance. Reputation represents the difficulty of a party to bind itself to a contractor that has shown opportunistic behaviour in the past. Trust, on the other hand, which is established between two parties who have been working together for some time, helps the relationship to be self-sustaining and increases the possibility of continuing relationships in the future. In fact, it must be said that the frequency with which a transaction is carried out between two parties is also an indirect means of enforcing the relationship.

The two main benefits of relying on repeated interactions to invest in trust relate to combating opportunism and saving transaction costs associated with monitoring medium- to long-term contracts. Picking up on what Williamson stated in chapter one, he recognises that the frequency with which a given transaction characterised by specific investments is repeated determines a particular system of trade governance.²² The more incomplete a transaction is, the more it requires a form of governance that reduces the risk of hold-up at any given time. Furthermore, the parties may decide to favour the realisation of specific investments in sub-periods thus allowing them to bind themselves through long-term contracts in a way that discourages opportunistic behaviour and avoids frequent contractual stipulations. Fragmenting specific investments into a series of sub-periods, through sub-contracts of exchange in each sub-period, allows to increase the co-specificity of the agents involved, verifying in each sub-period the willingness to continue the relationship in subsequent periods. Parameters (e.g. costs) that allow the contract to be self-sustaining must be maintained within this time range in which contracts are repeated.

Williamson's thought goes on to state that once a certain governing structure of the transaction is selected such that the frequency increases to a significant level, a transformation of the contractual relationship between the parties involved can take place. The market interaction will no longer be regarded as an exchange between anonymous market parties, and will become a bilateral monopoly where competition will be practically nil. Once this bilateral monopoly is realised, self-enforcing contracts will provide a strong dead incentive to continue the relationship.

²² *The Economic Institutions of Capitalism, The Free Press, 1985, New York.*

2.5 Residual rights of control and authority report

Renegotiation procedures focused on the importance of property rights limit contractual opportunism related to hold-up issues. In this regard, numerous economists expressed their views in the second half of the 20th century, all coming to the conclusion that ownership allows for decisions on the specific uses and destination of a resource.

The right of ownership confers a safeguarding role on the subject who has to make specific investments. The subject who holds the property rights to an asset is conferred the faculties of alienation (*abusus*), utilisation (*usus*) and use (*fructus*). This mode of practical exploitation of the asset plays an important role when flexible forms of ex post adaptation are required of the asset. The importance of property rights is underestimated under conditions of information asymmetries. Therefore, there is a need for property rights, if any, to be placed at the centre of situations of renegotiation of an incomplete contract. Owning property rights in the presence of incomplete contracts in renegotiation situations means owning all bargaining power.

Along with the definition of property, it is right to define the residual right of control. This right, according to Hart and Moore, constitutes the essential element that gives ownership an effective enforcement role in incomplete contractual relationships.²³ In the presence of incomplete information, the residual right of control motivates the owner to realise the contract and specific investments and at the same time disincentivises the counterparty to make relationship-specific investments.

The residual right of control transforms a contractual relationship into a relationship of authority or hierarchy that allows the owner to cover unspecified contractual contingencies in an incomplete contract. The holder of the right of ownership is thus able to cover gaps in the contract efficiently ex post facto. In this case, the assignment of the authority relationship grants the holder all contractual power in renegotiation. He will be in an advantageous situation in ex post renegotiation because it will be up to him to decide on the relevant elements of the exchange.

²³ Hart O., Moore J. (1990), "Property Rights and the Nature of the Firm", *Journal of Political Economy*, pp. 119-1185.

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CHAPTER 3 - Vertical integration: a non-contractual solution to hold-up problems

3.1 Make-or-buy dilemma

In this chapter we will try to explore a solution of a different nature than the contractual solutions listed above. For this reason, we think it is useful to analyse the essence of make-or-buy decisions so that we can then better reason about vertical integration as a solution to hold-up problems.

The preliminary analyses in the previous chapters require a thorough understanding of all business boundaries and market dimensions. Logistics, after-sales services, maintenance, support for the use of the product, financing for the purchase, constitute a short list of what are the most important business processes. For the top management to choose one or more strategic options appropriate for their company, they must assess threats and opportunities in the environment and understand their company's strengths and weaknesses.

