FIRM PERFORMANCE AND INSTITUTIONAL CONTEXT: A THEORETICAL EXPLORATION WITH EVIDENCE FROM THE ITALIAN COOPERATIVE SECTOR

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FIRM PERFORMANCE AND INSTITUTIONAL CONTEXT: A THEORETICAL EXPLORATION WITH EVIDENCE FROM THE ITALIAN COOPERATIVE SECTOR

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To my sisters Giovanna and Laura

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ABSTRACT

This thesis examines the relationship between institutional context and firm performance, from both a theoretical and empirical perspective. The aim is to engage with the debate seeking to explain the observed diversity in the forms of economic organisation prevailing in socio-economic systems. The focus of the empirical work is on investigating the effects of the structure and behaviour of banking institutions on firm performance, in the Italian context. The analysis is comparative in the sense that confronts cooperative and capitalist business structures.

The analytical framework is institutionalist in emphasising the institutionally embedded nature of economic performance, and the historical and cultural dimensions of economic behaviour. The institutional complementarity approach is used to investigate the hypothesis that the relative performance of different firm structures is context dependent.

The main conclusions are that the economic performance of cooperative firms is strongly conditioned in a sense of institutional complementarity by the degree of development and competition characterising the financial domain. Rejected are the pessimistic predictions of conventional accounts that democratic firms are unequivocally unviable. Instead, there are relations of context dependency, of institutional complementarity that influence the viability of firm types.

The overall conclusion is that the dynamics governing the evolution of socio-economic systems are much more complex than mainstream economics suggests; productive organisations may assume a multiplicity of forms. The theoretical claims of a universalistic history in which all production systems must follow the same line of development must be abandoned. This brings about major policy implications at the regional, national and international levels.

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CHAPTER ONE

INTRODUCTION

1 BACKGROUND TO RESEARCH

The broad aim of this thesis is to examine the factors that contribute to explain the observed diversity in the forms of economic organisation that prevail in socio-economic systems. The focus of the research is on investigating the relationship between firm performance and the specificities of the institutional context in which firms are embedded. The analysis first explores, from an institutionalist perspective, the theoretical and conceptual tools required to understand the existing variety of different forms of capitalism, and the performance differentials that are observable at various levels of today's economies. The work then offers an empirical investigation of the argument that firm performance is largely context dependent. The empirical analysis concentrates on the Italian cooperative sector, and looks at the effects of the behaviour of banking institutions on the relative performance of cooperative firms.

In this chapter debates that surround claims about the dynamics underlying socio-economic processes, and their implications for economics, are introduced. Following this, the nature of the present research work is explored, and the structure of the thesis is outlined.

2 NEGATIVE AND POSITIVE FEEDBACK: WHAT IMPLICATIONS FOR ECONOMICS?

Traditional economics assumes that socio-economic processes are dominated by negative feedback. This concept rests on the notion of decreasing, or diminishing, returns to scale in production and consumption, and entails a decelerating, dampening, self-regulating cycle. Conventional accounts contend that economic actions eventually determine negative feedback loops leading to a predictable equilibrium. The price adjustment mechanism that pushes supply and demand back to equilibrium is an example of compensating, negative feedback. The equilibrium marks the 'best' possible under the circumstances: the most efficient use and allocation of resources (Beinhocker, 2006). Negative feedback tends to stabilise the economy because any major changes will be counterbalanced by the effects they generate (Arthur, 1990). If the system departs from its equilibrium path then negative feedback brings it back into line (Beinhocker, 2006). There are no branching points along the track. Hence any previous historical deviations have no impact on the future. In that sense, history does not matter.

The Marxian idea that history progresses through a series of stages, passing from primitive communism, to classical antiquity, feudalism, capitalism, socialism and, finally, full communism underlies the notion of a revolving movement that enables the system to return to the original position (primitive communism), but at a higher level (full communism).[1] This idea of perfectibility of society under communism reveals a conception of development as a predetermined plan that allows to reach the optimum status in the final stage. Regarding communism as the socially necessary system, Karl Marx (1818-1883) rejected other forms of production. By

favouring a single arrangement Marx did not recognise any value in institutional and structural diversity, under capitalism or socialism. Hence in Marxism economic variety and pluralism are downplayed over the return to the 'ideal state' (Hodgson, 1993, 1999).

Also Herbert Spencer (1820-1903) believed that variety has to be limited. Spencer claimed the perfectibility of society through markets and laissez-faire. His state of perfection was a market system based on voluntary and contractual cooperation between individuals. Austrian economists Friedrich Hayek (1899-1992) and Ludwig von Mises (1881-1973) shared the similar idea of the eventual perfectibility of society under a single institutional arrangement (Hodgson, 1993). This 'pure' form enabling capitalism to prosper best is dominated by market exchanges and individual private property (von Mises, 1949; Hayek, 1982).[2] Thus, the above conceptualisations sustain a view of a singular and purified capitalism where no value is assigned to structural and institutional diversity. Ugo Pagano (2007) points out that the response of the Austrians to the Marxian theory consists in a position no less extremist than Marx.

Walt Whitman Rostow (1959) conceived development as a linear process. He suggested that countries undergo a common pattern of structural change, eventually converging to a single global equilibrium. This is synthesised in his theory on the stages of economic growth. In this view, all societies are identifiable in one of the following five categories at a particular point of their transition process to the next stage: the traditional society; the preconditions for take-off; the take off; the drive to maturity; the age of mass consumption.[3] Hence, the general idea of perfectibility of society under a unique superior order characterises also Rostow. In this sense also Rostow supports a unilinear view.

Francis Fukuyama (1992) argues that liberal democracy marks the "end point of mankind's ideological evolution" and the "final form of human government" (ibid: xi). Liberal democracy "remains the only coherent political aspiration that spans different regions around the globe" (ibid: xiii). The main argument Fukuyama puts forward to support his claims is that while previous forms of government were characterised by inner defects and irrationalities that eventually led to their collapse, liberal democracy is free from fundamental internal contradictions. So that the ideal of liberal democracy cannot be improved on.[4] As such it constitutes the 'end of history', where history is understood as a single, coherent, evolutionary process (Fukuyama, 1989; 1992).[5]

Oliver Williamson's work rests on the notion of negative feedback. For Williamson what exists is efficient. The less-than-efficient is driven out by competition. For instance, Williamson argues that since hierarchical firms predominate in today's competitive environment, then these firms must be more efficient than non-hierarchical ones and better suited to survival. This efficiency advantage of hierarchical structures rests on their ability to economise on transaction costs (Williamson, 1975, 1980, 1985). 'Nonhierarchical modes are merely of ephemeral duration' (Williamson, 1980, p. 35) and are therefore doomed to fail in the long-run in capitalist systems.

Such agreeable pictures often contrast with reality. In many parts of the economy stabilising forces do not seem to operate. Instead, economic shifts tend to be amplified. This suggests that positive feedback mechanisms (rather than negative ones) are often at work. Positive feedback is an accelerating, amplifying, self-reinforcing cycle driven by increasing returns. It implies that propagating effects follow from an initial event or shock. Therefore, even little historical perturbations

may have significant and long-lasting effects. In other words, cumulative causation processes operate in socio-economic systems. For example, if a product, region or nation gets ahead by even just by chance it tends to stay ahead hence increasing its lead. In such a scenario, there is no longer guarantee of predictable, shared markets (Arthur, 1990).[6]

Thorstein Veblen (1857-1929), in contrast with the accounts focusing on compensating (negative) feedback processes, put the emphasis on the theme of cumulative change, where equilibrating forces do not necessarily take the system back to a single path (Veblen, 1899, 1919). Veblen argued that the notion of cumulative causation allows 'the handling of schemes of development and theories of a comprehensive process' (Veblen, 1898, pp. 377-378). Mauricio Villena and Marcelo Villena (2004) pointed out that Veblen's discussion on cumulative causation involves an idea of path dependency. Veblen considered as unconceivable the idea that all socio-economic systems should converge to one single type, since no single or natural path governing economic development exists. Variety and cumulative causation mean that history has "no final term" (Veblen, 1919: 37). Therefore, recognising that history can follow different patterns, Veblen accepted "the possibility of varieties of capitalism and of different paths of capitalist development" (Hodgson, 1996, p. 411).

Influenced by Veblen, the notion of cumulative causation was then developed by Allyn Young (1928), Gunnar Myrdal (1957), Nicholas Kaldor (1967, 1972, 1978, 1985) and William Kapp (1976). Veblen used the term cumulative causation mainly to refer to cumulative processes of cause and effects. Instead the above thinkers took on the different meaning of non-linear processes of positive feedback (Hodgson, 2004; Villena and Villena, 2004). They have argued that cumulative

causation implies that the process of development is generally divergent rather than convergent, both at regional and national levels. For instance, Myrdal used the concept to analyse the conditions of African Americans and Asian underdevelopment, while Kaldor applied it to investigate the role of manufacturing in capitalist growth (O'Hara, 2008).[7] Young and Kaldor pointed out that economies of scale imply divergent patterns of firm growth, which lead to the dominance of a small number of large firms. This contradicts the emphasis that conventional economics places on processes of compensating feedback and mutual adjustment conducive to greater uniformity and convergence (Hodgson, 1996).

Cumulative causation relates to the more recent idea that technologies and socio-economic systems can get locked-in to relatively constrained paths of development, hence leading to path dependence (Arthur, 1989, 1990). Rather than equilibrium, positive feedback can endanger phenomena of lock-in, where outcomes become self-reinforcing (Arthur, 1983; 1988; 1989, 1990). Such phenomena can be considered to be sufficiently stable units, although cumulative reinforcement of a number of parallel elements can eventually lead to conflict and disruption.

By discarding the notion of convergence to a single equilibrium, path dependence means that history matters. The concept of path dependence was first elaborated by Paul David (1985) and Brian Arthur (1989). The asymptotic distribution of a path dependent stochastic process evolves as a function of the process own history (David, 2007). Hence, a process is regarded to be path dependent when both actual and future outcomes are influenced by the patterns previously observed.

When a path is set on a specific course, this is reinforced in a path depended way by network externalities, organisations' learning processes and historically formed

subjective models (North, 1990, 2005). So that phenomena of lock-in can occur. David (2007) points out that the term 'lock-in' describes the entry of a system into a trapping region. He further argues that once a system enters such a region, alterations in the path that becomes established are mainly determined by external effects and unanticipated effects of choices. These must be able to change the system's configuration or transform the structural relationships among agents.

Douglass North (1990, 2005) argues that the reversal of a given path is typically determined through changes in the polity. His view is shared also by David (2007), who has pointed out understanding path dependence, and the possibility that externalities lead to market failure, brings about relevant policy implications. David argues that public policy should try to improve the informational state in which both private and government agents make choices. In other words, in the areas where positive feedback processes are likely to prevail over negative ones, policy makers should maintain open options until enough information has been obtained about the likely technical or organisational and legal implications of a decision.

The notion of path dependence and the related analytical framework add to the quest to integrate history in economics (David, 2007). The key content of the path dependence concept as a dynamic property refers to history as an irreversible branching process. Path dependent systems have multiple possible equilibria among which event contingent selections can occur. Some particular historical event initiates the sequence of transitions that select one configuration, rather than another, to be realised as the system's emergent property (David, 2007).

The economic accounts that describe positive feedback effects through cumulative causation and path dependence are radically different from the conventional ones. Diminishing returns, hence negative feedback, entail that the

economy will eventually reach a single equilibrium point. By contrast, positive feedback – i.e. increasing returns – allows for multiple equilibria to become established. There is no guarantee that the economic outcome(s) selected from among the many alternatives will be the 'best one'. Hence the notion of local optima (rather than global optima) becomes prominent. Furthermore, once chance economic forces select a particular path, this may become locked in regardless of the advantages of other paths (Arthur, 1990). In other words, even if a global optimum existed, it might not be possible to reach it due to path dependence and lock-in effects.

The issue of institutional complementarities brings further dimensions into the above arguments. This notion refers to situations in which interdependence among institutions occurs, so that the functionality of an institution is conditioned by the existence of other institutions. It follows that the performance of a configuration is influenced by the specific properties of its elements (Höpner, 2005a). Institutional complementarities generate increasing returns among institutions and may lead to mutually reinforcing patterns of behaviour. Institutional complementarity and context dependence mean that the arguments above that apply to whole systems can also apply to subsystems. A subsystem, such as a firm or an industry, may be subject to positive feedback. Hence, there can be divergent paths for different parts of the system, as well as the system as a whole, further complicating the development of the whole system. There are context dependence effects.

Institutional complementarities have major implications for the conclusions drawn by accounts *à la* Williamson, postulating that competitive forces will inevitably lead to the 'survival of the fitter'. Indeed, institutional complementarities mean that historical circumstances condition the outcome of the competitive

process. In other words, competition will work in different ways, with potentially different outcomes, in different contexts. Institutional complementarities also imply that competitive pressures do not necessarily enable the achievement of a globally efficient outcome. Sub-optimal equilibria can also emerge and persist over time. Thus, Panglossian claims that 'all is for the best in the best of all possible worlds' lose significance.

3 RECOGNISING PATTERNED DIVERSITY IN COMPLEX SOCIO-ECONOMIC SYSTEMS

The previous section has argued that positive feedback loops are at work in complex socio-economic systems and operate through cumulative causation, path dependence, lock-in and institutional complementarities. It has been claimed there that recognising the existence of positive feedback brings about major implications for economics. The present section aims to briefly reflect on the main conclusions that can be drawn from the arguments discussed in Section 2.

A first important implication is that any idea of a single and ideal state of nature becomes not only unfeasible but also undesirable. History follows a multiplicity of paths and economics must recognise it. Attempting to theorise 'the best of all possible worlds', whatever this be, is simply an intellectual exercise. Not just that. It deprives the economist profession of much of its value. The author of this thesis believes that economists should aim to explain how and why societies have come to present day conditions. It is only by understanding our past that we can comprehend today's events, and hopefully identify sustainable solutions for some of the problems that are currently afflicting our lives, such as the alarming environmental

issues created by the global warning and the financial problems that are investing the world economy in the current financial crisis.

Secondly, acknowledging the existence of structural variety entails accepting the possibility that present day capitalist systems can evolve in a number of different but sustainable ways. In this perspective, institutional and cultural variety becomes desirable as it allows to preserve the overall coherence of socio-economic systems. Hence, variations in the prevalent forms of economic organisation, both within and across systems, are not anymore a flaw that needs to be remedied.

A further implication regards the link between human actors and social structures, and between these and the wider socio-economic context. Actors are involved, during the course of their lives, in a number of different structures. These partly determine the way in which actors are changed and reconstituted. On the other hand, structures evolve from the actions and interactions of given individuals (Hodgson, 1996). Both actors and structures are embedded in a wider socio-economic system, whose attributes have evolved from historical events that produced varied impacts at different levels of the system. Through feedback processes, which can lead to path dependence, lock-in and institutional complementarities, the specific characteristics of that system (and of its subsystems) influence actors and structures. Their behaviour and performance is, therefore, largely context dependent. Atomistic and mechanist conceptions are no longer feasible. Instead, context matters and economics must take this into account. This is the thesis that the present research work intends to defend.

The next section shows the intellectual journey from broad research aims, to a more specific focus and the identification of an analytical framework in which to examine the emergent research questions.

4 THE SCOPE OF THE THESIS

As mentioned earlier in the chapter, the broad aim of the study is to engage with the debate seeking to explain the observed diversity in the forms of economic organisation that characterise today's socio-economic systems. The framework developed in this thesis builds on current institutionalist and evolutionary accounts (Pagano 1991, 1992, 1933; Hodgson, 1993, 1999; Aoki, 2001, 2007; Boyer, 2005a) on the factors explaining why different institutional settings are in place and why these are conducive to the emergence and perpetuation of differentials in the performance of organisational forms operating at various levels of the economy. The aim is to enrich and deepen these accounts by drawing on the institutional complementarity approach which has its origins in the work of Ugo Pagano (1991, 1992, 1993) and Masahiko Aoki (1994, 2001), and has been further explored in a number of other studies such as Bruno Amable (2000) and Robert Boyer (2005a).

The institutional complementarity approach adds at least two important insights to economic analysis. The first undermines the idea of an optimal economic configuration towards which all systems should converge. As earlier introduced in the chapter, complementarity implies that institutional elements can combine in a number of different ways. Therefore, it contributes to explain the evolution of different institutional arrangements, both across and within economies.

The second lacuna that the institutional complementarity approach addresses is to provide the analytical tools for an elaboration of possible adjustment processes. This analytical framework takes the stance from the ahistorical conceptions of much mainstream economics, and explains that socio-economic systems are to a large extent constrained, in regard to adjustments, by history and the structures inherited from their past.

The study intends to add insights to the analysis of institutional complementarities between firms and their institutional environment in order to contribute to the debate existing in the economic literature on the determinants of the relative performance of firm types in different contexts. To pursue this aim firm-level complementarities are investigated empirically. The focus of the empirical work is on the relationship between the behaviour of banking institutions and firm performance, in the Italian context. The analysis is comparative in the sense that confronts cooperative and capitalist business structures. Two sets of issues deserve clarification.

The first regards the motivation for looking at cooperative firms, in a comparative analysis with conventional firms. The interest in democratic and participatory firms comes from the long-lasting dispute that animates the economic analysis of this organisational form. In short, traditional economic theory postulates, and in this it is often aided by the use of sophisticated mathematical techniques, that the cooperative firm is an inefficient structure, has a perverse behaviour, suffers diseconomies created by its self-interested owners-members (Ward, 1958; Vanek, 1970; Williamson, 1975, 1980, 1985; Jensen and Meckling, 1979).

In sharp contrast with the above claims are the conclusions put forward in studies mainly proposed by the institutionalist approach. Writers in this tradition contend that democratic firms are at least as efficient as capitalist firms. Various arguments underpin this claim. First, is the consideration that the results reached by mainstream scholars are conditioned by the assumptions underlying their models. Several works have shown that by introducing minor changes to the traditional model, conclusions change by a great deal and the presumed inferiority of the cooperative firm vanishes (Prasnikar *et al*, 1994; Hodgson, 1999). Second, it has been pointed out that cooperatives can be very efficient since they rely to a great

extent on socialisation as the principal mechanism of mediation and control (Bowles and Gintis, 1976). Above all, the common trait of these contributions is to have stressed that the development of cooperative firms requires a favourable cultural and financial climate. There is a substantial body of empirical and anecdotal evidence showing that in certain institutional contexts cooperatives are a long-lasting, rather than a transitory, phenomenon and that their performance profile is in some cases even superior to that of capitalist firms (Staber, 1989; Bartlett *et al*, 1992; Bonin *et al*, 1993).

It is in light of the above considerations that the present research work has centred the empirical analysis of the institutional complementarity hypothesis on cooperative firms. The focus is, as earlier mentioned, on the relationship between cooperatives and banking institutions. This is because the issues related to the external financing of these firms have particularly animated the above debate.

The second clarification requires contextualising the analysis. The Italian context is chosen as the locus of investigation. Compared to several other countries, Italy has a well developed cooperative sector. This made the country a suitable candidate for addressing the research questions this study poses. The empirical work is carried out at the local level, since there is evidence showing that credit markets are local (Kwast *et al*, 1997). In the Italian case the relevant local banking market is the administrative province. Hence firm-level institutional complementarities are investigated at provincial level.

5 THE STRUCTURE OF THE RESEARCH WORK

This chapter has identified the focus of the study as being to examine the relationship between institutional context and firm performance from an

institutionalist perspective. The chapter has illustrated that the scope to inquire into this issue is provided by long-lasting debates on the dynamics underlying socio-economic processes. Challenging traditional economics accounts, postulating a single equilibrium point for all systems, the present research work explains that multiple equilibrium points are possible and sustainable both at system and sub-system levels. The core argument being that the performance of a socio-economic system (or sub-system) and the units populating it are context dependent.

The research work is organised in two parts. Part One offers a theoretical exploration of the channels through which context specificities impact on the performance of socio-economic systems and of firms. The study first examines current debates on varieties of capitalism. It then analyses a controversial issue in the economic literature: the behaviour and performance of cooperative firms. This enables exemplifying the contraposition between the conclusions reached by mainstream accounts relying on the notion of convergence to a single equilibrium, and those reached when context dependence effects on firm performance are taken into account.

Part Two analyses from an empirical standpoint the relationship between institutional context and firm performance, within the approach of institutional complementarities. The empirical focus is the Italian cooperative sector, regarded as a relatively well-progressed example of cooperative experience. Broadly, the perspective adopted attempts to go beyond conventional accounts that have focused on a fairly narrow view of the factors influencing the economic performance of the cooperative firm.

Chapter Two contextualises the debate about diversity in forms of economic organisation by reviewing the main approaches that have been advanced to study

the issue of varieties of capitalism. The chapter begins by examining the comparative economic systems approach. It is argued that this framework can broadly be described as unidimensional in terms of advocating two contrasting types of economic systems – one based on the free-market logic, the other on central planning – and attempting to identify the relative positioning of actual socio-economic systems along the spectrum defined by the two extreme poles.

The alternative framework discussed in Chapter Two has been developed by studies that could broadly be described as 'institutionalist'. This explains the development of diverse modes of capitalism in different contexts in terms of those contexts, and emphasises the value of diversity and plurality – both within and across socio-economic systems. It is remarked that the main strength of the institutionalist framework is to have pointed out that the advantages (or efficiencies) of one type of capitalism over another are dependent on their historical path and context. The chapter then examines the major studies proposed within this research agenda and argues that these works can broadly be grouped in two clusters. The first one focuses on the market/coordination dualism (Hall and Sockice, 2001) and, to a certain extent, it can be regarded as an extension of the comparative economic systems approach. The second cluster of studies includes the régulation theory (Aglietta, 1987) and the comparative business systems framework (Whitley, 1999), both drawing on a much wider view of varieties of capitalism.