Ronald Coase was one of the first to ask why some transactions take place in the marketplace while others take place within corporate boundaries.²⁴

Having understood the strategic direction of one's business, it is consequently necessary to decide which steps one needs to internalise and which ones to outsource. The set of evaluations made regarding these procedures identifies the fact that encapsulating business processes within one's own company requires significant coordination costs. These investments, however, are in turn part of a context of saving transaction costs due to market exchanges with external parties. Being aware of such procedures obviously allows one to limit the four problems from which transaction costs arise: limited rationality, information asymmetry, specific investments and opportunism. When the risk of opportunism is high, there is therefore a need to minimise it through solutions explained in the following paragraphs.

Of course, it is easy to think that by internalising all phases of one's own company, hold-up problems would decrease due to less recourse to contractual disputes. This last statement is only partly true because, as we shall see, the risk of hold-up also emerges in the development of internal processes, and it is therefore right to make a thorough assessment of how much it really pays to internalise all phases.

The dual coexistence of market enterprises develops through contracts related to the transactions necessary to acquire resources or dispose of products. The structure of the market influences the behaviour of firms and the latter, in turn, influences the outcome of business management. Managers'

²⁴ R. H. Coase, (1937), *The Nature of the Firm*, p. 386.

choices, on the other hand, influence the structure and produce, according to that adaptation, the associated results, even if a relationship of interdependence prevails between environmental enterprises.

The cost of the transaction, to be examined in internalisation or outsourcing decisions, is equal not only to the price paid for its purchase, but also to the effort sustained by the buyer or by the seller to search for the information needed to perfect the bargain and to manage and control the relationship. All these considerations are in the context of a single evaluation that companies are often faced with to produce on their own (make) or to buy from a third party (buy).

The make-or-buy choice, therefore, is the decision to perform a production step in-house or to purchase the intermediate product, component or service required for production externally. Within a strategic analysis between company and market, it is also possible to consider as an efficient solution a hybrid form of governance that seeks to balance vertical integration and the spot contractual relationship.

Generally, in large companies, the main actors responsible for this type of choice are the CPOs who can guide the business units in the condition of detailed analyses mainly concerning costs and benefits.

The various theories of the firm, developed by economists at the end of the 20th century, have made it possible to address and establish on which factors the decision to source an intermediate input through outsourcing (buy) or within the boundaries of firms (make) depends. Whatever choice a company decides to make, it must be consistent with brand guidelines and remain aligned on product differentiation characteristics.

It is important to point out that make-or-buy decisions do not only concern the production function, but also the commercial (sales network, warehouse management, etc.) and administrative (accounting, finance, management control) functions. This decision is based on a comparison of the total costs to be incurred in the two cases.

We will try to summarise what are the advantages for which an entrepreneur should decide on make or buy choices.

Benefits make option:

- **Limiting contractual dependence:** internal development primarily seeks to save transaction costs and avoid problems with difficult negotiations. Moreover, it is common that such a procedure requires the intervention of a third party whose correct action is not guaranteed.
- **Minimise order management costs:** this avoids additional costs related to tenders or administrative issues.

- **Qualify the teams for each project:** investing in the skills of human resources for different projects allows for greater input that will lead to the achievement of similar levels of specialisation.

Benefits option buy:

- **Time reduction:** once what is required has been requested, the external supplier will guarantee what has been requested by having better specialisation in that area. The timeframe will also be shortened as one will be relying on those who already have the necessary resources, without having to develop them in-house.
- **Ease of execution:** any operational problems will have to be solved by the supplier with a consequent transfer of responsibility.
- **Project expansion:** the business entity you rely on will also provide the opportunity to expand your offer with project management services.

Associated with the last advantage of the make option, there arises an enormous potential disadvantage related to the possible loss of internal know-how should people decide to take their knowledge to a competitor company. This problem can be traced back to what will be explained in section 3.3 by explaining how hold-up risks can be created when human resources threaten to change companies.

If, on the other hand, we open the make-or-buy view to financial reasoning, it is essential to consider the fact that the costs of buying from third parties are generally not depreciable, unlike the costs of one's own production plant. The make-or-buy decision must consider the fact that when the transaction takes place in the market each company controls its own decision rights, both alienable and non-alienable. An example of specific non alienable investments is related to human capital, where the transfer of knowledge is enormously difficult.

Of all these advantages, surely the biggest problems arise from lack of control in the case of the buy option or poor quality of resource work in the case of the make option.

The most complicated decisions, both for a question of content and for a question of timing required, concern contractual issues. Before committing to a supplier, it is necessary to consider the best alternatives because outsourcing contracts are then extremely complex to modify or terminate. Very often, if you do not have a standard contract, you have to spend time negotiating and then formalising the various conditions, or you have to live with severely incomplete contracts and all the lawsuits that arise from them. Spending time, however, in turn presupposes that there is no hurry in carrying out the transaction, but if term is tight, it is easy for incomplete contracts to be drawn up.

As we have seen in previous chapters, incomplete contracts expose economic agents to risks of opportunism. All these evaluations, therefore, expose the company to various fragilities that, if they were to occur repeatedly, would convince managers to want to bring all production processes in-house. In this context, it is appropriate not to make general considerations about all the processes that make up the corporate mechanism. Putting it more simply through an example, it is clear that manufacturing processes often tend to be moved to underdeveloped countries with lower labour costs. In this case, therefore, there is the risk of hold-ups by companies that produce cheaply and that, aware of their bargaining power, decide to raise prices. For any company it would be burdensome both in terms of cost and timing to decide to internalise a business process in which a hold-up had occurred. If, on the other hand, the threat concerned an area such as human resources or information technology, it is clear that being able to resolve opportunistic behaviour by deciding to bring that component in-house will in most cases prove to be a very good solution to the problem.

A further very interesting point concerns the analysis of Tadelis who states that the completeness of a contract is inversely proportional to the complexity of the project understood as the difficulty of specifying all the characteristics of the good to be exchanged.²⁵ It would therefore be appropriate to have flexibility in the internal organisation of production associated with a control of market relations, to save on transaction costs due to renegotiation of agreements.

In addition, if legal expertise is not available, there is the need to engage external legal support with an additional cost burden. Even in this case, however, relying on a third party exposes an economic agent to an additional hold-up risk.

In general, the result of a make or buy analysis depends on the characteristics of the project and, above all, on the level of risk tolerance one intends to assume. Therefore, if we try to summarise what has been listed above, we can state that it is worthwhile to choose outsourcing strategies (buy), in fact they become relevant as the industry matures because they allow for increased specialisation advantages and larger economies of scale.

Frequently, an attempt is made to keep within the company all activities associated with key competences towards potential development on which the company's long-term competitive advantage is based, while delegating all other steps outside. In fact, it is convenient for a company to choose the make option when it seeks to increase in size, diversify its product, reduce competition, or access new markets. This choice seeks growth through an integration of all production processes.

²⁵Tadelis S. (2002): "Complexity, Flexibility, and the Make-or-Buy Decision", *The American Economic Review*, vol. 92, no. 2, pp. 433-437.

The necessary integration will eliminate contractual problems with suppliers or third parties who want to use opportunistic behaviour.

Having completed the process of analysing parameters such as complexity, specificity, and market uncertainty, it is fair to assess whether transaction costs for outsourcing processes are binding or not.

In this scenario, three cases should be considered:

- 1- If transaction costs are low, the conditions for a competitive market exist.
- 2- If the transaction costs are medium to high, but still sustainable, one could think of establishing a collaborative market with other companies but not binding.
- 3- If transaction costs are very high, the conditions for a collaborative market are not there, so self-production is the best choice.

The dual coexistence of market enterprises is developed through contracts related to the transactions necessary to acquire resources or dispose of products. The cost of the transaction, to be examined in internalisation or outsourcing decisions, is equal not only to the price paid for its acquisition, but also to the effort made by the buyer or by the seller to seek out the information needed to perfect the bargain and to manage and control the relationship.