The chapter ends with a commentary on three interrelated sets of concepts that contribute to explain the observed diversity of capitalist forms. First, the notion of path dependence and lock-in captures the historical dimension underlying socio-economic phenomena. Second, the imperfect nature of competition among institutional arrangements, which implies that history can follow several courses.

Third, the notion of institutional complementarity explains that the type of institutions that become established in a particular socio-economic context, and their relative performance, are context dependent rather than being invariably conditioned by their intrinsic relative efficiency.

Chapter Three focuses on a more detailed exploration of the institutional complementarity approach. The first part of the chapter looks at the complementarity concept and discusses how it relates to institutional analysis. It is pointed out that by implying that the functionality of an institutional form is conditioned by other institutions, the concept of institutional complementarity explains that institutional elements can successfully combine in a number of different ways. In this sense, it contributes to elucidate stylised facts about the evolution and diversity of institutional arrangements – both across and within economies.

After touching on the problem of measuring institutional complementarities, the second part of the chapter discusses the state of the art research on institutional complementarity. First, the theoretical studies are discussed; then, the empirical evidence is reviewed. It is argued that the weight of testimony in favour of the relevance of institutional complementarities, despite the relatively recent elaboration of the approach, brings about a number of implications both in terms of economic analysis and of policy reforms.

The focus of Chapter Four is the economic theory of the democratic firm. The general point that the two previous chapters have argued is that socio-economic systems are not driven by some mechanistic force. Instead, the wider institutional, cultural, economic and political framework in which they unfold, along with their historical legacy, design the trajectory that is followed. Therefore, multiple paths are feasible and sustainable. The reader will notice that this is at odds with that part

of economic theory, earlier discussed in this chapter, which adopted a unilinear analytical perspective based on the notion of negative feedback.

Chapter Four intends to further elaborate on the above points. The economic analysis of the cooperative firm provides an exemplary case in light of the controversial debate that characterises the literature on the topic. The conventional view regards the democratic firm as a marginal and inefficient organisational form, unable to survive long-run competition in capitalist systems (Ward, 1958; Williamson, 1975, 1980, 1985; Jensen and Meckling, 1979). In contrast, more recent studies, mainly proposed in the institutionalist literature, contend that cooperative firms can be at least as efficient as their capitalist counterpart when the appropriate climate prevails in the local and national economy (Horvat, 1982a; Oakeshott, 1982).

The chapter aims to show that the remarkable divergence in the above conclusions, and their implications for the desirability of economic democracy, are the result of the particular standpoints adopted. The analysis is carried out by paralleling the traditional literature and the institutional studies, on both theoretical and empirical grounds. After exploring the short-run analysis and the monitoring function, attention is paid to the issue of financing. Finally, economists' views on cooperatives' relative lower population density are reviewed.

Chapter Five interrogates the idea, suggested by the institutional literature examined in the previous chapter, that context matters for the socio-economic performance of cooperative firms. The diverse history of the cooperative movement in different countries, combined with variations in legal provisions, make it difficult to generalise evaluations on the viability of the democratic firm as an organisational form. A case-by-case examination is required. The chapter examines wide-ranging anecdotal evidence, for a number of countries, on the extent to which the performance

of cooperative firms is influenced by the institutional context in which they are embedded. The most significant stages and events in the history of the development pattern of the cooperative sector are explored for each of the countries considered. Where available, figures on various performance indicators are also provided.

Chapter Six empirically investigates the institutional complementarity hypothesis by focusing on the Italian cooperative sector. The two previous chapters have argued that the availability of external financing, and especially bank credit, is a critical factor influencing the creation, functioning and survival of cooperatives. Clearly the banking system represents also for other firms an important channel of resources acquisition. However, a number of scholars have contended that cooperatives' property rights structure can create several issues in the relationship with external financers, and that this can result in credit rationing and/or higher costs of bank loans (Ben-Ner, 1988a; Putterman, 1993; Jossa and Cuomo, 1997; Dow, 2003). The main thrust of the empirical work carried out in this chapter is to investigate whether, *ceteris paribus*, the structure of the banking market – an important feature of the institutional environment embedding entrepreneurship – influences differently the financing of cooperatives, as compared to the effects produced for other business types, with regard to both firm creation and entrepreneurial activity.

In the literature analysing the economic effects of bank market power, studies belonging to the *information-based-approach* show that, in general terms, the implications of the structure of the financial sector can be different from those predicted by the traditional *structure-conduct-performance* scheme, and that the effects on firms' financing, hence on entrepreneurship, are also related to the possibility of setting in and maintaining lending relationships (Petersen and Rajan,

1995). In light of these considerations, focusing on possible differences among business types assumes relevance since cooperative firms' institutional characteristics may impact on the possibility of establishing and/or maintaining lending relationships.

To implement the investigation, the research employs data on firms operating in 27 industries in the 103 Italian provinces during the period 1998-2003. Bank market power is measured at local (province) level by using the *Herfindahl-Hirschman Index*. Two models are then estimated: one for firm birth, the other for firm activity. The chapter then evaluates the results of the econometric investigation by means of the institutional complementarities approach.

Chapter Seven continues the empirical investigation on the role of institutional factors in regard to the performance of cooperative firms, in the context of the Italian case. The analysis developed in the chapter investigates the effects of local banking development on the growth of cooperative firms. Once again, the study adopts a comparative perspective between cooperative and conventional firms. Focusing on the issue of financial development is relevant since more developed financial intermediaries should be better able to screen and monitor investors, thus improving the efficiency of resource allocation, lowering the cost of financing, and increasing the availability of funds (Goldsmith, 1969; Bencivenga and Smith, 1991; Rajan and Zingales, 1998). The central hypothesis of the work is that these positive effects could be more marked for those firms, such as cooperatives, that are particularly dependent on banks for their external financing. The empirical analysis examines the above research question by implementing a direct test of the institutional complementarity hypothesis. The interest is in assessing whether the

effectiveness of cooperatives, evaluated in terms of their growth rate, is reinforced by the presence of more developed banking institutions.

The empirical test is carried out on a sample of cooperatives, partnerships and corporations operating in the Italian provinces during the period 1995-2003. Institutional complementarity is modelled by specifying a multiplicative interaction model. This allows the impact of local banking development on firm growth to differ between cooperative and non-cooperative firms. In other words, the partial effect of local financial development on firm growth is made conditional on firm's institutional form. Hence possible context dependence effects can be captured.

Finally, Chapter Eight reflects on the main themes of the analysis developed in the thesis. The theoretical arguments explored in Part One of the thesis are revisited in the light of the findings of the empirical investigation offered in Part Two. The related implications for economic analysis and policy reforms are also spelled out.

NOTES

1 Hodgson (1993) points out that Marx inherited both the conception of history as a series of stages and the idea of system's internal contradictions from Georg Wilhelm Friedrich Hegel (1770-1831).

2 Both Spencer and Hayek endorse a competitive pluralism of individuals and entrepreneurs, hence of economic agents. However, they do not place value on a pluralism of structural forms (Hodgson, 1993).

3 'The traditional society' is marked by a pre-Newtonian understanding of technological and physical world. 'The preconditions for take-off' stage sees society gradually evolving to modern science thanks to technical changes occurring in three non-industrial sectors: transport infrastructures, agriculture and capital sector. These developments require prior or concurrent changes that foster entrepreneurial and governmental activity. 'The take-off' stage requires rapid growth in a limited number of sectors, where modern industrial techniques apply. In this phase prior and concurrent developments make the application of modern techniques a self-sustained process. In 'the drive to maturity' phase a society has effectively applied modern technologies to the full range of its resources and the industrial process is differentiated, with new leading sectors emerging. Also, rates of poverty decrease and the living standards improve considerably. Finally, the last stage is 'the age of high mass-consumption' reached by Western nations (Rostow, 1959).

4 To explain historical change and the growing uniformity of modern societies, Fukuyama (1992) used the historical mechanism of modern natural science, since he argued that its unfolding created greater homogeneity among the societies that experienced it. In his view technology allows limitless accumulation of wealth, hence the satisfaction of human desires; this process guarantees increasing homogenisation of human societies, regardless of their historical origins or cultural inheritance. This implies that all countries undergoing economic modernisation must increasingly resemble one another, in the direction of capitalism. However, considering that economic interpretations of history cannot account for the phenomenon of democracy, Fukuyama (1992) recovered Hegel's human desire for recognition in order to link liberal economics and liberal politics. He argued that the striving for democracy arises from that part of the human soul demanding recognition. Since communism provides a defective form of recognition, it is being superseded by liberal democracy.

5 Fukuyama (1992) clarifies that this notion of history is most closely associated with Hegel and was propagated by Marx. He points out that both Hegel and Marx believed that the evolution of human societies would end in the sense that when mankind had achieved the highest form of society, there would be no further progress in the development of underlying principles and institutions. For Hegel the end of history was the liberal State, while for Marx it was communism.

6 It is worth mentioning at this point that increasing returns, hence positive feedback, are not the sole driving force of socio-economic processes. The real world clearly exhibits also decreasing returns and negative feedback (Beinhocker, 2006). Moreover, in certain areas of activity both positive and negative feedback are at work. For example, in the stock market an increase in share prices typically generates further price rises. This is due to investors' increased willingness to buy shares based on the expectation of further higher prices, hence future increased profits. At some point this positive, amplifying feedback loop reverses and turns into a negative, compensating one which will push share prices down and will eventually lead to a burst in the stock market. For an analysis of the interdependence of positive and negative feedback see a very recent work by Antti Sillanpää and Tomi Laamanen (2009).

7 O'Hara (2008) points out that there are linkages between Veblen, Young, Kaldor and Myrdal. Veblen influenced Young who taught Kaldor. Myrdal worked with Kaldor at the United Nations.

PART I

TOWARDS AN ECONOMICS WHERE CONTEXT AND HISTORY MATTER

CHAPTER 2

VARIETIES OF CAPITALISM: FROM UNIDIMENSIONAL TO INSTITUTIONAL VIEWS

1 INTRODUCTION

The discussion carried out in the previous chapter has shown that economists have different views on the dynamics governing historical and socio-economic processes, and that the particular standpoint adopted has had major implications in terms of the conclusions reached when approaching the analysis of economic phenomena. To briefly recapitulate the general point made in Chapter One, the views that can be termed as 'unilinear' entail that shocks can only be temporary. Negative feedback would eventually correct them and lead to a long-term situation where all economies converge to the same path. By contrast, recognising that positive (propagating) feedback are at work, rather than negative (offsetting) ones, implies that initial differences both among and within socio-economic systems tend to be amplified over time. Then, shocks are not invariably temporary: they can also be permanent. This suggests that differences in starting conditions can have enduring effects. Hence, what is observed and experienced in certain contexts, as a result of past occurrences, might not be ever observed and experienced in others. Multiple paths are possible.

The prediction of convergence of economic systems postulated by theorists of 'the best of all possible worlds' is in fact hard to reconcile with the observed patterned diversity characterising today's societies. Moving from this consideration, various approaches have been proposed to analyse diversity in real world economies. The main thrust of this chapter is to explore such approaches in order to unveil their contribution to the improvement of our understanding of varieties of capitalism.

Initial analyses developed within the framework of comparative economic systems, which attempted to formulate general models of economic organisation in order to differentiate one type of economy from another. This approach defined a spectrum of economic systems along which real world economies have then been located. The two extreme poles refer to two opposite modes of organising economic activity: the first according to the logic of the market economy, the second through central planning (Carson, 1973; Gardner, 1998; Kennett, 2001). Then, a range of overlapping criteria has been used by scholars in this field to classify economic systems, and to locate them on different points along the spectrum.

A more comprehensive approach to the study of varieties of capitalism has been developed by studies that could broadly be described as institutionalist. These contributions emphasise that contexts are sensitive to structures and institutions, and so, differences in structures shape different patterns of economic organisation. In this analytical perspective the development of different modes of capitalism in different contexts is explained in terms of those contexts. Therefore, the effectiveness of a particular business model is considered to be institutionally relative, implying that structures that are successful in certain contexts may not be so in others (Hodgson, 1999; Whitley, 1999).

Broadly speaking, two major groups of studies can be identified within the above literature (Mjøset and Clausen, 2007). The first one, pioneered by Peter Hall and David Soskice (2001), focuses on the market/coordination dualism; basically, it extends the approach of comparative economic systems by making the spectrum of possible forms more complex. The second cluster of studies, instead, poses a stronger emphasis on patterned diversity among business systems. This second strand of analysis includes both the studies of the French Régulation School (Aglietta, 1987; Boyer, 1999) and the research carried out within the comparative business systems framework proposed by Richard Whitley (1998; 1999).

The remainder of the chapter is organised as follows: Section 2 presents the approach of comparative economic systems; Section 3 is concerned with the contribution of institutionalism to the theme of varieties of capitalism; Section 4 briefly discusses the analytical framework of Hall and Soskice; Section 5 outlines the research agenda of régulation theory; Section 6 illustrates Whitley's comparative business systems approach; Section 7 delineates the major factors contributing to explain the persistent diversity in forms of economic organisation; finally, Section 8 concludes.

2 THE UNIDIMENSIONAL FOCUS OF COMPARATIVE ECONOMIC SYSTEMS

The conventional theoretical framework of comparative economic systems contends that the economic problem any society has to tackle to efficiently allocate its scarce resources among alternative ends can be broken down into three sub-problems, and so can be also the most important economic decisions (Carson, 1973). These are: the production decision, which entails choosing the mix of goods and services that

are to be produced; the technique decision, concerning the choice of production factors that will be used, and the identification of the productive organisation more apt to realise production; finally, the distributional decision, which is relative to who will receive the benefits of production (Kennett, 2001). The structural mechanism dealing with these three decisions in a particular society is referred to as the economic system. The study of how such systems differ between economies, and how differences in systems determine economic outcomes, constitutes the field of comparative economic systems.

In this framework, models of economic organisation are formulated in order to differentiate one type of economy from another. The starting point has been to remark that the decisions governing the exchange of goods and services, as well as those concerning what and how to produce can take place between basically independent decision makers or can be ordered by higher-level authorities. This enabled to define a spectrum of economic systems. At one pole of the spectrum there is absence of any State organisation or control over economic activity except, perhaps, to lay down the rules of 'fair play' and police them. This is an extreme form of *laissez-faire* capitalism: a pure market economy characterised by the existence of an all-pervasive market mechanism. At the other pole of the spectrum lies an extreme form of command economy in which society, as embodied in the State, controls all material means of production and distribution, so that the producing sector acts as one giant firm (Carson, 1973). Moreover, the central planner controls the distribution of wealth in the society, and may also plan the consumption activity. The constraints the planner imposes upon individual producers and consumers replace the market constraints present in a decentralised system (Carson, 1973).

The polar forms just described are not interesting as practical cases, since existing systems do synthesise features from the extreme types, rather than being purely capitalist or socialist, market or planned, free or controlled. Societies are in fact mixed economies, lying somewhere between these two extreme poles. Thus, although for a period of time the economic system characterising a particular country may roughly approximate one of the pure, idealised, theoretical systems, all nations contain recognisable elements of both the complete *laissez-faire* and the socialist model (Gardner, 1998). The above point is further stressed by Geoffrey Hodgson (1999), who points out that:

> "The central issue in the long debate between socialism and capitalism is often characterised as one of planning versus markets. But this can be misleading. Planning in some form exists in all socio-economic systems. Both individuals and organisations have plans. A central problem in any socio-economic system is how the inevitably diverse plans of many varied individuals or organisations can be reconciled, without conflict or disorder" (ibid: 31).

Comparative economic scholars have traditionally argued that combining markets with commands is a way of counterbalancing both market and bureaucracy failures, and can imagine two broad ways of doing so. On one hand, if the starting point is a basic command mechanism, markets can be devolved roles in areas in which the presence of bureaucracy failures makes centralised decision making inefficient. On the other hand, bringing back some degree of central intervention in a market context can both supplement the market mechanism, and enable to take over the allocation of goods and resources in areas where decentralised decision making is not optimal (Carson, 1973).

In order to classify economic systems, and locate them on different points along the spectrum, a wide range of overlapping criteria have been used (Gardner, 1998). Among the dimensions most commonly considered, four major criteria are identifiable. A first one refers to the means for coordinating economic activity that every economy must employ to insure some degree of consistency in the decisions concerning the production and exchange of commodities and resources (Gardner, 1998). To analyse coordinating mechanisms, attention has been focused on the extent to which economic systems rely on planning or the market (Kennett, 2001).

In centrally planned economies, coordination of both short- and long-run decisions is attempted by means of a central planning authority, designed to guide the economy towards certain goals. Decisions are then passed to subordinates in the form of instructions, directives or commands (Gardner, 1998). Yet, planning can vary considerably in its scope and comprehensiveness (Kennett, 2001). Beside the most extreme form just described (i.e. directive or command planning), characterising for instance the former Soviet Union pre-1991, China pre-1980 and Eastern Europe pre-1989, a different form of planning is the one known as indicative planning. This form – pursued, and to a lesser extent still in practice, in several Western European nations (particularly France) and in Japan (Kennett, 2001) – is a system designed to function in parallel with (rather than to the exclusion of) the market. In fact, it uses the market to coordinate short-run decisions in combination with a plan to coordinate long-run objectives.

Opposite to systems relying on (command or indicative) planning, in market systems the overall outcome of the economy is held to be determined primarily by individuals' voluntary actions. The absence of bureaucratic constraints and the emphasis on the role of choice are thus essential features (Kennett, 2001).

Coordination in these economies is predominantly achieved through the free and spontaneous movement of market prices, responding to the forces of demand and supply (Gardner, 1998).[1]

A second criterion used to classify economic systems is the degree of centralisation of the decision-making process. In command planning a single plan governing the use of all resources and the production of output is centrally prepared, codified and formalised as law. At the opposite pole, in market systems all decisions are taken by individuals or private institutions and the function of the government is largely to provide a framework within which markets can operate, and to ensure the stability of the system. Between these two poles lies a continuum of decentralised power, and identifying where a particular economy lies on this continuum is regarded by comparative economists as a very useful way of gaining insights into how this system operates (Kennett, 2001).

A third dimension along which economic systems have been classified regards the extent of individual rights, particularly as they pertain to property. Although all systems of government place some constraints on individuals' rights in economic matters, the range and force of restraint differs among systems. Hence, one needs to analyse: the extent of the rights that the government allows, either actively or passively, to remain with the individual; the degree to which the State effectively protects and guarantees those rights against the incursions of other individuals (Kennett, 2001). Under capitalism, the great part of the means of production is owned outright by private individuals and various forms of business organisation. By contrast, under socialism most production means are owned socially. Yet, since in practice it can be difficult to distinguish between these forms of ownership, economic systems are usually classified in terms of the predominant one (Gardner, 1998).

Passing to illustrate a fourth classificatory criterion that has been employed by comparative economics scholars, this regards the incentive system influencing the response of individuals (Kennett, 2001). Any coordinating mechanism must include a system of incentives to reward socially desirable behaviour and discourage improper actions. Incentive systems are usually made up of: coercive, material and moral incentives (Gardner, 1998). In market economies the incentive system is more orientated on material incentives, whereas it relies more on moral incentives and coercion in planned economies (Kennett, 2001).

Overall considered, the approach of comparative economic systems can be regarded as unidimensional. In fact, this analytical framework is mainly concerned with identifying and analysing two opposite modes of organising economic activity, one according to the market logic, the other through central planning. The sole attention given to the variety of other existing forms lays in the attempt of determining how close/distant these are from the extreme poles. Yet, considering that diversity is a prominent characteristic of socio-economic systems, its absence from the comparative economic systems approach represents the main drawback of this unidimensional view of varieties of capitalism.

3 INSTITUTIONAL VIEWS OF VARIETIES OF CAPITALISM

The relatively recent literature that the institutionalist approach proposed on varieties of capitalism in the last 20-30 years stresses that, since contexts are sensitive to structures and institutions, differences in structures shape different patterns of capitalism, hence of development. These studies point out that the advantages or efficiencies of one type of capitalism over another are typically context dependent. For this reason, no form of capitalism can be considered

superior to the others. Therefore, none of the existing models can be expected to prevail over other forms (Hodgson, 1999).

Claims of convergence may be justified only if it can be demonstrated that economic processes and outcomes are not influenced by historical events, institutional arrangements and collective actors. In other words, it would be necessary to demonstrate that economic activities are governed by some systemic rationality, and that this lies beyond, and is separate from, any specific set of social arrangements (Whitley, 1999).

A more meaningful approach to the issue of business systems diversity is to recognise that economic activities can be successfully organised in a number of different ways, and no single pattern is superior to the others. On these grounds, the institutionalist literature shows, both theoretically and empirically, that substantial variations in types of dominant firms, customer-supplier relations, employment practices and work systems are still persistent not only across countries but also within them (Wade, 1990; Whitley, 1992; Orru, 1997). As previously introduced, the common trait of these studies is to explain the development of different models of capitalism in different contexts in terms of those contexts, rather than reducing all to a single economic logic, or assuming that market competition will select the most efficient pattern of economic organisation.

In the institutional approach to varieties of capitalism, the effectiveness of particular forms of business organisation is considered to be institutionally relative. This implies that structures which are successful in one context may not be effective in others. Indeed, distinctive systems of economic organisation arise wherever associated key institutions are both mutually reinforcing and distinctive from other ones. Therefore, a key task is to understand how distinctive configurations of

hierarchy-market relations become institutionalised in different societies, as a result of variations in dominant institutions (Whitley, 1992). The 'impurity principle' is proposed by Hodgson (1999) as a general concept applicable to all socio-economic systems. The idea is that "every socio-economic system must rely on at least one structurally dissimilar sub-system to function, so that the formation as a whole has the requisite structural variety to cope with change" (ibid: 126). A major implication of the impurity principle is that capitalist systems can develop in a number of different ways, depending on the degree of structural variety in their sub-systems.