A sourcing choice, therefore, can range from a simple supply situation to cases of vertical integration. The latter is recognised by numerous theories of the firm as a further method of attempting to limit problems of both contractual incompleteness and, above all, hold-up issues. The question, therefore, to be asked after the analyses in this paper will be whether vertical and proprietary integration will always be able to eliminate hold-up problems or only limit them.

3.2 Vertical and property integration

Choices about which functions to focus on internally and which business steps to outsource over the years have marked the transition from business-level to corporate-level strategies. Such decisions have always required an elaboration of vertical integration within the corporate organisation. The assumptions made in the first paragraph of chapter three serve as an anticipation of vertical integration being the last possible solution to hold-up issues.

In this sense, vertical integration relates to make or buy decisions and is a valid reference for identifying the strategic motivations behind the enterprise. The number of functions and activities carried out within a business organisation defines the level of vertical integration; the greater the number of internalised processes, the more vertically integrated the enterprise. The competitive

advantage of a company with such characteristics relates to the hierarchical governance within it. In the presence of specific investments in a particular function, non-hierarchical governance exposes the company to high risks of opportunism.

Establishing major and minor roles allows a wider range of potential hold-up problems to be handled even in the presence of a high degree of investment specificity. In the presence of non-hierarchical forms, one often finds relational contracts that can be defined as interpersonal relationships that allow traditional forms of contract to function efficiently. As we have seen, however, in section 2.4 limiting hold-up issues through these instruments becomes quite complex, due to the high degree of trust that must be established between the parties involved in the exchange.

The organisational structure to implement business strategies, governed by executive and operational committees and allow the company's performance to be tracked, must be suitable for expanding its supply chain. Expanding, for a company will therefore mean increasing the level of complexity of the steps and will require significant investments mainly in the short term. The organisational structure, in addition to being well coordinated in all departments, must allow for possible vertical relationships that increase the specificity of resources through new forms such as franchising. Within a strategic analysis between the company and the market, it is also possible to consider as an efficient solution a hybrid form of governance that seeks to balance vertical integration and spot contractual relations.

Vertical integration can be interpreted in two ways: a long-term contractual relationship and proprietary integration between two or more actors at different stages of the production chain.

The concept of vertical integration as a solution to pre- and post-contractual expediency issues should be associated with the concept of proprietary integration. The latter terminology defines the enterprise as an autonomous and specialised entity with independent decision-making capacity. The autonomy of the enterprise that decides to bring all steps in-house shows how the market transaction is replaced by an intra-firm transaction.

The decision not to introduce vertical integration in the second chapter of this work, as a hold-up solution, is related to Williamson's assertion that in the presence of opportunistic behaviors there are several safeguards with multiple forms, the most obvious of which is unified ownership.²⁶ In fact, this solution, being intrafirm, unties and detaches itself from the principles of cooperation and in turn implies a vertically integrated organisation. The American economist acknowledges the fact that most intra-firm transactions are conducted more efficiently than when they take place in the market. This last statement is related to the fact that the enterprise facilitates the sequential adaptation of decisions to situations that are initially not fully known.

²⁶ O. E. Williamson, (1975), *Markets and Hierarchies*, Macmillan, New York,

Compared to the market, the enterprise has lower incentive intensity, more frequent and detailed administrative controls, the possibility of resolving disputes by resorting to authority rather than external arbitration, and a mainly hierarchical character.

Williamson also focuses on the fact that it is possible to go beyond hold-up issues without necessarily having to rely on contractual rigidities. The last sentence obviously excludes cases where ownership integration is manifested through long-term contracts and not through unitary control of a given transaction.²⁷

When one decides to pursue vertical integration processes with the in-house production of an input, replacing its purchase from the market, two distinctive features must be recognised:

- 1- Vertical integration allows the organisation of two successive stages of production within a single enterprise.²⁸
- 2- Vertical integration brings together the assets used in the different production stages under one ownership.²⁹

These two distinctive features have been at the heart of the thinking that has allowed two strands of enterprise theory to be defined: the contractualist influence in which the enterprise is given by the network of contracts that agents sign for the creation of intermediate goods, and the proprietary influence that emphasises the circumstance that the ownership of the various assets engaged in the production process are owned by the same owner. These influences all come together in a single theoretical paradigm in which the exchange of property rights for the achievement of efficient configurations recognises a role for the firm as an alternative but co-existing institution with the market.

Company-market coexistence is a key point of analysis in minimising hold-up risks. Proprietary integration, in fact, shows how through the organisation of separate production activities, under integrated control guidance, the costs associated with contractual incompleteness can be minimised. It is very important to emphasise the fact that these internal costs are not eliminated, they are only minimised because there will be a continuous flow of new transaction costs. For example, if top management wants to co-ordinate new production divisions or train new human resources, they will inevitably incur a new organisational cost. Continuous research and internal production work will

²⁷ *Long-term contracts intended as instruments of ownership integration must have a content that prefigures a governance structure very similar to that which would take place within the same company.*

²⁸ Riordan M. H., Williamson O. (1985): "Asset Specificity and Economic Organisation", *International Journal of Industrial Organisation*, p.95, pp. 365-378.

²⁹ Grossman S., Hart O. (1986): "The Costs and Benefits of Ownership: A Theory of Vertical and Later integration". *Journal of Political Economy*, pp.691-719.

allow the achievement of first best associated with the reduction of transaction costs. In this regard, Spiller argued that explanations based on the minimisation of transaction costs are more common than explanations based on aims to increase market power even in vertically dependent contexts.³⁰ It is therefore possible to conclude by saying that vertical integration, in addition to reducing the risk of hold-up, pursues the attempt to increase market power but above all wants to minimise transaction costs.

3.3 The Fisher Body and General Motors hold-up cases

In order to best understand vertical integration decisions in a single ownership structure of transactions characterised by significant levels of specificity, it is useful to take up the General Motors – Fisher Body case. As already mentioned, this dispute has been discussed by numerous authors (Klein, Crawford, Alchian, 1978; Williamson, 1985; Freeland, 2000). This case is unquestionably useful for understanding the role of asset specificity in defining enterprise boundaries.

To aid understanding of the acquisition events that took place between General Motors and Fisher Body, it is important to create an outline of these negotiations through the principles.

We will represent the main stages of the negotiation that took place between the two companies in order to understand the choices of each player. The focus of the analysis will be on a stylized representation that follows the main events disregarding irrelevant alternative for our purposes.

Suppose that:

- At $t=0$ (1919) GM must decide whether to purchase the control of the 60% of Fisher Body and the associated skills.
- At $t=1$ (1926) GM has to decide whether to produce on its own or acquire 100% Fisher Body; make-or-buy decision.
- In $t=2$ (1926) upon receiving GM's proposal, Fisher Body must decide whether to accept the contractual conditions or reject them.

³⁰ Spiller P. (1983): “On Vertical Mergers”, *Journal of Law, Economics and Organisations*, pp.285-312.