The different varieties of capitalism that become established over time have been characterised and analysed in a number of quite different ways, and from varied perspectives. For instance, Michel Albert (1993) critically contrasted the neo-American model of capitalism promoted by Ronal Reagan – based on individual success and short-term financial gain – with the Rhine model,[2] of German inspiration but with strong Japanese connections, emphasising collective success, consensus and long-term concerns.[3] Alfred Chandler (1990) emphasised the merit of American competitive managerial capitalism over the more 'personal' variant in the United Kingdom and the 'cooperative managerial' one in Germany. In contrast to the above writers, Louis Hartz and Albert Hirschman identified a risk of stagnation, of both a moral and an economic kind, in the individualistic capitalism that developed in the United States (Hartz, 1955; Hirschman, 1982, in Hodgson, 1993).

Writers of twentieth century capitalism have proclaimed the fading of Fordism, and its associated regulation regimes, as the prevalent system of mass production and marketing (Boyer, 1990; Boyer and Durand, 1997). A number of contributions have contrasted the rigidities of such large-scale production system with the virtues of more flexible production systems (Piore and Sable, 1984; Boyer and

Hollingsworth, 1997, among others). In some cases, these analyses discuss competitive strategies in production and marketing alongside with organisational differences that emerge both within and among firms. The aim is to delineate and taxonomise various types of economic organisation that have prevailed in different economies at various periods of time (on this point see Chandler, 1977, 1990; Best, 1990; Lazonick, 1991).

Within the research frontier on national capitalisms it is possible to distinguish two major clusters of studies (Mjøset and Clausen, 2007). One pursues a by-polar approach focusing on the market/coordination dualism. This is the research agenda pursued by Hall and Soskice (2001). Basically this extends the previously discussed approach of comparative economic systems by making the spectrum of possible forms more complex. On the other hand, the second line of studies is based on a much wider view of varieties of capitalism. It includes the French Régulation School, accounting among its proponents Michel Aglietta, Robert Boyer, Benjamin Coriat, Alain Lipietz and others, and the comparative business systems framework proposed by Richard Whitley. The above institutionalist approaches to varieties of capitalism will be discussed in the next sections.

4 HALL AND SOSKICE'S VARIETIES OF CAPITALISM

Hall and Soskice (2001) focus on variations among national political economies. They derive the key relationships characterising the political economy in game-theoretic terms, and focus on the types of institutions that alter the outcome of strategic interactions among economic actors. Their approach is firm-centred in the sense that the firm is regarded as the crucial actor in a capitalist economy.

Hall and Soskice argue that, since firms' capabilities are ultimately relational, their success depends on the ability to coordinate effectively with a wide range of actors. More specifically, there exist five spheres where firms must develop relationships in order to resolve the coordination problems central to their core competencies. These are the spheres of industrial relations, vocational training and education, corporate governance, inter-firm relations, and intra-firm relations. In this approach to varieties of capitalism, national economies are compared with regard to the way in which firms solve the coordination problems they face in the above spheres.

The core distinction that Hall and Soskice draw is between liberal market economies and coordinated market economies. These constitute ideal-types at the poles of a spectrum along which nations can be located. It can be argued that by establishing such a dichotomy, and attempting to then classify economies according to that, the main logic underlying Hall and Soskice's approach is not dissimilar to the one of the comparative economic systems' framework.

Hall and Soskice argue that in liberal market economies (LME hereafter) hierarchies and competitive market arrangements enable firms to coordinate their activities. Market relations take place under competition and formal contracting, and goods and services are exchanged at arm's-length. In such markets actors react to the price signals the market generates by adjusting their willingness to supply and demand goods and services. Also, market institutions are considered to provide, in many respects, effective means for coordinating the behaviour of economic actors.

In contrast to the above scenario, in coordinated market economies (henceforth CME) firms mainly rely on non-market relationships both to build competencies and coordinate with other actors. Relational or incomplete contracting, network monitoring (based on the exchange of private information inside networks) and

collaborative relationships are the basis of these non-market modes of coordination enabling firms' competencies to be built. The equilibria on which firms coordinate are the result of strategic interactions between firms and other actors. This is a key difference with LME, where the supply and demand conditions prevailing in competitive markets determine these equilibria.

Developing the analysis on the dichotomy LME-CME is based on the contention that the incidence of different types of firm relationships varies systematically across nations. More precisely, Hall and Soskice (2001) argue that in any economy firms will gravitate towards the mode of coordination for which there is institutional support. Institutions (both formal and informal) enter this framework for the support they provide to the relationships that firms develop in order to resolve coordination problems.

An important point in this conceptualisation is that institutional practices of various types should not be randomly distributed across countries. Instead, a nation with a particular type of coordination in one sphere of the economy should tend to develop complementary practices in other spheres, since this would increase the returns from (or the efficiency of) that type of coordination. As nations converge on complementary practices across spheres, we should observe some clustering along the dimensions that divide LME from CME. Among the large OECD countries, Hall and Soskice classify United States, Britain, Australia, Canada, New Zealand and Ireland as LME, while Germany, Japan, Switzerland, The Netherlands, Belgium, Sweden, Norway, Denmark, Finland and Austria are regarded as CME. Six more countries (namely, France, Italy, Spain, Portugal, Greece and Turkey) are considered to be hybrid types which, they argue, may constitute a Mediterranean type of capitalism.

A critique to the approach of Hall and Soskice has been put forward by Lars Mjøset (2006), who argues that a programme of grounded theory would best enable contribution to knowledge on varieties of capitalism.[4] The main argument here is that, rather than CME/LME game-theoretical dualisms, varieties of capitalism should be mapped in typological maps. Along the same line, Robert Boyer (2005b) points out that real international comparison can begin only when scholars stop looking at economies on a two-by-two basis and acquire the means to undertake multiple comparisons. In his view, the dichotomy of two polarised models cannot satisfactorily take into account the full distribution of modern economies. Dichotomising strongly simplifies the multiple market logics and the variety of institutional arrangements. Instead, a more useful approach would be to leave open the number of configurations resulting from the comparison of quantitative and qualitative methods.[5] It has been advocated that the analysis should be re-grounded in a matrix of larger dimension, as this would contribute to the elaboration of general substantive theory.[6] Furthermore, it would also bring out the institutional complementarities associated with the combinations of specific types along the dimensions commonly examined, such as financial systems, monetary arrangements, trade-patterns and institutions, welfare states, labour relations, party-systems, labour market institutions, natural resources/sectoral patterns, economic policy making, and corporate governance patterns (Mjøset, 2006).

5 RÉGULATION THEORY

The French Régulation School established itself in the second half of the 1970s on rigorous and radical critique of mainstream economic theory, as the following passage from Michel Aglietta (1987) indicates:

> "Economists confronted with the transformations and crises of contemporary Western societies, and with the troubling future of the capitalist system as a whole, can find no foothold in general equilibrium theory. To take refuge in partial investigations, half empirical, half theoretical, only compounds the confusion. The way forward does not lie in an attempt to give a better reply to the theoretical questions raised by the orthodox theory, but rather in an ability to pose quite different theoretical questions. This means a collective effort to develop a theory of the régulation of capitalism which isolates the conditions, rhythms and forms of its social transformations" (ibid: 15).

Two points are worth noting from the above passage. The first one is that for Aglietta the aim of economics is the study of the social laws governing the production and distribution of the means that human beings need for their existence. The other point regards the word 'régulation'. It indicates the way in which the elements of a system adjust to the functioning of the unit (Benko and Lipietz, 1998). Hence the régulation theory of capitalism aims to analyse, quoting Aglietta from above, 'the conditions, rhythms and forms of its social transformations'. However, in English 'régulation' is often translated with 'regulation' which is instead closer in meaning to 'réglementation'.

Régulation theory rejects univocal explanations of economic phenomena, and emphasises that individuals interact on the basis of a series of overlapping institutions (Boyer, 2002). It describes how institutional forms of capitalism have evolved over time, as well as illustrating the variety of architectures that are observed (Boyer and Saillard, 2002).[7] The originality of this approach lies in the fact that it is centred on the endogenous dynamics driving change in modern economies. It specifically accounts for a potential destabilisation of national

regulations resulting from the diffusion of a series of economic and financial crises throughout the world economy (Jessop, 1997).

Aiming to analyse the conditions that act *ex post* to sustain an accumulation process that is by its own nature subject to imbalances, contradictions and conflicts, régulation theory has first been more concerned with analysing capitalism's stages, rather than the variety of its forms. Indeed, the initial focus has been the study of the Fordism era, the post-Second World War period of mass production and mass consumption, and its crises in the context of the long-term transformations of the American and French capitalism (Boyer, 2002). Subsequent research into the growth regimes that were likely to succeed to Fordism revealed the existence of many different forms of capitalism. The analysis covered diversified modes of régulation and institutional architectures (Boyer, 2005b).

The aforementioned concept of mode of régulation refers to the individual and collective procedures and behaviours that reproduce social relationships, direct growth regimes and ensure the accounting of a multitude of decentralised decisions (Boyer, 2005b). The modes of régulation vary in different countries and time periods because the economies are embedded in a dense network of social and political relations and institutions. To identify a mode of régulation it is essential to characterise the following five institutional forms: wage-labour nexus; type of competition; monetary regime; relationships between the State and the economy, and insertion into the international system. Among these institutional forms, the wage-labour nexus occupies a privileged place, since it describes the type of surplus appropriation characterising the capitalist mode of production (Boyer, 2002).

The concept of mode of régulation allows to replace the notion of static equilibrium with an analysis of dynamic processes which reduce the disequilibria

constantly caused by accumulation. Moreover, it inserts markets into a series of institutional arrangements that socialise both information and behaviour, and restrict agents' rationality to available information and cognitive abilities (Boyer and Saillard, 2002). Thus the possibility arises that the prevailing mode of régulation differs considerably, depending on the time and place, and that it is not the projection of a model of general equilibrium, which is separate from the imperfections and frictions introduced by national specificities (Benassy *et al*, 1979; Boyer and Yamada, 2000).

The research carried out in this analytical framework explains that the historically and geographically variable institutional structure of each economy gives rise to its own economic and social cycles and crises (Boyer, 2002). To focus on homologies between economic adjustment processes, a set of conceptual tools have been developed and applied at three levels of analysis, each of which is characterised by a different degree of abstraction (Boyer and Saillard, 2002). The most abstract level is concerned with the study of modes of production and their connections.[8] Aglietta (1987) argues that to speak of the régulation of a production mode is to try to formulate in general laws the way in which the determinant structure of a society is reproduced. This implies that studying capitalist régulation means analysing the transformation of social relations. These transformation processes can create new forms, both economic and non-economic, that are organised in structures and determine the mode of production.

The second level of analysis describes accumulation regimes. These are the regular socio-economic patterns enabling accumulation to occur in the long-term between two structural crises.[9] While mainstream theory looks for a general and invariable model, régulation theory recognises a variety of accumulation regimes,

according to the nature and intensity of technical change, the volume and composition of demand and workers' life style (Boyer and Saillard, 2002).

Passing to the third level of analysis, this regards the specific configurations of social relations defined by institutional (or structural) forms, for any given era or geographical context. The project of régulation theory is to first describe these institutional forms, which socialise the heterogeneous behaviour of economic agents, and then analyse their transformation. Scholars in this line of study established a hierarchy among institutional forms according to the mode in place at the time and in the country under consideration. For instance, for the Fordism of the post-Second World War period, credit money, an original wage-labour nexus and an oligopolistic form of competition proved to be more important than the transformation of the State in the strict sense. In contrast to this period, in the 1990s the intensification of monetary constraints and the internationalisation of competition appeared to precede and shape transformations in the wage-labour nexus (Boyer and Saillard, 2002).

Armed with the analytical tools discussed above, régulation theory proposes to study modes of development. In other words, the way in which an accumulation regime and a régulation mode stabilise themselves over the long-term, and how they enter into a period of crisis and then renew themselves.

Passing now to briefly discuss the major research proposed by the Régulation School, the obliged starting point is the contribution offered by Aglietta in his 1976 book. The focus of Aglietta's work is a long-run analysis of the history of American capitalism since the Civil War. The selection of the United States, he argues, is aimed at highlighting the general tendencies of capitalism in the twentieth century. In Aglietta's view, the peculiarities of American capitalism have an exemplary character for capitalist regulation in that they express the most adequate structural forms for

perpetuating the capitalist relations of production created by the class struggle. It is in this sense that the United States represents a model for all contemporary capitalist countries. In fact, the degree of universalisation of the structural forms created in the United States is a decisive aspect of the global domination of American capitalism after the Second World War (Aglietta, 1987).

The articulation of the laws of capital accumulation and the laws of competition is the nodal point of Aglietta's theory of capitalist régulation. The laws of capital accumulation are explored through a study of the transformations of the wage relation, while the laws of competition are analysed through a study of the transformations of inter-capitalist relations. Then, Aglietta shows that the competition between autonomous capitals issues from the antagonism of the wage relation, which is the motivating force of capital accumulation.

A major conclusion in Aglietta (1987) is that the social transformations that occurred in the twentieth century produced two main effects. On one hand, they tended to unify the wage-earning class by the universal extension of the wage relation. On the other hand, they led to a marked division within the capitalist class, by accentuating the uneven development of capitals and reinforcing the concentration of capital. Yet, the growth of the productive forces of collective labour remains dependent on capital accumulation.

To summarise, the idea that the concentration of capital is the most fundamental process in the history of twentieth century capitalism is rejected by Aglietta (1987). The key theoretical process lies instead in a radical change in the conditions of capital reproduction. The interaction between this transformation and the change in the forms of competition is at the heart of the problems of capitalist régulation. This latter must be interpreted as a process of social creation, whose continuous

reproduction is interrupted by the occurrence of crises, the resolution of which involves an irreversible transformation of the mode of production. Indeed, any social system develops in such a way that reproduces a determinant relationship whose presence is what assures the integrity and cohesion of the system. When a threat is posed to the reproduction of the invariant element, hence to the system, this reacts as a totality to modify the form of régulation. A change of regime then takes place. However, and this is a central result in régulation theory, in periods of structural crisis the emergence of a viable configuration is not automatic and generally does not result from a 'big bang'. Instead, the success of a new mode of development requires a slow, contradictory process during which representations, ideologies, skills, locations and ways of life are newly adjusted (Boyer, 2002).[10]

Further studies, aimed at comparing economies, classified two capitalisms as belonging to the same category if they displayed the same style in macroeconomic adjustments, that is to say if they shared the same régulation mode and accumulation regime. On these grounds régulation theorists explained the late 1960s events, when accumulating tensions in the United States led to a crisis marked by the coexistence of inflation and lower activity levels. It has been remarked that the crisis evolved from a change in structural forms,[11] which made it possible to set up Fordism, an intensive mass consumption oriented growth regime (Boyer, 2005b). Historical studies of French capitalism (Cepremap-Cordes, 1977, 1978) confirmed a striking parallelism in the way growth regimes developed both in France and in the United States. However, the architectures of institutional forms guiding these growth regimes were not identical. The market logic played a crucial role in the United States, while France was characterised by State interventions (Boyer, 1999). This difference was regarded as the first sign of a contraposition

between a market-dominated capitalism and one with a strong statist impetus. As Boyer (2005b) notices, the fact that these two different institutional architectures could sustain two growth regimes of the same type reinforces the argument that economic performance is context dependent. It also shows that convergences and divergences are tied to a particular period of time, and do not constitute a general feature of economic systems.

Prompted by the conclusion that Fordism established itself both in France and in the United States, régulation studies addressed the question of whether industrialised OECD economies were part of the same process. Although mass production and mass consumption dominated in most European countries, institutional forms were given different codifications from one country to the other: hindered Fordism in Great Britain; flexi-Fordism in Germany (Boyer, 1988); permeable Fordism in Canada (Jenson, 1990); imposed Fordism in Brazil (Coriat and Saboia, 1987), and so on. So that, it started to be acknowledged that Fordism was a distinctive feature of only a few countries, when defined by a conjunction of the following three properties: an intensive production mechanism driven by mechanisation; a capital-labour compromise aiming to ensure shared gains; a circuit of accumulation operating within the national space (Boyer, 2005b).

An increasing number of international comparisons among OECD countries in a variety of fields (such as employment relationships and innovation systems) revealed the coexistence of at least four configurations of capitalism (Boyer, 1996; Amable *et al*, 1997). The first is market-oriented capitalism; this relies on markets and independent authorities responsible for facing market excess, and the opportunism it can generate. The second is meso-corporatist capitalism, a modernised version of nineteenth century paternalistic capitalism, where capital

concentration led to the emergence of large conglomerates. The third is social-democratic capitalism, emphasising the role of social partners in the emergence and management of most institutional forms. The fourth involves State-driven capitalism, which revolves around the role played by national, regional, or local State authorities in making economic adjustments. This taxonomy has widened since the transformation of former Soviet-type economies in Eastern Europe and in China, as well as with the rapid changes occurring in new industrialising countries, especially in Asia (Boyer, 2005b).

To conclude this section with a reflection on the themes touched in the preceding pages, régulation scholars centred their investigation on varieties of capitalism by mainly focusing on macroeconomic aspects. The contribution of the research carried out by these writers is surely significant; however, equally important microeconomic issues have been largely overshadowed.

6 WHITLEY'S COMPARATIVE BUSINESS SYSTEMS APPROACH

To address persistent diversity in business systems and how these latter evolve, Whitley's comparative business systems approach attempts to identify the central differences characterising established systems of economic organisation and control in terms of their institutional environments.[12] In this framework economic relationships and activities are conceived to be socially constructed and institutionally variable. Thus, the ways competitive pressures operate, the actors engaged in them, and the outcome of the competitive process, vary significantly between different institutional contexts. Moreover, the extent to which business systems are distinct and coherent depends on the degree of integration of dominant institutions and their mutually reinforcing features (Whitley, 1999).

Although a number of key institutions help to generate and reproduce different business systems' types, Whitley suggests that four dimensions can be used to characterise and compare institutional arrangements across market economies. These are: the State; the skills development and control system; the financial system; the conventions governing trust and authority relations.

Variations in dominant institutions evolve interdependently with specific business systems' characteristics. This generates and reproduces a variety of forms of economic organisation. Therefore, the establishment and change of diverse forms of capitalism is closely related to diversity in institutional contexts. The interdependence among institutional characteristics in structuring business systems implies that the forms of economic organisation prevailing in a market economy will be influenced by the dominant institutions that evolved in conjunction with each other. Seeking to explain variations among business systems, and changes in their characteristics, then relies on analysing all key institutions and the way these have interdependently structured the forms of economic organisation that are observed (Whitley, 1998; 1999).

A relevant aspect in this approach, as well as in the other comparative analyses of varieties of capitalism, is identifying the phenomena characterising socio-economic systems in ways that are both sufficiently standardised across them, to enable systematic comparisons, and variable enough to capture the distinctive dimensions in which they differ (Whitley, 1999).

In line with Hall and Soskice (2001), firms' characteristics and behaviour are regarded as key variables in the identification of varieties of capitalism. Hence, they need to be explained in any comparative analysis of business systems.[13] An important point stressed by Whitley (1998; 1999) is that since firms are embedded

in the wider social context of nations, a uniform firm type is very unlikely to spread across countries – despite conjunctural political reforms and prevalent market forces. This contrasts sharply with views *á la* Williamson (1975, 1980, 1985) contending that competitive pressures lead to the long-term dominance of the most efficient firm type (i.e. the hierarchical structure).

Along with variations in firms' characteristics, this approach also considers differences in the ways that economic activities and resources are controlled by various groups of actors. In fact, the organisation of ownership and control of private property rights varies across capitalist socio-economic systems (Whitley, 1998). For instance, those controlling financial assets have various types of connection with the actors and the authority structures they dominate. Furthermore, capital owners and controllers, managers and workers are organised differently across economic systems. Competition and cooperation with each other occurs in contrasting ways. These differences imply significant variation across economies not only in regard to the nature of economic actors but also with respect to interrelations among them (Whitley, 1999). This implies that it is necessary to recognise and incorporate diversity in economic analysis.

Broadly speaking, in Whitley's conceptualisation comparing business systems requires looking at differences in the relationships between five categories of economic actors. These are: firms in different sectors; customers and suppliers; capital providers and users; competitors; employers and employees. Yet, from an empirical viewpoint the numerous combinations of possible types of economic organisations described in terms of the above sets of relationships are restricted by their degree of interdependence with societal institutions. Such interconnections imply that the number of business systems that become established and reproduced

over time is less than the number of possible combinations that can be obtained from business systems' characteristics (Whitley, 1999).

A crucial point in this approach to varieties of capitalism is that the significance of business systems is regarded to be dependent on the structures and policies of States, and on political economies in general. This is because State actions determine the effectiveness of legal and educational systems, hence the role of formal institutions in governing relevant aspects of economic coordination. It is also remarked that State boundaries are particularly relevant in those socio-economic systems where national political systems structure both the formation of interest groups and the modes of conflict resolution. If these groups are mainly organised regionally (or internationally) and so are also the major institutions governing their formation, competition and collaboration, then they would constitute separate sub-systems (or international systems) of economic organisation (Whitley, 1999).

The arguments just discussed highlight the need to identify the dominant role of institutions at each level of analysis. For instance, distinctive types of economic organisation are expected to become established at the regional level if there are significant differences between regional and national governments, financial institutions, skills development, control systems, broad cultural norms and values, (Whitley, 1999).

It is also relevant to point out that several national patterns of economic organisation emerged from conflicts between distinct regional ones. For example, in the case of Germany, Gary Herrigel (1996) emphasised that the development of the German State and its policies of competition in the late nineteenth century have been strongly influenced by the 'decentralised' industrial order that developed in Saxony and in other parts of the country, and the 'autarkic' industrial order that

characterised the Ruhr as well as other regions. According to Herrigel, the German industrial order emerged from the struggles between two rather different regional orders, each one having its own pattern of arrangements and agencies.

An important conclusion that can be drawn from the comparative business systems approach is that, regardless of the level of analysis, the boundedness of distinctive systems of economic organisation is both historically contingent and variable. This implies that, at various levels, diversity is a persistent characteristic of business systems.

The approaches to varieties of capitalism discussed in this Chapter are summarised in Table 2.1.

TABLE 2.1 - Comparing approaches to Varieties of Capitalism

	Aim	Tool proposed to analyse varieties of capitalism	Key variables
COMPARATIVE ECONOMIC SYSTEMS	To formulate general models of economic organisation to differentiate one type of economy from another	Spectrum of economic systems with pure market economies and pure command systems at the poles	Extent to which economic systems rely on planning or the market to coordinate economic activity; degree of centralisation of decision-making process; extent of individual rights, particularly in relation to property; incentive system influencing the response of individuals
HALL AND SOSKICE'S VARIETIES OF CAPITALISM	To analyse the key relationships characterising national political economies in game-theoretic terms by using a firm-centred approach	Distinction between liberal market economies and coordinated market economies	Industrial relations; vocational training and education; corporate governance; inter-firm relations; intra-firm relations
REGULATION THEORY	To analyse the conditions, rhythms and forms of capitalism social transformation	The concept of mode of regulation referring to the individual and collective procedures and behaviours that reproduce social relationships, direct growth regimes and ensure the accounting of a multitude of decentralised decisions	Wage-labour nexus; type of competition; monetary regime; relationships between the State and the economy; insertion into the international system
WHITLEY'S COMPARATIVE BUSINESS SYSTEMS APPROACH	To identify the central differences characterising established systems of economic organisation and control in terms of their institutional environments	Variations in firms' characteristics analysed along with differences in the ways that economic activities are controlled by various groups of actors	State; skills development and control system; financial system; conventions governing trust and authority relations; customers and suppliers; capital providers and users; competitors; employers and employees

The taxonomy has been drawn from the literature discussed in Chapter 2.

7 THEORETICAL EXPLANATIONS OF DIVERSITY IN CAPITALIST CONFIGURATIONS

The approaches to varieties of capitalism discussed in this chapter suggest that contemporary capitalisms differ significantly both in terms of their basic institutional forms and the types of organisations prevailing at the firm level. What is argued in this section is that at least three interrelated theoretical reasons contribute to explain the observed diversity in capitalist configurations.

Firstly, since institutions exhibit large sunk costs and display increasing returns, specific features of different socio-economic systems may be blocked through lock-in effects. Further, the constraints that lock-in imposes on actors may inhibit their incentives or ability to innovate. Hence, the process of institutional and economic change is largely path dependent. When a path is set on a particular course, the network externalities, the learning process of organisations and the historically derived subjective models reinforce the course in a path dependent way (North, 1990), in the sense that actual and future outcomes are influenced by previous patterns (David, 1985; Arthur, 1989). “It is in the path dependency of institutional varieties that different histories are preserved” (Hodgson, 1999, p. 117). A major implication of path dependence is that it is unlikely that a country’s overall institutional configuration can be transformed from one type of capitalism to another (Hall and Soskice, 2001). Thus, diversity in patterns of economic organisation is likely to endure.

Path dependence contributes to explain why countries experience different economic performance (Easterly, 2001), as well as the heterogeneity in the prevalent forms of business organisations. Indeed, while economic growth models predict that less developed countries should catch up with their richer counterparts,

the evidence shows that this has not happened, thus giving support to the path dependence conjecture (Gagliardi, 2008).[14] Moreover, despite mainstream economic theory defends the view that only one firm type, the hierarchical one, can survive long-term capitalist competition, there is widespread empirical and anecdotal evidence showing that capitalist environments have been historically populated by different business types, among which democratic and participatory firms.

The above point implies that path dependency may be relevant also in the evolution of organisational form (Langlois, 1988). In Chapter One it has been pointed out that Williamsons' (1975, 1980, 1985) identification of existence with efficiency implies that since hierarchical structures prevail in real world economies, they are unequivocally superior to non-hierarchical structures. Flexible industrial specialisation and labour management are deemed to disappear because of their inefficiencies. On the contrary, path dependence suggests that less hierarchical organisational forms can also be viable in contexts where past conditions created the adequate climate for their development (Hodgson, 1999).

A second argument that helps us to explain diversity in forms of capitalism is the imperfect nature of competition among institutions. By definition imperfect competition implies that multiple outcomes can be possible, and that the prevailing one is not necessarily the most desirable. Hence, imperfect institutional competition, both across and within socio-economic systems, means that different institutional arrangements can become established, and that none of these necessarily needs to represent a global optimum. Potentially, a situation could emerge in which in each system a distinct set of institutional arrangements is selected. Variety can be even greater if competition at the level of the sub-systems constituting each entity leads to the emergence of further institutional heterogeneity.

The counter argument to the above is that competition among alternative economic coordination and control systems inevitably selects the most effective one. This is the position of the mainstream economists earlier examined in Chapter One. The mechanist formula 'competition = survival of the fittest' inevitably encounters the scepticism of those, including the present writer, who acknowledge that competitive processes do not occur in an atomistic world. Instead, these processes are embedded in contexts populated by individuals and formed by a dense web of ideological, historical and cultural legacies. By influencing individuals' mental maps, these legacies inevitably affect both the nature and the outcome of the competitive process.

The third theoretical argument to explaining varieties of capitalism is institutional complementarity. Broadly speaking, the complementarity of institutional forms implies a functional interdependence of institutions (Höpner, 2005a), affecting the performance of institutions across and within domains (Aoki, 2001). If complementarity effects are at work, the performance of cultural, political and socio-economic institutions is context dependent, rather than being invariably conditioned by their intrinsic relative efficiency. This implies that a variety of institutional arrangements can prevail at various levels both across and within economies. Furthermore, also sub-optimal organisational arrangements can be sustained over time in some contexts (Pagano and Rowthorn, 1994; Aoki, 2001, 2007; Boyer, 2005a). Hence, institutional complementarities contribute a great deal in maintaining and reproducing diversity both across and within socio-economic systems. Institutional complementarities also help to elucidate why sub-optimal (i.e. inefficient) institutions can persist in some economies, while 'better' ones are viable in others (Aoki, 2007). It is the very existence of complementarity that makes the

whole notion of distinct forms of capitalism plausible, since complementarity presumes that there are different ways to combine institutional elements successfully (Deeg, 2007).

To recapitulate on the above final considerations, incorporating institutional complementarities in economic analysis allows us to explain why distinct systems of capitalism exist, and to appreciate the importance of diversity for the overall structural harmony and coherence of socio-economic systems.

8 CONCLUSION

This chapter has discussed the major approaches to the study of varieties of capitalism. A key point of interest has been to show that the research agenda has gradually shifted over time. Explanations that centred on a rather simplified view of the factors accounting for the co-existence of different forms of capitalism, have been superseded by accounts that attribute a prominent role to the various institutional structures prevailing in one economy, at any particular point in time, in determining and sustaining the observed varieties of capitalism.

The chapter has first offered a brief review of the main traits of the comparative economic systems approach. This analytical framework aimed to differentiate one type of economy from another by formulating two general models of economic organisation (one based on the market logic, the other on central planning). These models then serve as benchmarks in the comparative analysis of actual economic systems. By doing so, the examination of the sources of variety has been downplayed by the attempt to determine how close/distant economic systems are from the pure ideal types.

Moving from this critique, the chapter has then presented the analysis developed by studies that have focused on institutional factors to approach varieties of capitalism. These studies explain the development of different modes of capitalism in different contexts in terms on those contexts. A major conclusion reached in this line of research is that in order to justify any claim of convergence, historical circumstances, institutional arrangements and individuals would have to be irrelevant to economic processes and outcomes (Whitley, 1999). These scholars have emphasised the value of diversity and plurality both within and across socio-economic systems. This contrasts with the extolled virtues of convergence claimed by Marxian and mainstream economists which, as argued in Chapter One, are based on the notion of offsetting, negative feedback.

With regard to the specific analytical perspectives adopted in developing the above research agenda, the chapter has suggested that these can be mapped in two broad categories. The first one, in the fashion of the Hall and Soskice (2001) game-theoretic approach to varieties of capitalism, contends that the market/coordination dualism provides the basic framework for analysing the existing different configurations of economic systems. Institutions enter this framework for the support they provide to the relationships that firms develop to solve coordination problems. The main conclusion of this approach is that firms, hence countries, gravitate towards the mode of coordination for which there is institutional support. However, a critique that has been directed to this analysis of varieties of capitalism is that the dichotomy liberal market economies versus coordinated market economies is too simplistic, in the sense that it cannot allow for the variety of institutional arrangements prevailing in modern economies (Boyer, 2005b; Mjøset, 2006).

Turning to the second cluster of studies, the chapter has stressed that this poses a stronger emphasis on patterned diversity among business systems, and includes the research carried out by the French Régulation School (Aglietta, 1987; Boyer, 1999), as well as the comparative business systems framework proposed by Whitley (1998, 1999). The main contribution of régulation theory is that, besides analysing the conditions that act *ex post* to ensure the viability and reproduction of an accumulation process (Boyer, 2005b), it also focuses on the endogenous dynamics driving changes in economies (Jessop, 1997). With regard to Whitley's (1998, 1999) comparative business systems approach, this regards economic relationships and activities as socially constructed and institutionally variable. A crucial point in this approach is that it considers differences in dominant institutions to develop interdependently with particular business system characteristics, in order to generate and reproduce distinctive forms of economic organisation. In other words, the establishment and change of different capitalisms are closely connected to variations in their institutional contexts.

Drawing on the main lessons that can be learned from the institutionalist approaches commented throughout the chapter, it has been argued that three interrelated theoretical arguments contribute to explain the observed persistent diversity in forms of capitalism: path dependence, imperfect competition among institutions and institutional complementarities. It is to a closer inspection of the institutional complementarity approach that we now turn in the next chapter.

NOTES

1 Countries attempting to replace directive planning with market institutions have been commonly termed as transitional economies.

2 On the banks of the Rhine, in the spa town of Bad Godesberg, the German Social Democratic Party decided to commit to capitalism during the 1959 conference (Albert, 1993).

3 Albert (1993) argues that setting an Anglo-Saxon model against a German-Japanese one would be misleading. First, the term 'Anglo-Saxon' would not be appropriate neither for Australia and New Zealand, which have a strong Labour tradition. Secondly, financial institutions in the French-speaking Canadian province of Quebec adopted strategies distinguished from those of other Anglo-Saxon countries. Thirdly, pairing the United States and the United Kingdom would not account for the disparity existing between the United Kingdom long-established system of social welfare and the lack of a system of protection in the United States. As for the term 'German-Japanese', although these two countries share a number of similar features, such as the methods of corporate financing and the social role of the company, several differences do exist between them. Among these, the strong Japanese industrial polarisation between large corporations and small sub-contractors is not as marked in Germany; also, the German system has not equivalent for the big Japanese business firm.

4 Grounded theory is a qualitative research method developed by sociologists Barney Glaser and Anselm Strauss in the late 1960s. This research method focuses on data collection in the first stage of the research. The data are then codified, conceptualised and categorised. Only in the last stage a theory is derived.

5 This is the approach adopted by régulation scholars, which will be discussed in the next section.

6 General substantive theory proceeds only to the extent that the relevant context is included to define the scope of the generalisation. This is opposed to high level theory, which is not sensitive to context and is applicable to societal contexts widely separated over both time and space (Mjøset, 2006).

7 Boyer (2002) points out that the Régulation School has been influenced by different approaches. The assumption that full employment and stable growth are the exception rather than the rule is taken from heterodox macroeconomics. From the *Annales* school comes the idea that, if every society has the economic context and crises corresponding to its structure, then it is important to analyse how the different stages of industrial capitalism affect economic cycles and major crises. From law and political science, régulation theory adopts the notion that institutional forms result from conflicts among social groups arbitrated by political and legal processes. The interest in long-

term evolution stems from the Marxist theory, although régulation theory succeeded in freeing itself from a dogmatic relationship with Marxism (Nadel, 2002). As far as the antecedents of régulation theory are concerned, Maurice Baslé (2002) argues that the American institutionalism can be considered, to a certain extent, its precursor, while the role of German institutionalism is debatable.

8 Boyer and Saillard (2002) recall that a mode of production can be defined as the social relations that govern the production and reproduction of the material conditions that are required for human life in society.

9 Identifying regular patterns does not require the exclusion of crises. Indeed, the description of accumulation regimes includes their evolution, as well as potential crises (Boyer and Saillard, 2002).

10 Boyer and Saillard (2002) point out that there are different forms of crises. The first type of exogenously triggered crisis refers to shocks 'from outside', not originating in the mode of régulation. Régulation theory, however, focuses most of its attention on the other two types of crises. Endogenous (or cyclical) crises develop without any major modifications to existing institutional forms. These episodes derive from within the processes that determine the mode of régulation and are minor crises. In contrast, there are periods during which the compatibility of institutional forms and the economic dynamics are no longer guaranteed, and structural crises occur. These can originate from the mode of régulation or from the accumulation regime. Finally, a crisis in the dominant mode of production is the ultimate level of crisis, and it assumes that no accumulation regime can emerge. During such a period, poor or catastrophic economic performance presents long-term unfavourable tendencies, while the political process of reform is blocked or counterproductive.

11 Namely, a combination of collective agreements on wage increases and an oligopolistic competition affected by capital concentration. Furthermore, monetary policy was aimed at managing credit in the hope of stabilising the accumulation process (Aglietta, 1987).

12 Business systems can be defined as distinctive patterns of economic organisation that vary both in their degree and mode of authoritative coordination of economic activities, and in the organisation of (and interconnections between) owners, managers, experts, and other employees (Whitley, 1999).

13 According to Whitley (1999), it is possible to identify at least three distinct aspects of firms' capabilities and strategies that vary considerably across institutional contexts. These are: the role

of workforce skills; the development of collective competence concerned with efficiency or with innovation; the extent of flexibility and responsiveness to customer demands.

14 To illustrate this argument, North (1990) argues that the divergences in the economic histories of South and North America may in large part be due to the differing initial institutional matrices they derived from Spain and Britain, respectively. Therefore, persistent inefficient equilibria may result from initial choices.

CHAPTER 3

THE INSTITUTIONAL COMPLEMENTARITY APPROACH AND ITS SIGNIFICANCE FOR ECONOMICS

1 INTRODUCTION

Having identified in the previous chapter institutional complementarities as one of the factors contributing to explain the observed varieties of capitalism, we now discuss in detail the institutional complementarity approach, and its implications for economics. To this end, the aim of this chapter is to review the major research, both theoretical and empirical, so far carried out in this field.

The institutional complementarity approach has recently been proposed in the economic literature dealing with the importance of institutions in the economy and the diversity of capitalisms, in order to capture a part of the stylised facts concerning the evolution of contemporary capitalism (Boyer, 2005a). Intuitively, the term 'institutional complementarity' refers to situations of interdependence among institutions implying that the functionality of an institutional form is conditioned by other institutions (Höpner, 2005a).

By redirecting attention from the role played by single institutions, in influencing both short- and long-term economic performance, to interaction effects, the complementarity hypothesis extends the institutionalist approach. The relevance of

analysing the interactions occurring among institutions lies in the fact that, since each institution defines a set of constraints, incentives and possibilities determining agents' strategies, the influence of an institution is reinforced when a complementary institution is present (Amable, 2000). This enhances the ability of actors to achieve their objectives (Deeg, 2007).

Moreover, institutional complementarity as a tool for institutional analysis enables explanation of why there can be a variety of institutional arrangements across economies. This approach also helps also to elucidate why sub-optimal (i.e. inefficient) institutions can persist in some economies, while 'better' ones are viable in others (Aoki, 2007). As pointed out in Chapter Two, the existence of complementarity makes the notion of varieties of capitalism plausible, as complementarity signifies that there are different ways in which institutional elements can be combined successfully (Deeg, 2007).

An important point which has to be taken into account is that the impact of a complementarity relationship among institutions is variable in the sense that it depends on the general context in which such a relationship is embedded (Boyer, 2005a). Thus, a substantial theoretical consequence deriving from the notion of complementarity is that searching for 'the one best way' of organising the economic activity is misleading. Institutionally oriented political economy should instead focus on the overall design of institutional domains and production regimes (Höpner, 2005a).

The above discussion suggests that institutional complementarities have important implications in terms of policy. Arguably, this policy relevance played a part in attracting the attention of a number of scholars, despite the relatively recent elaboration of the approach. Some studies aimed to analyse the persistent institutional

diversity between the United States and Japan, and still more between economies in transition (Aoki 1994, 2000, 2001). Other works focused on the United States and the European countries (Amable 2000; Hall and Soskice, 2001; Boyer, 2001).

Although the idea of complementarity is widely accepted among scholars engaged in the debate on varieties of capitalism, and the relevance of this concept has been demonstrated in various studies, the use of the term 'institutional complementarity' is far from uniform. Also, scholars are still debating on the sources, extent and effects of complementarity, as no widespread consensus has yet emerged on the mechanisms through which different domains interact with each other and influence the economic performance (Höpner, 2005a). To clarify the nature of the mechanisms invoked in different studies, Robert Boyer (2005a) argues that it would be useful to survey the available research on institutional complementarity. This chapter offers such a review, therefore contributing to fill this gap currently existing in the literature.

The structure of the chapter is as follows: Section 2 discusses the notion of institutional complementarity in order to clarify its meaning, and distinguish it from other concepts; Section 3 deals with the issue of measuring institutional complementarities; Section 4 presents the major theoretical literature; Section 5 comments on the empirical evidence currently available; finally, Section 6 recapitulates and draws some concluding remarks.

2 THE NOTION OF COMPLEMENTARITY: MEANING, ORIGINS AND APPLICATIONS

Complementarity comes from the Latin *complementum*, meaning 'that which complements'. A number of scientific fields contributed to shape the idea of complementarity between elements of systems. In all these research areas, complementarity indicates a constellation in which two, or more, elements need to be combined to generate a particular outcome. For instance, as Martin Höpner (2005a) points out, in Johann Wolfgang von Goethe's *Theory of Colours* (1810), complementary colours are colours that together add up to white light. In sociology and law, roles complement each other if someone's duty is the other one's right. In economics, complementary goods are goods that must be combined to produce a particular benefit. At the organisational level complementary elements in firm's strategy increase output if they are combined (Milgrom and Roberts, 1995).

Since our chief interest is on complementarity relationships among institutions, the remainder of the chapter will focus on the research that has been carried out in this area. However, it is first necessary to discuss the concept of institutional complementarity and its implications. This will be done in the next sub-section.

2.1 The concept of institutional complementarity

In institutional analysis the concept of complementarity refers to situations in which interdependence among institutions occurs, so that the functionality of an institutional form is conditioned by other institutions. Thus, institutional complementarity is a functional category related to the outcome generated by the interplay of institutions. More precisely, institutional complementarity implies that

the performance of a configuration increases when its elements assume specific properties (Höpner, 2005a). Hence, the presence of complementarities reinforces the influence of institutions. Since each institution defines a set of constraints, incentives and possibilities determining agents' strategies, this enhances the ability of actors to meet their objectives (Amable, 2000; Deeg, 2007).

In the social science literature, the term 'complementarity' was first used to describe the interrelations occurring among institutions by Ludwig Lachmann (1970). He argues that "forms of complementarity do exist in social life and are conspicuous in particular as regards institutions" (p. 7), so that any theory of institutions must be concerned with analysing those features of real world institutions that appear to display some degree of complementarity. Lachmann believes that the complementarity between the various institutions constituting an institutional order requires some degree of institutional heterogeneity, so as to guarantee the division of functions that must exist for the system to function as a whole.

Lachmann (1970) focuses on comparing the degree of complementarity denoting the elements composing the legal system and the wider institutional order. He argues that the legal system is characterised by 'gapless' complementarity between its elements, in the sense that "a judge cannot refuse to give a decision on a case brought to him, on the grounds that he knows of no legal norm to apply to it. He always has to find one" (ibid: 76). Conversely, this 'gapless' complementarity is missing from the wider institutional order. Here, since some institutions require each other's services (like post office and railways or airlines), there is some group complementarity. This results from the functional specialisation of individual institutions. However, no inter-group complementarity needs to exist and this creates gaps in the web of complementarities.

By implying that institutional elements can successfully combine in a number of different ways, complementarity as a tool for institutional analysis greatly contributes to elucidate many stylised facts about the evolution and diversity of institutional arrangements – both across and within economies. In particular, institutional complementarities explain that most benchmarking experiments do not deliver the expected results, since the web of past interdependency between institutions hinders the adoption of new ones (Boyer, 2005a). This explains, for instance, the difficulties experienced by the former socialist East European countries when they tried to adopt and adapt to market mechanisms. In fact, the web of past interdependency between labour institutions, credit management and State interventions hindered the adoption of the new market-oriented institutions (Delorme, 1996; Chavance *et al*, 1999). The above arguments would seem to undermine the shock approach to economic reforms adopted in the former Soviet Union while vindicating China's gradualist approach. In addition, the existence of complementarities explains why a sub-optimal overall institutional arrangement can persist in an economy, while a better one is viable in other socio-economic systems (Aoki, 2007).

As regards the limitations of the complementarity concept, Höpner (2005b) points out that it does not inform on whether complementarity derives from similarity or from heterogeneity,[1] and does not offer clear predictions in regard to institutional change. Moreover, complementarity is an abstract concept that describes one possible functional feature of institutional interaction. It follows that its sources and consequences need to be specified by empirical research conducted on the institutions prevailing in a given space and time.