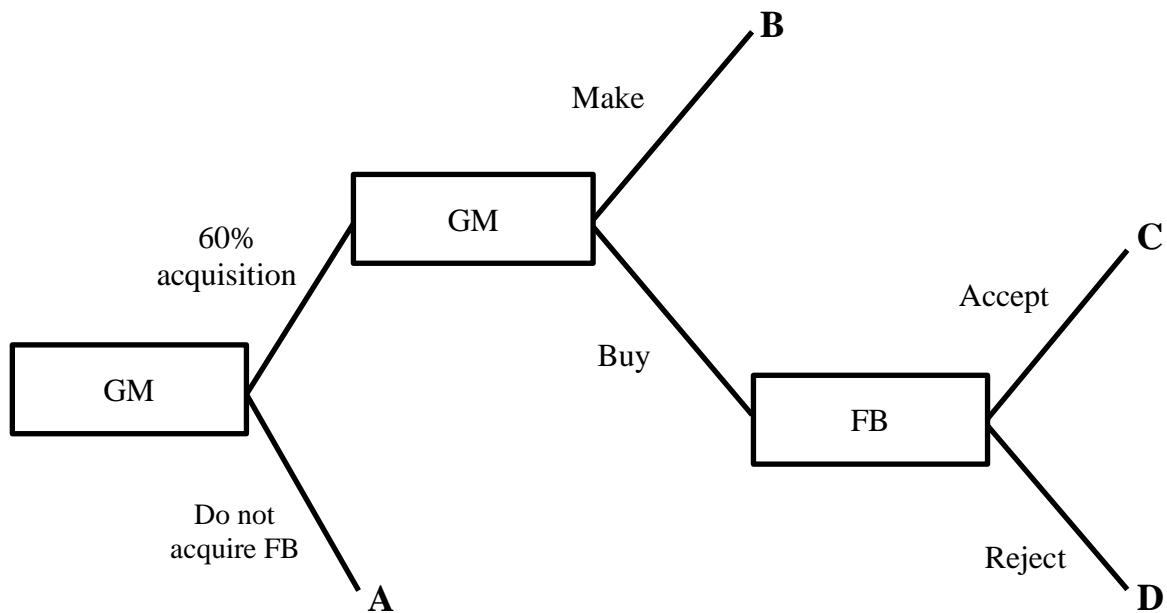


Chart 3.3.1 - GM and FB renegotiations.

As can be seen from Chart 3.3.1, GM in 1919 can decide whether to buy a 60% stake in Fisher or not to consider such an opportunity.

General Motors was able to conclude such a preliminary contract that allowed the game to continue. In $t=1$, GM is called upon to play again and will have two available choices. It will have to decide whether to produce in-house or acquire Fisher Body entirely. The need for a new negotiation in 1926 was due both to the growth in demand for closed bodies and to regulate the collaboration between the two companies in more detail. If General Motors had chosen the make option, the associated payoff would have been particularly affected by the costs involved in creating new technology in-house. In 1926, however, GM's top management, realising the importance of the Fisher brothers' expertise, decided to put forward a proposal to acquire the company outright.

At that point, Fisher Body had to decide whether or not to accept the conditions imposed by GM's offer; if he accepted, the human and physical skills would be transferred, if he refused FB would continue to collaborate with competitors such as Chrysler and Hudson.

Through the Chart 3.3.2 depicted below, we have tried to identify the payoffs associated with each choice. However, it is essential to point out that these outcomes are also difficult to quantify because the transmission of knowledge is characterised by unobservability.

A	In this case the payoff for both sides are easily normalized to 0 with it since the game ends and neither player gains from this decision
B	The make option entails huge costs for GM to carry out all the production steps in-house, but above all very long lead times to achieve this. For FB, this decision will mean the loss of a valuable customer.
C	Accepting the proposal would have guaranteed the Fisher brothers higher salaries, dividend income from common stock, and 5% of GM's net sales profits. This would obviously have limited the risk of hold-up by the Fisher brothers against GM.
D	Rejecting the proposal would have forced FB to work only with Hudson and Chrysler, which had less market power. Rejecting it also would have destroyed what FB had built over the past years for GM.

Chart 3.3.2 – Associated payoff analysis

The problems of knowledge transmission are linked to problems of moral hazard, in fact there may have been a fear on GM's part that the Fisher brothers would not fully collaborate on projects. It would therefore be very difficult for the owner to determine the optimum effort with certainty. However, with the second renegotiation in 1926, these problems were almost entirely resolved by linking the company's results to the Fisher brothers' pay. In this way it was in their interest to collaborate in improving the company's results.

It is also possible to state that the game, understood as business cooperation, will end in relation to the choices associated with payoffs A and B.

The reduction of disputes related to specificity of physical and human assets is why this example is the best way to explain how hold-up issues can be limited by vertical and proprietary integration.

Stalemate situations, due to the specificity of resources and years of negotiations, was another reason why GM decided to buy Fisher Body. The fast-growing demand for closed body shops around the 1930s caused uncertainty between the two companies, which simultaneously sought to enrich and expand. During the first contractual negotiations between the parties, both companies tried to protect themselves through safeguards instruments. Fisher Body imposed an exclusivity clause to ensure that General Motors would not source through other competitors; GM through a clause that established a 'cost-plus' pricing formula according to which Fisher's asking price for closed automotive body shops could not exceed 17.6% of the total production costs needed. Despite these concerns, the six Fisher

brothers decided to hold-up GM by asking prices above this percentage, adding a surcharge for maintenance costs.