Proximate but different concepts try to capture the interactions occurring between two or more institutions. It is then important to clarify and distinguish them from the notion of institutional complementarity. A relevant contribution in this direction has been offered by Boyer (2005a). He argues that complementarity requires the conjunction of two institutions to be Pareto improving compared to the performance that would be observed should only one of the two entities be in place. Thus, institutions E and E' are complementary if the performance R resulting from their conjunction is superior to the performance of each institution considered separately:

$$R\left(E,E'\right) > R\left(E\right) \quad \text{and} \quad R\left(E,E'\right) > R\left(E'\right). \tag{1}$$

According to this definition, it is incorrect to regard complementarity as a synonym for supermodularity, as the latter is a more demanding criterion, requiring that the conjunction of two elements is Pareto improving with respect to any other mix of elements.[2] Another notion frequently confused with complementarity is compatibility. The latter means that two elements can be jointly observed in current societies. Proving their complementarity requires assessing the related impact of these elements upon a measure of performance (Boyer, 2005a).[3] A strengthening of the concept of complementarity (and supermodularity) is the notion of hierarchy: it implies causality between two entities, in the sense that an entity absolutely needs the presence of another entity in order to be sustainable or viable. Coherence is another notion still and means that two institutions can easily coexist since the fitness of each institution is improved by the existence of the other.[4] Related to coherence is institutional isomorphism, occurring when two entities are equivalent

according to a general common principle that defines a relation of equivalence. The concept of clustering, then, is purely descriptive, as it describes the fact that two or several institutions are frequently observed simultaneously when some systematic comparisons are carried over. Finally, the notion of co-evolution implies that the joint occurrence of two institutions might be the unintended outcome of a selection process, or a learning mechanism, operating via the succession of stochastic shocks and possibly major events such as crises.

The general point emerging from the discussion of the above concepts is the various forms of institutional linkages must be analysed distinct from one another (Deeg, 2007). Aoki (2007) points out that in linked games agents typically coordinate their individual strategic choices across domains, and generate a single institution therein. Instead, in the case of institutional complementarities, agents regard (even unconsciously) an institution prevailing in a certain domain as a parameter, and based on this choose strategies in their own domains. In these cases, Aoki argues, the institutions that evolve in each domain may become interdependent and mutually reinforcing (i.e. complementary). These mutually reinforcing effects of compatible incentive structures emerging in different sub-systems of an economy are considered by Richard Deeg (2007) as a particular form of complementarity, which he calls *synergy*.[5] A second type of complementarity, in the form *supplementarity*, occurs instead when an institution makes up for the deficiencies of another one, thus increasing the returns that actors derive from the first institution (Crouch 2005a, 2005b; Deeg, 2007).

3 DETECTING INSTITUTIONAL COMPLEMENTARITIES

Investigating institutional complementarities is essentially an empirical issue; however, this is not an easy task, since the detection of complementarity depends upon a number of issues. First, it is closely related to the theory of complementarities that is adopted, as this specifies the mechanisms actually creating complementarity. Then, since complementarity cannot be measured directly, it is necessary to rely on causal inference. To claim the existence of a complementarity relation, it is necessary to put forward the counterfactual argument that in the absence of the presumed complementary institution, the returns to actors (or efficiency gains) would, *ceteris paribus,* be lower (Deeg, 2007).

A further relevant issue in the empirical investigation of institutional complementarities regards the level of analysis that is chosen. Complementarities operate at different levels, going from the macroeconomy to individual organisations, and small groups of actors operating in separate domains.[6] By and large, empirical studies have so far attempted to measure complementarities at the macro level. Although these are noteworthy efforts, they cannot be regarded completely satisfactory for a number of reasons (Deeg, 2007).

First, some studies (e.g. Paunescu and Schneider, 2004; Castles *et al*, 2006) show that several of the institutions examined, for instance in works as Peter Hall and Daniel Gingerich (2004), have changed quite substantially in several advanced economies. According to the varieties of capitalism theory of complementarities, this change should result in declining performance. However, there is no evidence supporting this claim. Secondly, macro level complementarities might be sustained over time by institutional changes occurring at the micro level. The macro approach generally cannot account for these possible changes. Nor can it capture whether

existing microeconomic institutions have been replaced by new ones, still generating macro complementarities. A further gap in the macro approach concerns the knowledge about sectoral differences in complementarity. Indeed, within an economy some sectors may gain from complementarities while others may not. The macro level approach informs us about the sum of complementarities across all firms/sectors, not their distribution (Deeg, 2007).

Scholars supporting the usefulness of micro level investigations argue in favour of sectoral analysis, as there is substantial evidence showing that patterns of sectoral organisation and institutions often deviate from national patterns (Casper and Whitley, 2004; Crouch 2005b; Deeg, 2007).[7] A further advantage of the micro-based approach is that it is potentially more tractable to assess the complementarities generated by a set of institutions for specific actors (Deeg and Jackson, 2007). In this context, firms become the evident candidate, even though other collective actors could also be the focus of study (Deeg, 2007). The work by Paul Milgrom and John Roberts (1995) provided a theoretical basis for explaining the existence of firm level complementarities. However, no methods for quantifying the strength of such complementarities were suggested. One approach to the quantitative estimation of firm specific complementarities is regression analysis between firm level performance and institutional variables. This is the methodology that is adopted in the empirical chapters of this thesis (namely, Chapter Six and Seven).

Defining an appropriate measure of performance is a major issue arising in the detection of complementarities (Schmidt and Hackethal, 2002; Boyer, 2005a), since it is possible to use disparate performance indicators at different levels of the economy. For instance, productivity gains, innovation (e.g. patents) or GDP growth are possible indicators for macro level analysis. On the other hand, at the micro

level (thus for instance at firm or sectoral level), profitability, revenue growth, and similar measures of performance are all suitable indicators (Deeg, 2007).

The choice of an appropriate performance indicator is closely related to the issue of identifying the methodology that best suits the case under investigation. Indeed, depending upon both the level of complementarity that the researched aims to measure and the definition of complementarity adopted, some methods may present certain advantages over others. The extant literature, discussed in the next sections, has used a wide range of methodologies, ranging from game-theoretic models, to case studies, econometric analysis, and comparative methods. This variety of methodologies reflects the complexity of the complementarity concept.

4 THE THEORETICAL ANALYSIS OF INSTITUTIONAL COMPLEMENTARITIES

Analytical formalisations of the institutional complementarity hypothesis are relatively recent. One of the earliest contributions can be traced back to Ugo Pagano (1991, 1992, 1993) and was further developed in Ugo Pagano and Robert Rowthorn (1994). They proposed a model analysing property rights and the nature of technology. Although the authors use the term ‘organisational equilibrium’, this is equivalent to the notion of institutional complementarity (Aoki, 2001). An organisational equilibrium occurs when an institution of production is defined by a system of property rights, *P*, and a technology, *T*, such that *T* is the technology that maximises profits under the property rights system *P*, and *P* is the property rights system that maximises ownership rent given the structure of resources *T* employed in the firm. Thus, the conditions for the existence of an organisational equilibrium can be interpreted as a Nash equilibrium. Since agency costs impede the achievement of

any first best solution, efficiency can only refer to second best outcomes. This partial efficiency may clearly prevent the achievement of overall efficiency. For the latter to be realised, a change of organisational equilibrium would be needed.[8] However, the self-enforcing characteristics of an institution may hold despite its inefficiency. Thus, even sub-optimal organisational equilibria can persist over time. Furthermore, Pagano and Rowthorn (1994) show that multiple organisational equilibria exist. These equilibria are historically dependent and self-sustaining since they reproduce a specific initial set of property rights or technological conditions (Pagano, 1993). This suggests that "history matters in the sense that organisational equilibria may depend on initial conditions having self-generating and self-reinforcing properties which cause their institutional stability. Or, in other words, past history rather than ahistorical efficiency may determine which particular organisational equilibrium exists" (Pagano, 1993, p. 94).

The self-enforcing interactions between property rights and technology discussed above, may help to explain the diversity of production institutions that is observed in socio-economic systems – even when the analysis is restricted to similarly advanced capitalist economies. This diversity in prevailing ownership structures may originate from context-specific institutional shocks that give rise to different self-enforcing relations between property rights and technology, and generate new self-sustaining ownership systems (Pagano, 1993; Pagano and Rowthorn, 1994).

Pagano (1993) and Pagano and Rowthorn (1994) remark that their analysis offers an argument in favour of policies aiming to extend democracy to economic life. Indeed, hierarchical organisations where capital owners and managers retain all the rights may be institutionally stable, but inefficient. In such a case, economic democracy would be more efficient on purely economic grounds. However, the self-

sustaining characteristics of capitalist institutions (namely, easy monitoring of workers, and a tendency to under-invest in both firm-specific and general human skills) may impede the achievement of this organisational equilibrium. Therefore, a policy active in sustaining economic democracy would be desirable.

A further development of the model proposed by Pagano (1993) and Pagano and Rowthorn (1994) has been offered by Ugo Pagano and Maria Alessandra Rossi (2004). They analysed a case of institutional complementarity between the development of individual capabilities and intellectual property. According to the Grossman-Hart-Moore framework, the nature of technology available to a society at any given point of time determines the efficient property rights structure.[9] However, Pagano and Rossi (2004) contend that when transaction costs are present, property rights cannot be attributed to the 'efficient owner'. In this scenario the logic is reversed: the owners of intellectual property rights tend to develop more capabilities in the production of new intellectual property rights.

Thus, the existing allocation of property rights over intellectual assets may persistently influence the direction of technological development. As a result, once a particular property rights system is in place, the choice of technology will reinforce the convenience of keeping the initial ownership system in place, rather than upsetting it. This occurs due to the self-reinforcing properties of the possible equilibria. A major implication is that some individuals may benefit from situations where an initial distribution of rights over initial assets favours the realisation of specific investments. In turn this reinforces their convenience to maintain that ownership system. In contrast, other individuals may be trapped in situations where the lack of property rights diminishes the convenience to undertake specific

investments, and the lack of investments diminishes the convenience to acquire rights over intellectual and physical assets (Pagano and Rossi, 2004).

A general model of institutional complementarity has been proposed by Aoki (2001). He argues that the relationships among various market governance mechanisms in one economy, at one point in time, may be complementary in the sense that "the effectiveness (or the presence) of one exchange (property rights) governance mechanism can be reinforced, either directly or indirectly, by the presence of a particular mechanism in the same or embedding domain" (ibid: 87). Aoki shows that in the presence of synchronic institutional complementarities the prevailing institutional arrangements are not necessarily Pareto improving, as they may be Pareto sub-optimal, as well as Pareto non-rankable.[10] This is so because institutional complementarity is a dynamic approach, admitting multiple equilibria (Pagano and Rowthorn, 1994; Schmidt and Hackethal, 2002).

Aoki's model draws on the theory of supermodular games developed by Donald Topkis (1978, 1998) and Milgrom and Roberts (1980). It includes two domains, α and β, that do not directly interact, two sets of agents, μ and σ, and two payoff functions, u and v.[11] The model assumes that an institution present in one domain will exogenously influence the outcome achieved in the other domain by changing its institutional environment. In domain α agents need to choose an endogenous rule from either $\vartheta^{\#}$ or $\vartheta^{\#\#}$, while in domain β agents choose a rule from either λ^{*} or λ^{**}. In each domain a rule becomes institutionalised when agents implement it as an equilibrium choice. The following conditions are also assumed to hold for all i and j:

$$u\left(\vartheta^{\#};\lambda^{*}\right)-u\left(\vartheta^{\#\#};\lambda^{*}\right)\geq u\left(\vartheta^{\#};\lambda^{**}\right)-u\left(\vartheta^{\#\#};\lambda^{**}\right)^{12}; \quad (2)$$

$$v\left(\lambda^{**};\vartheta^{\#\#}\right)-v\left(\lambda^{*};\vartheta^{\#\#}\right)\geq v\left(\lambda^{**};\vartheta^{\#}\right)-v\left(\lambda^{*};\vartheta^{\#}\right)^{13}. \quad (3)$$

Given this set-up, Aoki (2001) argues that, if for the agents participating in one or both domains, the payoff deriving from one rule is not strictly greater than the payoff associated to the other rule – regardless of the rule that is chosen in the other domain – (i.e. no rule dominates) then in each domain agents need to take into account what rule is institutionalised in the other.[14] Therefore, there are two Nash equilibria in pure strategies, $\left(\vartheta^{\#};\lambda^{*}\right)$ and $\left(\vartheta^{\#\#};\lambda^{**}\right)$. These imply that $\vartheta^{\#}$ and λ^{*}, as well as $\vartheta^{\#\#}$ and λ^{**}, complement each other.

Beside synchronic complementarities Aoki (2001, 2007) also analyses diachronic institutional complementarities, which occur from the dynamic interaction among complementary domains. In this case the attention is centred on the effect produced by a parametric change – such as a technological innovation, a new statutory law, or a policy reform – on the game forms of complementary domains. The dynamic version of the concept of static institutional complementarity has been formulated by Milgrom *et al.* (1991) in the 'momentum theorem'. One version of it holds that "even if the initial level of human competence in domain *X* that is conducive to the support of potential institution *x'* is low, the presence of complementary institutions in other domains may amplify the impact of a policy intended to induce *x'*, so that, once momentum is initiated, *x'* may gradually evolve as a viable institution" (Aoki, 2001, pp. 267-269).

Another possible version of the 'momentum theorem' suggested by Aoki (2007) is as follows. Assume that changes in the parameters of a game form (e.g. the

introduction of a new public policy, a change in legal rule, the accumulation of competence etc.) occur in a domain. However, their initial impact in isolation is too small. Assume now that similar parametric changes also occur in a complementary domain. Then, although an institutional change may not immediately occur in either domain, if parametric changes are sustained subsequently in both domains, their cumulative impact on the strategic choices that are endogenous to each domain, combined with the mutually reinforcing impact of evolving strategic choices across domains, can eventually be conducive to the co-evolution of new institutions in both domains.

Institutional complementarities in their dynamic version are, thus, a possible mechanism of endogenous institutional change. They capture the role of polity in the process of institutional change. The latter can take place only in a gradual way and through interactions with changes occurring elsewhere, sometimes producing an unintended institutional outcome (Aoki, 2007). That the complementarity theory is also a theory of institutional change is a view shared by Hall and Soskice (2001). They argue that nations with a particular coordination mechanism in one sphere of the economy should develop complementary practices also in other spheres, as this would enable reaching an equilibrium point with maximum gains. Nonetheless, Deeg (2007) points out that although the concept of complementarity has been increasingly used in explanations of institutions' resistance to change, and of why introducing new institutions into a system can produce unintended effects or failure to attain the planned outcome, institutional change does happen. In his view, this means that, given the existence of complementarities, the process of change must be shaped in some way by them. So that, a well developed theory of complementarity

should also be able to generate predictions about patterns of institutional change in national economies.

Werner Hölzl (2006) claims that while game-theoretic models of institutional complementarity are appropriate for the analysis of micro level institutional complementarities, their macro level implications are better illustrated with complex system models. In his view such models capture the uncertainty characterising the functional relationships between elements. Hölzl (2006) suggests that Stuart Kauffman's (1993) *NK* model would be a better way of formalising complementarity, since this would allow to take into account the structure of interdependence between elements of a complex system.[15]

By analysing a complex decision space with high uncertainty about interdependencies at the macro level, the *NK* model well reflects the problem that is faced by economic actors and policy makers within the system. Moreover, in this model the local optimum that is reached depends on the starting position, and the achievement of a local optimum prevents agents from exploring other points. These features enable showing that the existence of complementarity relations is conducive to path-dependence and lock-in. Therefore, the non-convergence hypothesis of economic systems finds a theoretical foundation in the institutional complementarity theory (Hölzl, 2006).

Using a *NK* model to represent financial systems and analyse the issue of their convergence and non-convergence, Hölzl (2006) shows that there are three local optima: bank-based system, market-based system, and network-based system. A key property of the *NK* model is that the number of local equilibria is positively related both to the number of elements *N* and the interdependence parameter *K*. This suggests that, if financial systems are complex systems with a number of

institutions that exhibit complementarity, more than one stable constellation should be observed.

5 THE EMPIRICAL EVIDENCE ON INSTITUTIONAL COMPLEMENTARITIES

The analytical framework provided by the institutional complementarity theory has been applied across a wide range of institutional spheres and levels. The discovery of complementarity has major implications, both theoretical and practical: it suggests that looking only at the impact of isolated institutions may be misleading, and brings implications for institutional change, as well as for policy reform.

Empirical studies on models of capitalism focus on interaction effects among institutions within production regimes. Corporate governance and industrial relations are of these sets of interacting production regime institutions. In this field of empirical analysis, Aoki (1994) explores, by means of a game-theoretic model, the way in which a conspicuous presence of partnership/team elements in the internal structure of the firm modifies the nature of the hierarchical control by stockholders.[16] More precisely, the aim of his work is to unravel in the Japanese context the complementary relationship characterising contingent company monitoring by main banks and team-oriented lifetime employment (Aoki, 1994, 2000).

Aoki (1994) designs a model of governance structure which may be able to effectively control the free-riding problem in team production in a second-best manner.[17] The second-best solution is achieved by designing a nexus of contracts (*T*-nexus, i.e. team-controlling) among the workers (team members), the manager (a quasi-member of the team), general investors and an intermediary monitoring agent (the main bank). This nexus specifies *ex-ante* the rights to *ex-post* control of the

team output between the internal manager and the monitoring agent, contingent upon the output state.[18] The *T*-nexus of contracts combines the feature of sharing among team members in the upper output region, that of income insurance in the intermediate rescue region, and that of penalties in the lowest output region, where the monitor liquidates the firm and each internal member suffers a dead-weight loss.

By using a method of comparative static analysis due to Meyer *et al*. (1992), Aoki shows that the derived corporate governance cannot be introduced or maintained in either a piecemeal or an autonomous way. Its effectiveness must be supported by complementary institutional arrangements. In the context of the Japanese economy, the co-emergence of the main bank system, having the role of unique monitoring agent, and the imperfect labour market in the high growth period of the Japanese economy was not accidental.[19] In fact, these arrangements realised a system of complementary institutions that are effective in controlling internal moral hazard problems, thus enhancing the productivity of team-oriented production. More precisely, the emergence of the main bank system in Japan was related to the strong team nature characterising the internal organisation of the Japanese firm. On the other hand, team oriented organisations were incentive wise supported by the main bank system and the imperfect labour market.[20] There were mutually reinforcing effects.

Amable *et al.* (2005) argue that a relevant field of applicability of the institutional complementarity theory concerns the analysis of industrial relations, since this approach allows a theoretically grounded interpretation of the persistent diversity of industrial relations models. The authors propose a stylised model of an economy with two strategic actors, a labour union and firm's management, whose long-term objectives are the discounted sum of wages and profits, respectively.[21] A

taxonomy of four different types of industrial relations is then identified according to the union's relative strength and the type of strategy followed by each side, under the influence of external creditors.[22] This taxonomy is then interpreted in terms of the institutional complementarity approach of which, according to these authors, two definitions can be conceived. In a first meaning, close to Boyer's (2005a) definition (presented in sub-section 2.1), two institutional forms are complementary when they push the economy towards a local optimum. Therefore, if a firm's survival probability is chosen as a measure of performance, then strong and influential financial markets are complementary to a weak union. On the other hand, less influential financial markets are complementary to cooperative relations between union and management. In fact, both configurations lead to a higher survival probability for the firm. With respect to the second definition – close to Aoki's (2001) conceptualisation – this refers to the concept of dynamic stability and identifies a complementary relation when the existence of one institution reinforces the existence of the other, without the need to refer to a concept of systemic performance. Given that in this definition the focus is on dynamic stability, weak financial markets are once again complementary to cooperative strategies, since strong financial markets have a destabilising effect.

Antonio Nicita and Ugo Pagano (2004) apply the concept of institutional complementarity to the relationship intervening between corporate governance and corporate finance. The authors explain the emergence and persistence of diversity in corporate models in terms of the emergence of institutional complementarities between the technological structure of the firm and its financial structure. They argue that the presence of institutional complementarities among corporate governance domains pushes towards self-reinforcing (unique or multiple) equilibria

shaped by local historical conditions. Then, Nicita and Pagano (2004) apply the notion of institutional complementarity in a model analysing the trade-off between equity and debt financing in corporate governance. It is shown that, while Williamson's (1988) transaction costs approach considers the choices in the financial domain as an endogenous adaptation to a given technological domain, an opposite direction of causality may also hold: technological choices may be an endogenous adaptation to given financial choices. Moreover, when both the directions of causality hold, some self-enforcing equilibria across the two domains can prevail. The authors conclude that this result provides some insights against the tendency towards convergence proposed by corporate governance models.

Andreas Hackethal and Reinhard Schmidt (2000) analyse cross-country differences in financial systems by making use of the complementarity concept. In their work two elements of a system are complementary if there is potential for a higher value of one element to increase the marginal value contribution of the other element. If this potential is fully exploited, a system can be regarded as coherent. So that, there can be more than one coherent system comprising the same set of complementary elements, but with clearly distinct values of these elements. Real-world financial systems are considered by Hackethal and Schmidt (2000) as consisting of three sub-systems: enterprise financing, corporate governance, and corporate strategy. The paper shows that: each of the three sub-systems is composed of complementary elements; the sub-systems are complementary to one another, and they are largely coherent in the German, British and United States financial systems.

Schmidt and Hackethal (2002) analyse the German, British and French financial systems over the years 1980-1998 and find few, if any, signs of convergence at a fundamental or structural level. In particular, the German financial system still

appears to be bank-dominated, while the British system is capital market-dominated. Moreover, during the period investigated, the French system underwent the most far-reaching changes, hence today's difficulty in classifying it. The authors explain these findings in terms of strong path dependencies, which are an outgrowth of relationships of complementarity between the individual system components.

Along a similar research line, Jean-Paul Pollin and Anne-Gaël Vaubourg (2005) use the concept of institutional complementarity to address the convergence issue of financial structures and European corporate governance systems towards a unique model. Resorting to theoretical arguments, as well as to empirical evidence, these scholars argue that a move towards convergence is undermined by the diversity of European governance systems and by the existence of institutional complementarities. More precisely, institutional complementarities suggest that persistence insures the coherence of each national corporate governance system. Therefore, trying to build a unique corporate governance space in Europe could be harmful for the performance of European economies (Pollin and Vaubourg, 2005).

Donatella Gatti (2000) develops a theoretical analysis of training regimes as outcomes of a complementarity between firm and non-firm institutional factors, determining both firms' and workers' incentives as regards skills. This scholar distinguishes between firm specific and standardised training, and then argues that knowledge embeddedness within firms determines firms' preferences concerning training. Labour market institutionalisation provides instead the framework for workers' preferences. Given this set-up, an incentive compatibility problem between firms and workers arises. The former prefer firm specific training, which allows them to prevent external poaching. In contrast, the latter prefer standardised training, which enables them to transfer their skills from firm to firm. Applying a

criterion of coherence between firms' and workers' incentives, Gatti (2000) identifies two configurations of institutional complementarities. The first one supports a standardised training regime, and occurs between individual knowledge within firms and highly institutionalised labour markets. The second one reflects a firm specific training scheme and emerges between collective knowledge and loosely institutionalised labour markets.

Basili *et al*. (2004) proposed a principal-agent model to investigate the conditions which make the use of trust beneficial for the parties involved in a transaction. The authors show that since trust generates costs, the willingness to reciprocate does not suffice by itself to resort to trust. Instead, the presence of complementary institutions induces cooperation between individuals. Hence, institutional complementarities are a mechanism to foster the choice of trust (rather than contracts) in the governance of transactions.

In the analysis of welfare regimes, Francesca Bettio and Janneke Plantenga (2004) investigate the different social and economic consequences generated by the different models of care pursued by European countries. The basic argument underlying this work is that since there is a strong link between a country's care system and the female labour market, different care strategies generate different incentive structures for the economic organisation of the family. Analysing data on female labour participation, Bettio and Plantenga (2004) find empirical evidence confirming the intuition that, by impacting on the working-time regime of the family, a care regime with well developed formal care strategies, as the one characterising the Nordic countries, is complementary to a labour market structure in which women have an active role.[23]

Amable and Gatti (2006) investigate the interlinks between product and labour market reforms by using a dynamic efficiency wage model, where firms compete according to monopolistic competition and redundancy payments are paid to laid-off workers. Previous literature on this topic focused on the (supposed) benefits from a joint deregulation in both product and labour markets. In contrast, this work explains that market regulation may yield a positive impact on aggregate employment performance. The model shows that product market deregulation yields an implicit labour reform. In fact, firms respond to productivity shocks by adjusting employment. Since this has an adverse effect on workers' incentives, higher real wages follow. This may lead to aggregate employment losses. Hence, to offset the possible detrimental effects of a more intense labour turnover generated by deregulation of the product market, policies increasing job security may be necessary. The analysis of policy complementarity conducted by Amable and Gatti (2006) shows that a complementarity effect may emerge between regulations in both product and labour markets, both interacting to ensure more stable labour relations. Conversely, joint deregulation policies have conflicting effects on aggregate employment. The authors suggest that this could explain why European countries that engaged in large-scale deregulation reforms have not experienced the expected substantial increases in aggregate employment levels.

In the strategic management literature Choi *et al.* (2008) analyse the impact of knowledge management (KM) strategies on organisational performance by drawing on the framework of complementarity analysis adopted in economics. Management research suggest that KM strategies can be categorised according to the focus and source dimensions. In the focus dimension it is possible to have: explicit-oriented strategies, attempting to increase organisational efficiency by codifying and re-

using knowledge mainly through IT; tacit-oriented strategies, which enable transmission of tacit knowledge through person-to-person contact and socialisation. Passing to the source dimension, KM strategies can be classified as internal- and external-oriented. The first focuses on generating and sharing knowledge within the firm. The second, instead, attempts to bring knowledge into the firm from outside sources. The motivation of Choi *et al.*'s (2008) work is grounded on the consideration that it is still not well understood how different KM strategies affect organisational performance. To shed light on this issue, the authors analyse data gathered from 115 Korean firms through a questionnaire-based survey. They find a complementarity relationship between external-oriented and internal-oriented knowledge management strategies. Indeed, implementing both strategies would allow firms to achieve higher performance than if they adopted any one of them. The study also finds complementarity between KM focus and KM source, in the sense that organisational performance is improved by focusing on both tacit-internal-oriented strategy and explicit-external-oriented strategy.

In regard to quantitative empirical research on the issue of institutional complementarities, only a few studies have been so far proposed. Among these, Peter Hall and Robert Franzese (1998) deal with the relationship between monetary policy institutions and wage coordination.[24] They use data covering OECD countries for the period 1955-90, and find that where wage bargaining is more coordinated, the signalling process between the bank and economic actors is likely to be more effective. Thus, increasing the independence of the central bank can lower the long-run inflation rate at relatively low employment costs. In contrast, where wage bargaining is less coordinated, increases in central bank independence may lower inflation rate only at the cost of substantially higher unemployment

rates. Thus, it is possible to conclude that an independent central bank is complementary to coordination in wage bargaining.[25]

Christopher Way (2000) analyses the effects of central bank organisation and government partisanship on macroeconomic outcomes. He argues that since the ability of governments to influence the macroeconomy varies with central bank organisation, the effectiveness of partisan policies varies as well. Likewise, the benefits and costs of having an independent central bank hinge on a country's political climate. The results of the econometric investigation, carried out on pooled time series data covering 16 countries over the years from 1961 to 1991, show that the effects of granting independence to a central bank are conditional on the partisanship of government. In fact, independent central banks produce sharply lower inflation rates where Left cabinets are prevalent, but at the cost of increasing unemployment. Instead, where Right governments prevail, increasing central bank autonomy produces little benefit in reduced inflation, but contributes to lower unemployment.

Ekkehard Ernst (2003) analyses the interrelations that may exist between institutional arrangements on financial and labour markets, and the effect these may produce on macroeconomic outcomes. The study uses data on output growth in 27 manufacturing industries in 19 OECD countries over the period 1979-1995. The empirical evidence provides strong support in favour of the hypothesis of institutional complementarities between specific configurations of financial and industrial relations. These explain a relevant part of within industry variation among countries.[26] More specifically, there is evidence that concentrated ownership structures and unionised industrial relations are complementary in promoting growth in industries with high skill levels, while individually these characteristics

fail to produce the necessary incentives for investment. Moreover, concentration in ownership structures and employment protection are favourable to growth in bank financed industries. Finally, ownership dispersion and labour market flexibility foster growth in equity financed industries. An important implication of these results is that policy modifications intervening in a market must offer incentives in line with those provided by institutional arrangements prevailing in other markets.

In the varieties of capitalism literature, Hall and Gingerich (2004) test the hypothesis that institutional complementarities occur across sub-spheres of the macroeconomy.[27] By distinguishing the structure of labour relations and corporate governance prevailing in coordinated market economies and liberal market economies, the authors argue that if the institutionalised practices typical of each of these two typologies are complementary, then they should exert an impact on economic growth.[28] To test their institutional complementarity hypothesis, Hall and Gingerich (2004) employ multiplicative interaction effects between variables proxying for institutions operating in the spheres of corporate governance and labour relations. Since these interaction terms are found to significantly exert a positive impact on growth, the authors conclude that this is empirical evidence in favour of the existence of complementarities between the two spheres considered.

According to Höpner (2005a), both Ernst (2003) and Hall and Gingerich (2004) go beyond arguments of institutional clustering and test whether the outcomes produced by coherent configurations is superior to the effects generated by incoherent ones. This implies that complementarity results from coherence. Indeed, a first indication of complementarity between particular institutions of corporate governance and industrial relations is provided by international comparisons showing that countries with organised labour market institutions tend to have a high

degree of corporate governance organisation and vice versa. However, this sort of institutional clustering is more an indication of compatibility, rather than a proof of complementarity.

6 CONCLUSION

The aim of this chapter has been to review the complementarity approach, as a tool for institutional analysis. Recognising the existence of interaction effects among institutions has a number of implications. A first one is that, since institutions define constraints, incentives and possibilities determining agents' strategies, the presence of complementarity among institutions can enhance the ability of actors to accomplish their purposes (Deeg, 2007). Furthermore, and more importantly, the self-enforcing equilibria generated by the presence of institutional complementarities contribute to explain the persistent variety of institutional arrangements across economies. In this sense, it is possible to argue that the concept of institutional complementarity makes the notion of distinct models of capitalism plausible, since complementarity entails that there are a number of different ways to combine institutional elements successfully (Aoki, 2007; Deeg, 2007). A substantial theoretical consequence deriving from the notion of institutional complementarity is that the search for 'one best way' of organising the economic activity becomes misleading. Rather, institutionally oriented research has to focus on the overall design of institutional domains and production regimes.

The theoretical studies proposed on the institutional complementarity issue (e.g. Pagano and Rowthorn, 1994; Aoki, 2001; 2007), as well as the available empirical research, clearly suggest that there is substantial evidence showing that complementarities deeply impact on economic performance at various levels. These

range from the macroeconomy, to individual organisations, and small groups of actors operating in different domains (Aoki, 1994; Hall and Franzese, 1998; Gatti, 2000; Way, 2000; Schmidt and Hackethal, 2002; Hall and Gingerich, 2004, among others). This implies that taking into account the issue of institutional complementarity has consequences not only for research in economics, but also in terms of policy recommendations. It becomes, indeed, prominent to study the effects of interacting institutions, rather than simply recognising that institutions matter. As far as policy reform is concerned, the main message is that any initiative aimed at introducing a structural reform should consider the coherence and logic of the whole institutional structure, since the web of past interdependencies among institutions is likely to hinder the effective adoption of new ones. This implies that benchmarking in institutional reform is a dangerous experiment.

NOTES

1 Although Lachmann (1970) stresses that complementarity requires some heterogeneity, he does not deny the need for some homogeneity in other respects.

2 Nevertheless, both complementarity and supermodularity require the choice of a performance criterion and the ability to compare various systems in order to check the basic property (Boyer, 2005a).

3 More precisely, need first to compute the equilibria when the two institutions are considered separately. Second, it is necessary to compute the new equilibrium when both institutions are considered simultaneously. Third, a welfare function has to be adopted in order to compare the equilibria, and the two institutions will be said complementary if their joint presence delivers a better outcome than each of the separate institutions.

4 In this sense, coherence is more than compatibility. However, it is less than complementarity, as coherence does not refer to the joint performance of institutions.

5 Regarding the earlier history of the synergy concept, the American sociologist Lester Frank Ward (1903) defined it as 'the systematic and organic working together of the antithetical forces of nature' (p. 171). This meaning is very close to that given to the term 'symbiosis' by Heinrich Anton de Bary, a German mycologist, whom defined it, in his 1879 monograph *Die Erscheinung der Symbios*, as 'the living together of unlike organisms'. Igor Ansoff's (1965) work on corporate strategy conceptualises synergy as the occurrence of joint effects of fit between the firm and its new product-market entries. Synergy effects can produce a combined return on the firm's resources greater than the sum of its parts through increased volume of sales revenue, decreased operating costs, or decreased investment requirements.

6 The gains generated by some forms of complementarity can be expected to be strong for a narrow group of actors, and to produce weaker benefits for the economy as a whole (Hall and Gingerich, 2004; Deeg, 2007).

7 Despite this evidence, however, much of the comparative institutional political economy literature still downplays sectoral variations in favour of national differences (Deeg, 2007).

8 This inefficiency is linked to factor substitution: the most efficient potential owners are substituted by the least efficient potential owners because, *ceteris paribus*, the latter are cheaper than the former when they do not own the firm (Pagano and Rowthorn, 1994).

9 Grossman and Hart (1986), Hart and Moore (1990) and Hart (1995) developed the property rights approach to organisations. This approach focuses on the importance of asset ownership for the investments made in bilateral trade relationships.

10 This conclusion distinguishes the work of Pagano (1993), Pagano and Rowthorn (1994), Aoki (2001, 2007) and Pagano and Rossi (2004) from Boyer (2005a), who (as discussed in sub-section 2.1) claims that complementarity leads to a Pareto improved institutional performance.

11 All agents in each domain have an identical payoff function defined on their own binary choice sets.

12 Inequality (2) implies that the incremental benefit from choosing $\vartheta^{\#}$ rather than $\vartheta^{\#\#}$, increases in domain α for all the players when the institutional environment λ^{*} rather than λ^{**} prevails in domain β. Then, $\vartheta^{\#}$ and λ^{*} complement each other.

13 Inequality (3) implies that the incremental benefit from choosing λ^{**} rather than λ^{*}, increases in domain β for all the players when $\vartheta^{\#\#}$ rather than $\vartheta^{\#}$ prevails in domain α. Then, λ^{**} and $\vartheta^{\#\#}$ complement each other.

14 It is worth remarking that conditions (2) and (3) do not exclude the possibility that for the agents participating in one or both domains, the payoff associated with one rule strictly dominates the payoff from the other rule, regardless of the rule that is chosen in the other domain. Aoki argues that if a similar situation does occur, then the preferred rule will be implemented autonomously in each domain. In this case, the equilibrium of the system, and thus the prevailing institutional arrangement, is determined by preference (technology).

15 Kaufmann's (1993) *NK* model, originally developed for the study of biological evolution of complex organisms, uses computer simulations to model problems of evolutionary adaptation in fitness landscapes. The model has been subsequently applied in evolutionary economics to analyse a number of issues, such as those related to firm strategy (e.g. Levinthal, 1997; Riksin, 2000) and production technologies (Kaufmann *et al*, 2000).

16 In the analysis, Aoki (1994) follows Holmstrom's (1982) approach in allowing for an external agent only partially able to monitor. Thus, rather than being able to observe the individual actions of team members, it is assumed that the principal can only monitor the joint outcome of team members and can exercise the threat of a severe penalty against an underperforming team.

17 This is a major difference with Holmstrom's (1982) work, which presents a first-best solution.

18 According to Aoki (1994), the *T*-nexus defines a less hierarchical control structure of the firm than the conventional principal-agent model of the firm. Since this governance scheme is contingent on the output state, Aoki calls it contingent governance.

19 The model presented by Aoki (1994) provides insights into the workings of the Japanese main bank system. Between the 1950s and 1970s, when the main bank system was having its heyday, most Japanese corporations relied on bank borrowing as their major external funding source. Firms developed diversified debt relationships with multiple banks, but maintained a unique long-term relationship with single commercial banks. These banks, called main banks, not only supplied the largest share of credit to their client firms, but also assumed exclusive responsibility for monitoring them. Stylised facts regarding the *ex post* monitoring role of the main bank are strikingly similar to the function of the monitor in the model.

20 Regarding the evolution of the contingent governance structure in Japan, Aoki (1994) argues that the Japanese firm has developed a type of internal organisation which facilitates lateral coordination among different task units on the basis of information sharing, joint responsibilities and help. One possible consequence of the development of such an internal organisation has been the manifestation of a strong team nature. If so, the model proposed suggests that the contingent governance has provided a most appropriate *ex-post* monitoring device. Further, the probability of upward mobility of workers across Japanese firms has been very low. When massive discharges of workers became inevitable because of corporate failure, their relocation often became the responsibility of the main bank. This mechanism has strengthened the incentive effectiveness of the contingent governance structure *vis-à-vis* workers and managers.

21 Amable *et al*. (2005) argue that the type of financial relationship between the firm and the capital owner, or the financial market, will set a certain constraint on firm's profitability, which will partly determine firm's survival probability. This will in turn shape both management and union strategies, hence influencing the outcome of the bargaining between these two actors. The mechanism linking the financial constraint to wage bargaining is based on the implied time horizon taken into account by each bargaining side: the shorter the time horizon, the stronger the pressure, and the less important will be firm's viability for the union's wage negotiation strategy.

22 The categorised industrial relations are as follows. 'Contestation' associates a weak union with short-term strategies and emerges when external creditors (non-stakeholders) exert a high pressure on management for short-term financial result. 'Pluralism', in which the trade union is the stronger partner in leading bargaining, so that a strong influence of financial markets implies a stress on short-term results. 'Neo-corporatism of type 1', in which - due to only a moderate influence of external creditors - long-term strategies are adopted by both the weak labor union and the firm's management. This implies that the survival probability of the firm is high. Finally, 'neo-corporatism of type 2', in

which the labour union is strong enough and an increase in external creditors' pressure would lead firms' management to break cooperation.

23 The authors identify four main models of care, hence four clusters of countries. The first one, characterising Italy, Greece and Spain, delegates all the management of care to the family. Also the second model (UK and the Netherlands) largely relies on informal care. However, in this model there is a wider collective interference in services for elderly people. In the third model (Austria and Germany) prevails a publicly facilitated private care model, where the costs associated to informal care strategies are partly compensated by collective arrangements. The fourth model (Belgium and France) has well developed formal care strategies. Finally, the last model (the Nordic countries) provides moderate to high levels of all formal care resources.

24 Wage coordination refers to the degree to which trade unions and employer organisations actively coordinate the determination of wage settlements across the economy. This wage bargaining system is also known as centralised. It is opposed to de-centralised systems in which industry wide employment categories determining equal pay for equal skills do not exist (Hancé *et al*, 2007).

25 Hall and Franzese (1998) never use in their work the term 'institutional complementarity'. However, their results can be interpreted as presenting evidence of a complementarity relationship.

26 This test is implemented by estimating a multiplicative interaction model. This uses interaction terms between variables accounting for specific institutional arrangements prevailing on financial and labour markets.

27 According to Hall and Gingerich (2004), one set of institutional practices is complementary to another when each raises the returns available from the other.

28 Hall and Gingerich (2004) argue that in coordinated market economies institutional practices in the sphere of corporate governance that encourage cross-shareholding and concentrate control in the hands of management, enhance the efficiency of institutional practices in the sphere of labour relations providing high levels of employment security, long job tenures and bargaining in wage-setting. In liberal market economies, instead, firms are more dependent on dispersed equity markets and confront regulations that give more power to shareholders than to stakeholders; moreover, the autonomy of the firm and its managers is more dependent on current profitability. Here, labour markets allowing for a high labour turnover and competitive wage-setting are more efficient because they permit managers to adjust labour in response to fluctuations in current profitability.

CHAPTER 4

THE COOPERATIVE FIRM IN THE ECONOMIC LITERATURE: A CRITICAL EVALUTATION

1 INTRODUCTION

In previous chapters we have shown that economists' *weltanschaung* has had major implications not just in terms of their analyses, but also as regards policy recommendations. In this chapter we go one step further and examine the economic analysis of the cooperative firm. Given the broad scope of the chapter, we regard the cooperative firm as a democratic organisational structure in which membership is voluntary, the users (workers, suppliers, customers) are the owners of the firm, and they hold both control and return rights. This definition enables taking into account the variety of actually existing cooperative firms (e.g. producer cooperatives, consumer cooperatives, service cooperatives, credit cooperatives, agricultural cooperatives, and so on). At the same time it also serves the chief interest of this research work, which is to look at the cooperative firm as an organisational structure, rather than at the specific forms it can assume.

The cooperative firm has been much disputed in the economic literature, on both theoretical and empirical grounds. As a result of the particular standpoints adopted, scholars have reached strikingly different conclusions on the performance and

viability of cooperatives, hence their desirability in economic systems. Thus, the issues involved in this controversy particularly lend themselves to make the core argument of the present research work.

Broadly speaking, it is possible to identify two main approaches to the study of the cooperative firm, basically expressing two contrasting views. The first one considers the cooperative as a sort of compensation for what the capitalist firm cannot achieve or guarantee (Zamagni, 2005). This is the mainstream interpretation, which evaluates the cooperative as a marginal and inefficient business structure, experiencing severe difficulties in capitalist environments because of a variety of problems, mainly of technological, managerial and financial nature (Ward, 1958; Alchian and Demsetz, 1972; Williamson, 1975, 1985; Jensen and Meckling, 1979). The basic argument is that, since non-hierarchical work modes face transaction cost disabilities, they exhibit the worst performance attributes compared to alternative modes (Williamson, 1980).

Conversely, the second line of study, belonging to the heterodox school, regards the cooperative as a more advanced organisational form in developed socio-economic systems, in the sense that it allows to mediate between two different roles of labour. The first one as a productive factor, the second one as an opportunity to fulfil oneself. In this view, the cooperative represents the typology towards which the capitalist firm should converge in the long-run (Zamagni, 2005).

On ethical grounds, supporting the case for the democratic firm means defending the argument that enough firms ought to be democratically run so that all those wishing to work in a democratic environment had a reasonable opportunity of doing so. There is reason to believe that in a suitable institutional setting this would have positive effects on productivity (Bowles and Gintis, 1994a). It has, indeed, been

argued that cooperatives can be efficient in mediating transactions between interdependent individuals since they rely to a great extent on socialisation as the principal mechanism of mediation and control (Bowles and Gintis, 1976). Therefore, once a set of complementary institutions are in place, cooperatives may even outperform capitalist firms. In fact, supportive institutions reduce agency costs between ownership and management, encourage mutual monitoring and smooth the incentive problem of free-riding by team members (Staber, 1989; Bartlett *et al*, 1992; Bonin *et al*, 1993; Smith, 2001; Bayo-Moriones *et al*, 2002).

Cooperative firms spread in different countries following different patterns of organisation and growth. The importance of studying this firm level institution goes beyond its economic significance.[1] Cooperatives have also social relevance: through private initiative and mutual aid, they alleviate poverty and promote the social stability and development of local communities (Kalmi, 2007).

By discussing the major theoretical and empirical contributions proposed in the literature on the cooperative firm,[2] the chapter will point out the inconsistencies existing between the conclusions reached by mainstream and heterodox studies.[3]

The chapter is organised as follows. Section 2 presents the short-term analysis; Section 3 discusses the monitoring activity, as it relates to cooperatives' property rights structure; Section 4 analyses the issue of financing; Section 5 comments the views on cooperatives' relative population density; finally, Section 6 concludes.