Because of the enormous scale of expenses to be incurred, the need arose for GM to start reasoning about a possible unified ownership option in which a single owner obtains undisputed ownership rights to physical assets. In this way, through unification of intent and all steps, problems of specificity of physical assets would be solved by precluding external intervention in case there were disputes over transaction costs.

Most economists agree that GM's purchase of Fisher diminished any asset specificity issues but the real reason for the acquisition is still debated and not unequivocally recognised. Some analyses claim that the unified ownership only wanted to take possession of the physical capital and related production processes, while there are other currents of thought that claim that the main reason of the acquisition was to obtain human resources (hiring the six Fisher brothers) and specific knowledge.

After the first hold-up problem in 1919, described in section 2.2, and the introduction of the 5-year exclusivity contract, a new risk of opportunism related to new contract negotiations arose again in 1924. As is easy to see at any time of discussion, Fisher Body was in a position to make very pretentious demands.

The 1924 re-discussion guaranteed significant benefits to the Fisher brothers, granting them wages associated with company performance. The conditions set by the Fisher brothers within the new contract therefore did not fully convince GM, who the following year, in addition to the reasons listed above, started negotiations for the acquisition of Fisher Body.

According to Robert F. Freeland, there were essentially four reasons to proceed with a vertical integration of unified ownership:³¹

- 1- Growing tensions related to increased demand for closed body shops, financing methods and plant locations.
- 2- GM needed high levels of co-ordination in the design and engineering of closed bodywork chassis that required both production stages within a single complex.
- 3- To deprive competitors of the possibility of using the knowledge and services of the Fisher brothers was therefore a defensive action. Unified ownership would therefore be served like an anti-competitive instrument.

³¹ Freeland R. F, (2000). "Creating Holdup Through Vertical Integration: Fisher Body Revisited", *The Journal of Law & Economics*, Vol. 43, No. 1, pp. 33-66.

- 4- Avoid the possibility that Fisher and their partners could have sold their shares in Fisher to dangerous parties.

As stated in the previous paragraphs, in order to undertake a strategy consistent with the needs of the market, it is right to understand its trends, and so it was in 1925 when there was a particular emphasis on the use of closed bodywork. In the last two years, in fact, after the conclusion of the first deal, the Fisher brothers were supplying crucial components and advice to competitors such as Chrysler, Dodge and Hudson. For this reason, General Motors recognised the need to reacquire the specific expertise of Fisher Body. The collaboration, however, would no longer be tied to contractual clauses but would be a fully-fledged M&A transaction. The proprietary integration defined in 1926 was unequivocally recognised as a case of vertical integration resulting from hold-up risk.

A further motivation for GM to develop the company through vertical integration was the transformation of the automotive market, which demanded a high level of product differentiation. Enclosed automotive body lines became cornerstones of the design and brand recognition process. These changes in the marketplace required constant adaptation to new trends, so General Motors found it necessary to internalise all stages of product differentiation in-house. A high level of coordination and similar principles are required to focus on aesthetics, which is why GM wanted to have final authority over such decisions.

In strategic terms, taking knowledge away from competitors and more than doubling production were two key steps in GM's growth. According to Robert F. Freeland, however, a mechanism of continuous hold-up creation was created through unified ownership. In fact, although transaction costs have decreased substantially, vertical integration has increased the costs associated with the specificity of human assets.

What initially seemed impossible in the transaction, namely the occurrence of hold-up problems post vertical integration, did happen. In fact, the Fisher brothers, aware that they possessed unique knowledge information, repeatedly managed to obtain important contractual benefits aware of their advantageous position. They, in fact, repeatedly threatened GM's top management to leave the company as in 1934 when they "announced an ultimatum: if something was not done, they would leave immediately".³²

The emotional involvement of the Fisher brothers by GM would have decreased the risk of crippling their business by not allowing them to monopolise the management of certain company departments. Over the years, the Fisher brothers' threats always demonstrated that they sought a dominant position, both within GM and outside it. In fact, these demands concerned an aspiration of income related to

³² Letter from William Du Pont to Lammot du Pont Copeland, 4 May 1934, Longwood.

decision-making, hiring and production actions, to which were added demands for shareholding and remuneration with General Motors. A breakaway of the Fisher brothers also could have resulted in the consequent movement of personnel from GM to the new company. This concern grew because some eight years after Fisher's purchase, General Motors personnel had not yet achieved adequate knowledge.

The GM-Fischer Body case, although focusing on the resolution of hold-up issues through the fundamentals of solid vertical integration and unified ownership, hides within it different alternatives to opportunistic behaviour. For example, all bargaining events over the years remain tied to solutions of types of agreements. Nevertheless, it is recognised by all the different approaches to this case that unified ownership has helped to solve problems associated with investments in complementary specialised physical assets.

The focus, therefore, must be shifted to how the problems arising from the specificity of physical assets played an important role in those years. These latter considerations show that there is a very fragile boundary between the company-market link. Precisely for this reason, the analysis to be carried out in a complex relationship such as General Motors-Fisher Body or any other case, must be very thorough considering multiple factors: property rights, the role of physical assets, human resources, bargaining, etc... As evidence of this, before Robert F. Freeland, the analysis of the motivation for GM's acquisition was mainly linked to Fisher Body's interest in physical assets: only after the studies of the American economist, in fact, was it possible to integrate such analysis considering the role of human resources.

Even in this solution, therefore, related to vertical integration linked to unified ownership, it is fair to ask whether this remedy is merely a way to diminish the risk of hold-up or eliminate it. The example considered in this last paragraph allows the analysis in this paper to consider the fact that, whenever General Motors thought it had solved opportunism issues through elaborate vertical integration, the Fisher brothers could recreate an internal hold-up problem.

As this case between General Motors and Fisher Body shows, each solution to hold-up issues is not independent of the others. These analyses show that if there are opportunistic issues associated with vertical integration, one will have to resort, for instance, to option or exclusivity contracts or any other type that would limit the risks involved. The most common overlap between the various solutions described concerns vertical integration with authority relationships.

What makes the difference in limiting such situations, then, will be knowledge of the nature and manner in which such problems, should they arise, can be stemmed. Put another way, it is the choice of competent top management and human resources that will act as a shield to possible hold-up situations.

Bibliography Chapter 3

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Conclusion

The nature of market transactions has a major impact on any kind of strategic business decision. This is the starting point of the approach used in evaluating possible solutions to hold-up issues. It is very important to ensure that a contract is concluded with maximum flexibility to prevent opportunistic behaviour.

Analysing the safeguards on opportunistic behaviour individually, it is automatic to realise that each of the solutions is not immune from flaws. Exclusivity clauses, for example, may affect both price and quantity, but there is always one of the two economic agents that has the possibility of carrying out the renegotiation by having a competitive advantage. Renegotiation very often creates even more inconvenience because it allows the economic agents to gather even more information and thus increase the temptation for opportunistic behaviour.

The most problematic feature of the abuse of advantage in contractual discussions is the fact that it can emerge through a threat of immediate termination of the relationship. Such behaviour surprises the other party, who more often than not will not be able to come up with rational counter-moves and will accept the agreement on terms not previously agreed upon. The General Motors - Fisher Body case emphasises these latter claims, showing how the six brothers blackmailed GM's top management continuously. This situation also demonstrated the failure of what could have been a real solution to the hold-up problem: proprietary and vertical integration.

As long as the knowledge of certain production factors is in the hands of a few people, they will always be in a position to maintain a position of advantage. The reason for this competitive advantage is further exacerbated by the fact that to take possession of these resources, it will be necessary to write a very complex contract. The fragility and difficulty of writing such an agreement will inevitably cause incomplete contracts that will allow the threatening party to maintain its position of advantage.

Consequently, a further consideration that should be made after all the work of analysing the possible hold-up risk safeguards is that: the greater the level of specialisation of the investment, the greater the threat power one has over the most exposed economic actor.

In conclusion, we may consider that the possibility of finding satisfactory alternatives on the market as a defining element of abuse, and the indication of the conduct that may be considered unfair, derive from the complex of relational characteristics inherent to contracts of duration; beyond them it is difficult for there to be a meaningful and unified regulation.