2 THE SHORT-TERM EQUILIBRIUM: WARD'S MODEL AND ITS EXTENSIONS

The debate on the behaviour of cooperative firms originates with Benjamin Ward's (1958) seminal work on the type of labour-managed firm that developed in Yugoslavia in the 1950s. The single input model is based on the following assumptions: the firm operates under perfect competition; there is no uncertainty over prices; decision making regards the short-term and is static in nature; each worker maximises his own income; the services available to the firm are labour and a fixed plant; dividends are equally distributed among workers; finally, the production function exhibits marginal decreasing returns to labour. Given these hypotheses, the model predicts that wages per worker are maximised if at the chosen output level the marginal revenue per worker equals the marginal cost per worker. Secondly, a change in the fixed costs leads to a change in output in the same direction. Thirdly, a change in price leads to a change in output in the opposite direction, implying that the firm faces a negatively sloped supply curve. Finally, the equilibrium output is lower than for capitalist firms. These results imply that in the short-term the cooperative firm is not able to guarantee the best allocation of resources, since the forces that would push labour towards the more productive activities are not present in it (Jossa and Cuomo, 1997).

Jaroslav Vanek (1970) analyses the short- and long-run behaviour of the labour-managed economy under perfect competition. He argues that the labour-managed economy is not only highly efficient in absolute terms, but also more efficient than other existing economic systems in terms of both allocative and distributive efficiency. Although the system would achieve a long-run Pareto optimal equilibrium solution, the short-run solution is in several respects close to Ward's.

Vanek's principal short-run static result is that the equilibrium can be either below or above the optimum operation, but most firms would operate at less than optimal capacity. Moreover, compared to an otherwise identical capitalist firm, the labour-managed firm will always have a smaller size and a higher capital-labour ratio, whenever the capitalist firm operates with positive profits.[4]

In the long-run, for given factor proportions, a fully competitive labour-managed firm operates at maximum factor productivity. Vanek also shows that when the technology is subject to constant returns to scale, the long-run equilibrium of the labour-managed firm is indeterminate. This indeterminacy can give the firm the opportunity to follow other objectives, such as maximising local employment.

With regard to the case of monopoly, oligopoly and monopolistic competition, still in the context of static equilibria, the most important conclusion is that whenever the labour-managed firm has any monopoly power, its equilibrium must be in the range of the production function where it is subject to increasing returns to scale. That is, falling short of the optimal scale of operation.

As far as the supply and demand for labour are concerned, Vanek's (1970) labour-managed system does not contain a conventional labour market. Instead, the firm has a single demand point – i.e. a unique configuration of income per labourer and amount of labour required. If that point is consistent with the labour availability that the firm faces, the equilibrium of the firm will be consistent with the demand point.

Moving to Vanek's (1970) comparative statics analysis, the short-run behaviour of a labour-managed firm producing a single product is such that the supply elasticity will be negative or zero. Thus, with a fixed capital stock, the firm will reduce or keep unchanged its output when the price of the good increases. For the multi-product firm, the tendency toward negative supply elasticity will generally be more than offset

by the tendency to substitute in production a more expensive product for one which is relatively cheaper. Thus the elasticities of supply will be positive.

To recapitulate, Vanek's general conclusion is that the labour-managed firm is characterised by short-run supply elasticities lower than those that would be associated with a comparable capitalist firm.

Subsequent literature contested Ward's and Vanek's conclusions arguing that the negative slope of the supply curve derives from the assumptions underlying their models (Jarsulic, 1980). These contributions also claim that if workers get more satisfaction from working in a cooperative than in a capitalist firm, then – using the Paretian criterion of economic welfare – the cooperative firm may be superior, even if Ward's perverse results were to hold (Pagano, 1985).

According to Evsey Domar (1966), Ward is unrealistic because it presupposes the possibility of variation in the number of members in the short-term, without considering supply conditions in the labour market. By introducing the labour supply curve, Domar (1966) shows that the solution of the model has fewer employees than in Ward, and the behaviour of the firm is no longer anomalous: an increase in product price leads to an increase in employment and production. Moreover, an increase in the cost of fixed capital reduces both employment and production, and the equilibrium average income of partners is less than the marginal product of labour. This latter result implies that in case of labour shortage it is necessary to discriminate among workers, considering some as partners and others as wage workers. However, the introduction of wage labour would transform the cooperative into a capitalist enterprise (Jossa and Cuomo, 1997).

A step forward towards greater realism of Ward's model has been to include work intensity in the model, so as to consider the effort needed to maximise

individual income. In works as Amartya Sen (1966), Jaroslav Vanek (1970), Matthew Berman (1977), Katrina Berman and Matthew Berman (1978), and Murat Sertel (1982), the introduction of this maximand removes the atypical supply curve and enables showing that the self-managed firm does not reverse resources. In these models, each member chooses work effort, then it has to be decided whether remuneration should be egalitarian or based on allocated labour (Sen, 1966). An egalitarian compensation complies with the solidaristic principles of self-management. However, it can introduce incentive problems when dissociated from an egalitarian division of labour. In such case, each member has less interest in increasing his effort, since the additional product will be divided with the other partners. The opposite problem arises when remuneration is based on effective labour: in order to increase their quota of income, partners would be willing to extend their working hours beyond the point where the marginal disutility of work equals its marginal product. This would determine a sub-optimal allocation of resources (Berman, 1977). Sen (1966) shows that these problems may be solved, arriving at an efficient solution, if members reach an agreement on both working hours and form of remuneration.

Ward's model has been criticised also by James Meade (1972). He argues that it is not correct to compare a cooperative firm (having an egalitarian constraint) with a capitalist firm (which, to expand its structure, discriminates between partners). For Meade the appropriate comparison would be between the self-managed firm and a hypothetical egalitarian capitalist maximising income per machine. In this firm the owners of capital start the activity bringing together machines owned by them and employing labour at the market wage.[5] However, capitalism is non-egalitarian and so, in order to compare it with self-management, also the latter must be non-

egalitarian. In Meade's inegalitarian cooperative, each partner holds a certain number of securities and wants to maximise the return on each share. Since securities are assigned on the basis of individual abilities and period of membership within the firm, the more qualified and experienced partners will receive higher dividends. However, the perfect mobility of labour between cooperatives allows to transfer resources where they are better remunerated, thus guaranteeing full allocative efficiency even in the short-term.

Passing to other extensions of Ward's model, some contributions included the employment level in the objective function, in association with dividends' maximisation (Law, 1977), or as an independent argument (Levin, 1984). The underlying rationale is that, contrary to the capitalist firm, the cooperative aims to defend the level of employment. Another problem with Ward's model, as pointed out by Bruno Jossa and Gaetano Cuomo (1997), is that it implicitly assumes that in the event of an increase in product price, it is possible to fire some workers, so as to increase the income of the remaining ones. However, the mutual aid concept, foundation of the cooperative logic, totally contrasts with this behavioural assumption. Among the studies that attempted to remedy this flaw, Anthony Brewer and Martin Browning (1982) show that it is still possible to increase the average income of all partners by excluding those who can obtain elsewhere a remuneration higher than the one attainable within the firm. Furthermore, Sertel (1982) suggests to prohibit the exclusion of a member without his will, and to do not allow individuals to leave the firm without the other members' approval.

Ward's theorisation has been questioned also by Hodgson (1999). He points out that social relations and technology are not separable; however, the model wrongly assumed that the production function does not change shape when cooperative

relations replace capitalist ones. Instead, taking into account the collective knowledge embedded within the firm, and the synergies that accrue from working together, it is no longer reasonable to assume decreasing marginal returns from labour. This hypothesis does not suit a knowledge-intensive system (Hodgson, 1999). Assuming increasing returns from the labour input, Hodgson shows that no behavioural difference emerges between the profit maximising capitalist and the average net income maximising cooperative. This suggests that there is no *a priori* reason to regard cooperatives as less efficient than capitalist firms.

The literature so far discussed has been tested by several empirical studies, though the theory is still overdeveloped compared to the extant empirical works (Bonin *et al*, 1993). Among these, Stephen Smith (1984) tests if dividend maximisation describes the objectives of U.S. plywood cooperatives. He estimates the parameters of a Cobb-Douglass utility function having income and employment as arguments. The results reject the null that employment does not matter for cooperatives, implying that dividend-maximisation is not the only objective for these firms. Furthermore, by calculating short-run marginal products of labour based on the coefficients obtained from the estimation of Cobb-Douglass, CES and translog production functions, Katrina Berman and Matthew Berman (1989) do not find evidence of an inefficient allocation of labour in plywood cooperatives.

A direct test of the predicted downward slope of cooperatives' supply curve is offered by Ben Craig and John Pencavel (1992). They estimate supply responses of plywood cooperatives, and show that cooperatives' supply elasticity is significantly positive. Thus, the evidence does not lend support to the notion of a negatively sloped supply curve. Moreover, following a change in output and input prices, both

the number of hours worked and employment tend to be more stable in cooperatives than in capitalist firms.

The hypotheses derived from the dividend-maximising model are rejected also by Niels Mygind (1987) and Bodil Thordarson (1987). The former author works on Danish data and concludes that cooperatives do not behave differently from capitalist firms with respect to employment and earnings. Thordarson uses data on Swedish cooperative and capitalist firms and finds no differences in employment levels and employment volatility between firm types. Along the same line, Derek Jones and Jeffrey Pliskin (1989) find that for British firms (operating in clothing, footwear and printing industries) an increase in the degree of profit sharing leads to an increase in employment.[6]

Prasnikar *et al*. (1994) test the predictions of the Ward-Domar-Vanek model on Yugoslav firm-level data from the 1970s and 1980s. They find that the perverse behaviour is not supported by the evidence: the perverse employment, hence output, responses to output price and fixed cost variations are rejected with panel data from 147 firms. Furthermore, firms set employment in between the level of the Ward-Domar-Vanek firm and the capitalist profit maximising level.

To summarise the empirical research above discussed, its common trait is the lack of evidence in support of the short-run perverse behaviour of cooperatives postulated by the mainstream theoretical literature. However, despite this evidence to the contrary, the idea of the general inferiority of the cooperative firm still retains a tenacious hold (Hodgson, 1999). This calls for further inquiry and for the elaboration of what Stefano Zamagni (2005) calls a ‘civil-economic theory of the cooperative enterprise’.

3 THE MONITORING ACTIVITY IN THE COOPERATIVE FIRM

According to Armen Alchian and Harold Demsetz (1972), their theory of the firm can explain why capitalist firms tend to prevail over cooperatives. Their central idea is that since the entrepreneur monitors the activities of team members, he must be rewarded for this job with an income related to the functioning of that team. If profit is not assigned to the controller, but is divided in a given measure among all workers, these latter will have more incentives to carry out their jobs well, while the controller will have less interest in performing his task. Alchian and Demsetz (1972) argue that in cooperatives it is likely that the reduction in productivity arising from the weakening in control will outweigh the productivity increase determined by workers' greater incentives.[7]

The analysis of Alchian and Demsetz (1972), and of studies as Robert Carson (1977), and Michael Jensen and William Meckling (1979), have been recently questioned by that strand of new institutional economics concerned with production and monitoring incentives. A first objection put forward is that when monitoring is entrusted to all workers, as is the case in cooperatives, no one has a particular interest in performing that function well. However, at the same time, since each partner is both controller and residual claimant, all members have an interest in monitoring others (Miller, 1993). So that, there is no particular reason to believe that a single monitor, having a substantial incentive to control, will perform better than many controllers with smaller incentives (Jossa and Cuomo, 1997). In other words, since cooperatives rely on the fact that the residual claimants are the workers, these firms are able to overcome the difficulties related to the incomplete nature of the job-contract. Hence, they can reach a degree of efficiency in the

productive activity which is not attainable by the capitalist firm. This is what Samuel Bowles and Herbert Gintis (1993) call the *direct residual claimancy effect*.

Secondly, it has been argued that in cooperatives workers' effort is greater since, being also owners, they feel responsible for the firm (Putterman, 1984), and also because they identify themselves with the firm (Gui, 1993). On both these grounds, because of a *participation effect*, more effort will be put in a given task in the cooperative firm (Bowles and Gintis, 1993). Thus, cooperatives may be more efficient than capitalist firms.

Thirdly, Jossa and Cuomo (1997) remarked that those who decide jointly feel more responsible for the common decisions, and have a sense of loyalty towards the other workers. This *loyalty effect* (Jossa and Cuomo, 1997) induces them to work harder (Horvat, 1982a; Oakeshott, 1982). To illustrate this point, Jossa and Cuomo analyse a cooperative which entrusts the monitoring task to one of its members. They argue that since the member-manager-supervisor is chosen by the majority of other members, this agent is in a position similar to the manager of a corporation. Therefore, the argument of Demsetz (1988), according to which the manager of a corporation cannot have a lot of on-the-job consumption, applies also to this type of cooperative. However, in cooperatives shirking is considered a reprehensible behaviour as it damages the collective. Hence, in this firm monitoring is likely to be performed better than in the corporation and thus the cooperative, rather than being invariably less efficient, may actually be more efficient.

Fourthly, Benedetto Gui (1993) pointed out that workers in a cooperative can perform effective reciprocal monitoring, as they have costless access to information on the job activities. This enables them to easily discover who works with effort and who does not. In consequence of the resulting saving of resources, cooperatives can

increase efficiency more than capitalist firms. The existence of this *reciprocal monitoring effect* (Bowles and Gintis, 1993) appears to be confirmed by empirical research (e.g. Fitzroy and Kraft, 1986).[8]

A fifth objection to the analysis of Alchian and Demsetz (1972) is that if cooperators nominate a controller, and separate ownership from control, they may do so effectively. This is confirmed, for instance, by the Israeli Kibbutz and the Spanish Mondragòn experience (Putterman, 1984; Elster and Moene, 1989). Indeed, nothing impedes cooperators to fire the non-performing controller. Furthermore, competitive mechanisms in the market for managers impact on the efficiency of these agents (Jossa and Cuomo, 1997). Consequently, there is no *a priori* reason to believe that a cooperative must be less efficient because the manager is on a fixed salary, and even less so if the manager has a share in the earnings of the firm (Fitzroy and Kraft, 1987).

To recapitulate, the general conclusion shared by the institutionalist studies discussed in this section is that free-riding does not seem to be a serious concern in cooperatives. The main reason for this is that workers are both co-owners and residual claimants, and so they have more interest in the fortunes of the firm. Hence a greater incentive to work with effort (Stiglitz, 1993). In other words, the democratic firm is able to balance between income and effort (Vanek, 1970) and attains a relative advantage in extracting productive effort from workers (Dow, 1993; Bowles and Gintis, 1994b). In this sense, the labour-managed firm appears to be the best form of productive organisation from the point of view of the incentives it gives to its members (Vanek, 1970).

Passing to the empirical studies on the impact of the cooperative structure on incentives and productivity, these explore the relationship between productivity and

worker participation.[9] Ben-Ner *et al*. (1994) reviewed the evidence on the productivity effects of employee participation. They concluded that there is widespread support for the claim that "productivity is enhanced in firms where there are arrangements that link participation in control and participation in economic returns" (ibid: 209).

The main result linking the works of Jones and Backus (1977), Jones (1982), Jacques Defourny *et al*. (1985), and Jones and Svejnar (1985) is that employee participation does affect productivity. However, the impact of participatory forms varies across countries and industries. Profit sharing is the most significant participatory variable for French and Italian cooperatives, while this result is not uniformly valid for Sweden and the U.K. Moreover, participation in decision rights and employee ownership increases the productivity of Italian and French cooperatives, but not of U.K. ones.

The efficiency of Polish producer cooperatives has been investigated by Jones (1985), using an enterprise level dataset on producer cooperatives for the period 1976-1980 and various internal cooperative documents that refer mainly to 1960-1978.[10] This study, focusing on firms operating in clothing, printing and construction, shows that income distribution has much smaller dispersion between cooperatives than between State-owned firms. Also, during 1960-1980 the technical efficiency of cooperatives was at least as good as Polish State-owned firms. Indeed, allowing for the poorer quality of cooperatives' factors of production (the use of second-hand supplies and of older technologies by firms that are smaller than non-participatory firms in similar industries), it is probable that during 1960-1980 cooperatives were technically more efficient than other firms.

As far as studies comparing productivity in cooperative and capitalist firms are concerned, these find mixed evidence. Barbara Lee (1988) documents no differences both in productivity and in production function coefficients' estimates. Saul Estrin (1991a) shows that Italian cooperatives have lower productivity than capitalist firms; however using a different measure of labour input no statistically significant differences emerge between cooperative and capitalist firms. Moreover, Defourny (1992) finds that medium sized French cooperatives are more productive than conventional firms, while the opposite holds for smaller firms.

The conflicting results reached by this strand of empirical literature suggest that an important issue research should address is why differing institutional settings conduce to varying productivity effects (Bonin *et al*, 1993).

To briefly recapitulate the general point emerging from the above discussion, the issues related to motivation, incentives, discipline and opportunism are central to the evaluation of the governance of the cooperative firm (Bowles and Gintis, 1994a). Once these issues are incorporated in the analysis of firm behaviour and performance, cooperatives do not seem to suffer any of the diseconomies claimed by the conventional literature. If anything, the democratic firm would appear to be a superior organisational form.

4 THE LONG-TERM BEHAVIOUR: THE ISSUE OF CAPITAL ACCUMULATION

Part of the literature discussed in the previous sections claims an anomalous behaviour of the cooperative firm in the short-term. Studies on the democratic firm identify further problems when, moving from the short to the long-run, the issue of

capital accumulation is introduced. Indeed, according to the conventional literature, questioned by the heterodox school, cooperatives have a tendency to underinvest. This phenomenon, arising from problems related to both internal and external financing channels, will be examined in the following sub-sections.

4.1 Internal financing and the underinvestment phenomenon

The issue of internal financing was firstly analysed by Eirik Furubotn and Svetozar Pejovich (1970a, 1970b, 1972, 1973) and Vanek (1970).[11] The traditional literature relates cooperatives' tendency to underinvest to their property rights structure and the limited time horizon of partners. The intuition for this conclusion goes as follows. The institutional characteristics of the cooperative firm are such that property rights are restricted to the right of use of capital. This implies that partners who leave the firm cannot obtain a refund of the profit devoted in the past to self-financing (Furubotn and Pejovich, 1970a). Consequently, and also due to the non-transferability of ownership rights, members lack incentives to invest in the firm. Therefore, cooperatives are likely to have a shorter lifespan and operate in the inefficient, increasing return to scale zone of their production functions, or at least to exhibit higher scale elasticities than capitalist firms (Vanek, 1977).

The underinvestment phenomenon, often referred to as the *Furubotn-Pejovich effect* (or *horizon problem*) concerns the impossibility for the partners to recoup, in certain cases, the self-financed capital invested in the firm.[12] The above authors assume that at the end of each year, partners have to decide collectively about the destination of profit. In particular, they must fix the quantity of income withdrawn for dividends and the level of self-financing.[13] For the investment to be made, it is

necessary that a majority of partners think they will stay with the firm for a number of years sufficient to recover the profits not withdrawn for reasons of self-financing. The relevant single time horizon is that of the median member: if his time horizon is such that the expected tenure within the firm is shorter than the duration of the investment, the median member will constrain the others. The investment of one monetary unit will only be realised if the discounted stream of future annual returns generated by the investment equals the amount of the investment.

According to Marc Jarsulic (1980), the error in claiming – as both Ward (1958) and Vanek (1970, 1975, 1977) did – that cooperatives make inefficient financing decisions, lies in having assumed that the value of capital per worker can be measured independently of the income distribution. Jarsulic proves that the cooperative firm may choose the same technique that would be chosen in a capitalist firm, given the prevailing wage. This technique has a capital-labour ratio at least as great as that of capitalist firms.

Patrick Rey and Jean Tirole (2006) argue that coops, in their purest form, are fragile institutions.[14] They contend that the free-riding of new members on the investment of established partners induces underinvestment. In the worst scenario, it even prevents the firm from being established. Nonetheless, Rey and Tirole claim that even if cooperatives were viable, they would be vulnerable to the attacks by capitalist firms or discriminatory cooperatives, which can lure potential members through the promise of future profits.

Some scholars claimed that the problems faced by self-financed cooperatives can be solved if the position of partner can be sold (Carson, 1977; Berman, 1982; Sertel, 1982; Mygind, 1986). In this case, it would be in the interest of all workers to maximise both firm income and capital value. Indeed, the firm producing more is

worth more, and the more the firm is worth, the more valuable is the quota of it that each worker disposes.

Marc Fleurbaey (1993) argues that even if there were a market for the position of partner, internal financing would not be advisable. The reason for this is that it would increases riskiness, since members would have to invest their own savings in the firm. However, according to Jossa and Cuomo (1997) this difficulty could be resolved even without resorting to the selling of membership. Since underinvestment arises because those who are thinking of shortly leaving the firm are not willing to invest in it, a way to solve this problem is to allow leaving members to take their savings with them.

4.2 External financing

A corollary of the problems related to the self-financing of cooperative firms is that workers will prefer external sources of funding, as these allow matching the cost of financing to the temporal path of the returns from an investment project (Pejovich, 1973; Furubotn, 1974). Cooperatives funding themselves with loan capital, and consequently distinguishing between incomes from work and incomes from capital or property, are regarded by Jossa (2005) as truly socialist firms. His argument is that in this case Vanek's (1977) description of firms run by workers as 'their own capitalists' will no longer apply to them.[15]

Vanek (1977) claims that external financing is vital to cooperative firms.[16] According to Vanek, cooperatives should hire capital, paying external financiers a scarcity rent, and then appropriate all net income. However, Gintis (1989) notes that the optimal size requires a level of finance beyond the means of workers. It has

been argued that problems of access to external finance play a major role in hindering the creation and expansion of democratic firms, thus affecting their relative performance. Limited access to finance restricts workers' opportunities to supersede wage-labour and capitalist social relations of production. Financing problems also explain why most cooperatives operate in labour-intensive industries (Doucouliagos, 1990). However, according to Williamson (1985), financial disadvantages as a result of pure commercial considerations are not likely to be a significant long-term factor, in that firms with a solid record will receive finance.

As stressed, among others, by Jacques Drèze (1993), Louis Putterman (1993) and Gregory Dow (2003), cooperatives' property rights structure, combined with the asymmetric information problems that debt financing involves, result in higher costs of capital and/or credit rationing for these firms. A number of writers (Horvat, 1982b; Ireland and Law, 1982; Bowles and Gintis, 1986; Ben-Ner, 1988a,b; Gintis, 1989, 1990) pointed out that, in terms of borrowing funds, cooperative firms are financially disadvantaged compared to their capitalist counterparts because this organisational form is relatively unknown to financiers, and hence bears them greater risks. In fact, being an unfamiliar type of organisation, cooperatives may be perceived as being riskier than capitalist firms and, consequently, satisfying capital requirements may be costlier for them (Putterman, 1982). The cost of borrowing is further increased by the fact that workers' limited wealth – and consequent risk aversion and liquidity constraints – bound the personal collateral available for obtaining loans (Ben-Ner, 1988a) and this creates a problem in terms of guarantees offered to third parties financing the firm (Jossa and Cuomo, 1997). Bowles and Gintis (1994c) show that the level of workers' wealth and the incidence of democratic firms are jointly determined. They argue that this suggests that an

observed distribution of workers among types of firms does not support inferences about the efficiency, or the competitive viability, of alternative organisational forms. Moreover, in terms of policy, reforms that aim to support a greater level of wealth for the less wealthy class would also support a larger fraction of workers in democratic firms.

Ekkehart Schlicht and Carl Christian von Weizsäcker (1977) identify a *commitment problem* of cooperators, which in their view is the root of the financial constraints faced by cooperatives. These authors argue that in its essence the commitment problem arises from the fact that cooperative members are more likely than the partners of a capitalist firm to leave the company if its profitability deteriorates. Hence, they may lack effort to operate successfully if in risky situations substantial parts of the losses can be get rid off by bankruptcy, unless there are norms imposed from outside, or mechanisms to check the mobility of labour, or it is possible to sell the position of member.

In the extreme case analysed by Rey and Tirole (2006), cooperatives do not have external finance at all. The authors claim that debt finance makes the firm sensitive to runs by partners, since the desertion by some members increases the assessment imposed on remaining ones, who then have a strong incentive to leave. Nonetheless, outside equity finance raises control issues because outside financers are concerned with the possibility that partners distribute themselves less verifiable dividends. To show why this can discourage external investors to finance a cooperative, Rey and Tirole consider a two-period scenario. In the first period cooperators can contract with outside investors on current access prices and investment decisions. In the second period users will set the access price so as to cover operating costs, but have no incentives to generate extra revenue to pay-back external investors. Anticipating

this, outside investors will not lend at the outset. In their view this implies that cooperatives will find it difficult to attract financing without giving investors some control rights over pricing decisions.

In regard to the actual sources of external financing, bank credit has typically been the main channel for cooperatives. Pejovich (1992) analyses the advantages and disadvantages of using this channel to secure financial resources. The cost incurred by the worker-member is a series of payments to the bank over a given period of time. The benefit is the claim on the returns generated by the investment undertaken during the time he stays with the firm. According to Pejovich, two critical variables determining the availability of bank loans are cooperators' time horizon and the length of bank credit. Firm members would prefer to obtain bank loans when the length of the loan is longer than their time horizon with the firm. Instead, banks would prefer to extend loans in the opposite case. Consequently, cooperatives might not be able to obtain bank credit due to the mismatch between members' time horizon and the length of the loan. Pejovich (1992) argues that these two behavioural variables are created by the structure of property rights in labour-managed firms. They are the key to explain the inefficiency of investment decisions by labour-managed firms. This inefficiency could be avoided only if the prevailing incentives and transaction costs pushed the employees towards equalising the length of bank credit with the expected life of the capital goods to be purchased with that credit.[17]

Drèze (1993) and Fleurbaey (1993) suggest that a solution to the difficulties faced by cooperatives in obtaining external loans could be to insure against uncertainty by creating a central insurance institution. This would stabilise workers' incomes and subsidise them in periods of crisis. Such a mechanism would endow cooperators with higher collateral, which could be used as a guarantee for the loans

requested. Gui (1994) remarks that existing financial intermediaries should provide forms of credit alternative to equity and loans, such as quasi-equity. An even better solution would be, in his view, the establishment of special financial bodies tailored to the specific needs of cooperative firms, promoted by public authorities or cooperative associations.

4.3 Empirical studies on the financing of cooperative firms

Given the underinvestment theme in the theoretical literature, several hypotheses have been tested by empirical contributions. Working on British cooperatives, Derek Jones and David Backus (1977) test Vanek's hypothesis that cooperatives operate in the region of increasing returns. When estimations are carried out on the entire sample, no evidence of increasing returns is found. In contrast, when the sample is split into the sub-samples of large and small firms, small cooperatives seem to operate under increasing returns. A test of Vanek's hypothesis is offered also by Donald George (1982), who finds that Danish cooperatives operate in the region of constant returns to scale.

Passing to the empirical studies on the *Furubotn-Pejovich effect*, the existing evidence is mixed. Among the contributions that do not find evidence of underinvestment, Jones and Backus (1977) test whether cooperatives using a high percentage of internal funding tend to underinvest. If the underinvestment hypothesis were true, cooperatives using more internal financing should have a lower capital-labour ratio. Results from this investigation, however, do not support this hypothesis. Estrin and Jones (1988) analyse French cooperatives and distinguish between factors thought to influence investment in capitalist firms (e.g.

expected product demand) and factors stressed in theories of cooperatives (e.g. the extent of collective ownership, the availability of external finance, worker participation in decision making and members' time horizon). The empirical evidence shows no significant difference between determinants of investments in cooperative and capitalist firms, except for the availability of external financing. Furthermore, Henk Thomas (1982) finds that capital-labour ratios are not lower, and have instead risen faster, among the Spanish Mondragòn group of cooperatives than in comparable capitalist Spanish firms, probably thanks to the support of the Caja Laboral Popular bank.

In contrast to these results, other studies find evidence of a tendency towards underinvestment in cooperatives. Among them, George (1982) works on data on Danish bakeries and construction firms and shows that cooperatives have lower capital-labour ratios than capitalist firms. The same result is found also for Italian construction and manufacturing cooperatives (Zevi, 1982; Bartlett *et al*, 1992), and for British footwear and clothing cooperatives (Jones and Backus, 1977).

To conclude, the discrepancies emerged between the theoretical and most of the empirical studies analysing the financing of cooperatives, imply that whether finance represents an obstacle for these firms still remains an unsettled issue. This calls for further investigation.

5 THE POPULATION DENSITY OF COOPERATIVE FIRMS BETWEEN (IN)EFFICIENCY CLAIMS AND CONTEXT DEPENDENCE

Economists have analysed the relative population density of the democratic firm from different standpoints. Once again, the debate reaches strikingly controversial

conclusions. Williamson (1975, 1980, 1985) claims that since hierarchical firms predominate in today's competitive environment, then these firms must be more efficient than non-hierarchical ones and better suited to survival. His argument is based on the contention that because the competitive process led to the selection of hierarchical firms, then this implies that capitalist firms must be more efficient than their democratic counterparts. Non-hierarchical modes "are merely of ephemeral duration" (Williamson, 1980, p. 35).

Williamson argues that the historical evidence lends supports to his view. However, this claim is only based on the observation that hierarchical firms outnumber non-hierarchical organisations. In contrast to this scanty evidence, the ample empirical research on cooperatives earlier discussed in this chapter reveals that cooperatives exhibit a healthy, and in some cases even prosperous, profile of economic performance.

In line with Williamson, Jensen and Meckling (1979) argue in their discussion of industrial democracy: "The fact that this system seldom arises out of voluntary arrangements among individuals strongly suggests that co-determination or industrial democracy is less efficient than the alternatives which grow up and survive in a competitive environment" (ibid: 473). Thus both Williamson, and Jensen and Meckling equalise survival with efficiency and condemn non-hierarchical firms to disappearance on the ground of their supposed inefficiency.

Also Henry Hansmann (1988) adopts the efficiency perspective to explore the economic factors responsible for the different patterns of ownership that are observable in various countries. In proposing his theory of ownership Hansmann (1988) focuses on analysing the costs that ownership involves and that can be different for different classes of patrons (i.e. the persons that transact with a firm).

He divides these costs in costs of marketing contracting (i.e. market power and asymmetric information) and costs of ownership (i.e. monitoring, collective decision making and risk bearing). He contends that the above costs are the main determinant of the relative efficiency of alternative assignments of ownership, and that efficiency will be best served if ownership is conferred to the patrons that allow to minimise the total transaction costs.

Grounding the analysis on the above arguments Hansmann (1988) concludes that, by achieving a relative homogeneity of interests among patrons, investor-owned firms dominate in market economies for two reasons. First, they enable minimisation of the contracting costs for capital, which are often relatively higher than the contracting costs for other inputs and products. Second, investors are the group of patrons best suited to exercise effective control. Hence alternative forms of ownership can arise only when the above conditions fail.

In contrast to the above writers, Chris Doucouliagos (1990) argues that capitalist firms outnumber cooperatives because of difficulties that coops face in operating within capitalist economies, and because of ideological bias against them, rather than for their alleged inefficiency. He points out that the analysis of the relative efficiency of cooperative and capitalist firms is confined to the neoclassical quantitative notion of Pareto efficiency. However, this does not address qualitative efficiency which, in his view, is central to the comparative analysis of cooperatives *vis-à-vis* other forms.

Doucouliagos (1990) further contends that “the success of a particular type of firm, be it capitalist or labour-managed, is a function of the type of economic system in which it is operating” (ibid: 48). Hence, the specific features denoting the environment in which firms are embedded, rather than strict efficiency

considerations *per se*, determine the relative performance of firms. Doucouliagos (1990) identifies in the constrained access to labour, management services and finance the main sources of the disadvantage that cooperative firms experience in capitalist economies. Furthermore, cultural and social backgrounds also have a deep influence on workers' willingness to establish cooperatives.

Also Hodgson (1993, 1994) questions the efficiency argument *á la* Williamson. He argues that the appeal to evolutionary selection made by Williamson and followers is not well founded because the more efficient firms are not always selected in a competitive and evolutionary process. Also inefficient structures survive. He clarifies that "the selection of the 'fitter' in evolution is not simply relative to the less successful but is dependent upon the general circumstances and environment in which selection takes place" (Hodgson, 1994, p. 100). He further argues that "the 'fitter' are only fit in the context of a given environment, and sometimes the 'unfit' can be rapidly transformed into the 'fit', and vice versa – note the dinosaur – if these environmental circumstances change" (ibid: 100).

Thus, the greater density of capitalist firms does not necessarily imply greater efficiency. It may just mean that cooperatives are less likely to emerge. By resorting to the concept of frequency dependency used in biology, Hodgson (1993) shows that if, for whatever reason, the birth of hierarchical firms is favoured, they may grow (in size or number) and prevail over democratic firms, regardless of the relative efficiencies.[18]

6 CONCLUSION

The aim of this chapter has been to examine the major literature analysing the cooperative firm in order to point out the nodal points emerging from the debate. The discussion carried out has shown a contraposition between the results reached by mainstream scholars and those claimed by the heterodox school. It is possible to conclude that this disagreement occurs with regard to any of the particular issues addressed.

More precisely, as far as the short-term analysis is concerned, the traditional approach originating with Ward (1958) claims a perverse behaviour of cooperatives: they maximise income per worker, face a negatively sloped supply curve, in equilibrium produce less than capitalist firms, and allocate labour inefficiently. These conclusions have been questioned by subsequent studies, which tried to increase the realism of the model (Domar, 1966; Meade, 1972; Hodgson, 1999). Nonetheless, the extant empirical evidence clearly shows the flaws of the traditional short-term analysis: there is no evidence of a short-run inefficient allocation of labour in cooperatives (Berman and Berman, 1989); the notion of a negatively sloped supply curve is rejected (Craig and Pencavel, 1992) and dividend maximisation is not the only objective for cooperatives (Smith, 1984).

With regard to issue of monitoring, the theory of the firm of Alchian and Demsetz (1972) implies that cooperatives are less productive than capitalist firms, since residual rights are shared among workers, rather than being assigned to the controller. This conclusion has been contested by institutionalist studies concerned with production and monitoring incentives, which show both theoretically (Miller, 1993; Stiglitz, 1993) and empirically (Lee, 1988; Defourny, 1992) that cooperatives tend to be at least as productive as other firms.

Insofar as the studies that focused on capital accumulation are concerned, the conventional wisdom argues that, due to their property rights structure, internally financed cooperatives underinvest (Furubotn and Pejovich, 1970a, 1970b; Vanek, 1970). At the same time, accessing external finance also entails problems for cooperatives, resulting in higher costs of capital and credit rationing (Putterman, 1982). However, most of the empirical literature does not find evidence of underinvestment in cooperatives (Jones and Backus, 1977; Estrin and Jones, 1988). Furthermore, and perhaps more importantly, the evidence contradicts mainstream theoretical predictions: cooperatives still represent (at least in some countries) a long lasting and significant phenomenon (Stiglitz, 2004). This suggests that the financing issues have been governed and concretely tackled in some way. Where this has not occurred, it hindered the development of cooperatives (Zevi, 2005).

The general conclusion that can be drawn from the literature analysed in this chapter is that the traditional approach to cooperatives is in most cases at odds with stylised empirical facts (Kalmi, 2007). A severe limitation of the mainstream theory is that this approach is essentially static, so that its claims may be flawed by this 'immobility'. We share the view of Bowles and Gintis (1994a), who argued that the conventional literature on democratic firms has suffered from severe methodological lacunae. In putting forward this claim we contend that, beside the undeniable limitations of the formal analysis, the main problem with the traditional economic analysis of cooperative firms is to have treated the environment as fixed. In other words, the analysis is insensitive to contexts.

By ignoring social, cultural and institutional contexts, mainstream economic theory has once again neglected to recognise that history matters. A number of writers have noted that the development of economic democracy requires a

favourable climate and the creation of support organisations (Zwerdling, 1980; Horvat, 1982a; Gunn, 1984). That is, organizations that support the creation and development of cooperative firms; coordinate their activities; help integrate them into a group or sector, and provide finance (Doucouliagos, 1990).

The role of the broad institutional context for the performance of cooperative firms will be further explored in the next chapter.

NOTES

1 The concept of institution has been given different meanings in the literature. The notion this work adopts is the one proposed by Hodgson (2006), in which institutions are systems of established and prevalent social rules that structure social interactions, thus including organisations as a special type of institutions.

2 The empirical studies that investigated the behaviour and performance of cooperative firms are numerous and have addressed a set of related research questions. Applying meta-analysis to combine the results of these studies would seem a natural choice. However in the present case the meaningful applicability of meta-analysis is limited by the fact that different studies have measured a common variable using different proxies. This heterogeneity in variable measurement would affect the reliability of the results obtained from meta-analysis.

3 Kalmi (2007) concludes that cooperatives do not receive much attention in current mainstream economics mainly due to the paradigm shift from nineteenth and early twentieth century institutionalism to neoclassical analysis.

4 The opposite conclusion holds when the capitalist firm operates at a loss (a situation applicable only in the short-run).

5 Such a firm is egalitarian since there is no discrimination among partners: the division of income per machine is carried out in the same way as the division of income per worker in the cooperative.

6 Profit sharing is measured as the percentage of total worker remuneration that is distributed as a profit share.

7 Yet, Alchian and Demsetz (1972) do not exclude that profit sharing may sometimes be advantageous, particularly in the case of small firms, where it is easier to have efficient reciprocal control among participants.

8 Arguably, the *reciprocal monitoring effect* also leads to a reduction in asymmetric information.

9 These studies broadly define worker participation so as to include decision making rights, profit sharing and employee ownership.

10 The dataset comes from the Central Union of Work Cooperatives (CZSP) in Poland. The CZSP comprises about 1,500 producer cooperatives which employ about 800,000 workers, of whom about 200,000 are disabled.

11 According to Vanek (1970) the first contribution on this issue has been offered by Pejovich in November 1968 at the Meeting of the Southern Economic Association.

12 The *horizon problem* was originally formulated by Jensen and Meckling (1979).

13 This decision is equivalent to the choice of allocating saving between the financing of firm's assets and the outside investment in government bonds or bank saving accounts.

14 The authors model the purest form of cooperative as non-discriminatory: there is no entry fee, no redemption rights and all users pay the same amount for the right to use the output produced by the cooperative. In contrast, in a discriminatory cooperative newcomers must pay an entry fee.

15 Jossa (2005) rejects the view that Marx refused cooperation as a production mode. Analysing some of Marx's writing, Jossa (2005) argues that Marx regarded a system of cooperatives as a production mode superior to capitalism.

16 Having access to external finance enables the owners of a firm to broaden their investment portfolio and/or diversify risk. It may also help to bring in the firm financial management skills that would otherwise be lacking.

17 The bundle of rights which sets the labour-managed firm apart from other business types is summarised by Pejovich (1992) as follows: the employees govern the firm; the employees have claims on the firm's cash flows; the above employees' rights are not transferable, and are contingent on their employment with that firm; the firm has not ownership of its capital assets. This bundle of rights creates some negative incentives and positive transaction costs that are responsible for the inefficiency of investment decisions by labour-managed firms (Jensen and Meckling, 1979 and Pejovich, 1990, in Pejovich, 1992).

18 In biology frequency dependence describes situations where selection coefficients are dependent on population density, such that there is a feedback relationship between a unit and its environment. In the context of real economies, frequency dependence implies that the low density of cooperative firms should not be taken to mean that either individual firms of this type, or an industry dominated by them, is necessarily less efficient (Hodgson, 1993, 1994).

CHAPTER FIVE

THE DEMOCRATIC FIRM AND THE WIDER INSTITUTIONAL CONTEXT

1 INTRODUCTION

The pessimistic theoretical predictions of the conventional economic theory on democratic firms discussed in the previous chapter do not seem to offer a realistic account. Indeed research on cooperatives shows that their performance is strongly influenced by the political and socio-economic conditions that prevail in the socio-economic environment in which these firms operate. However, differences in the history of the cooperative movement of diverse countries, combined with differences in legal frameworks, make it difficult to draw general conclusions when trying to evaluate the effectiveness and performance of cooperative firms as an organisational form across countries.

This chapter aims to explore the above context dependency argument by presenting anecdotal evidence on the role of political, cultural and socio-economic factors surrounding the historical development of the cooperative sector in different countries. Wherever available, figures on some performance indicators will also be provided. However, due to differences in the coverage of the data sources used, as

well as in the country-specific legal frameworks regulating the cooperative legal structure, the data are not directly comparable across countries.

The chapter briefly touches in the next section on the origins of the cooperative ideology and on economists' attitude towards it. Section 3 discusses the pre- and post-privatisation experience of Central and Eastern European countries. Section 4 looks at the United Kingdom case. Section 5 presents the experience of Belgium, Denmark and the Netherlands. Section 6 comments on the features of the Japanese cooperative sector. Section 7 explores the main traits of the French case. Section 8 discusses the cooperative movement in Italy. Section 9 presents cooperation in Spain. Section 10 illustrates the US experience. The concluding part of the chapter draws on the evidence previously discussed in order to evaluate the relevance of the context dependence claim in regard to cooperative firms and their performance.

2 ORIGINS OF THE COOPERATIVE IDEOLOGY AND ECONOMISTS' ATTITUDE

The idea of cooperation as a means of escaping the undesirable consequences of capitalism and industrialisation started to be propagated in the early years of the nineteenth century. In his 1813 work *A New View of Society*, Robert Owen (1771-1858) was among the first to praise the value of a system run on a cooperative basis. French socialists Henri de Saint Simon (1760-1825), Charles Fourier (1772-1837), Philippe Buchez (1796-1866), Pierre Joseph Proudhon (1809-1865) and Louis Blanc (1811-1882) were other early proponents of the idea that production should be organised through a system of permanent cooperative associations (Tombs, 1984).

Writing in 1848 John Stuart Mill (1806-1973) rejected the Communistic doctrine and praised Henri de Saint Simon and Fourier: “The two elaborate forms of non-communistic Socialism known as St. Simonism and Fourierism are totally free from the objections usually urged against Communism … they may just be counted among the most remarkable productions of the past and present age” (Mill, 1987: 212). Mill argued that the Saint Simonian scheme was valuable because it did not contemplate an equal distribution of product and proposed that each individual should be occupied according to personal vocation or skills. In regard to Fourierism, Mill considered it as “the most skilfully combined, and with the greatest foresight of objections, of all the forms of Socialism” (ibid: 212). In Mill’s view, Fourierism greatest merit was the suggestion that the distribution of the product of cooperative associations should be carried out by first assigning a certain minimum for the subsistence of every member, and then to share the remainder in pre-determined proportions among labour, capital and talent (Mill, 1987).

Hodgson (1999) points out that for Marx worker cooperatives had an ideological and demonstrative value within capitalism and he supported them for that reason. Such cooperatives showed that the workers were capable of managing production without capitalists. However, Marx did not see the establishment of producer cooperatives alongside other forms of collective productive organisation under future socialism. During the 1864 First International, Marx and his followers proposed that worker cooperatives would become part of nationalised industries (Hodgson, 1999). Hence Marxists were sceptical about the viability of cooperative firms under communism.

Also Alfred Marshall praised cooperation when in his 1881 *Principles of Economics* he wrote: “If competition is contrasted with energetic co-operation in

unselfish work for the public good, then even the best forms of competition are relatively evil; while its harsher and meaner forms are hateful" (Marshall, 1962: 7). He argued that in a cooperative society the employees "have fairly good means of judging whether the higher work of engineering the business is conducted honestly and efficiently" (ibid: 254) and that

> "they render unnecessary some of the minor work of superintendence that is required in other establishments; for their own pecuniary interests and the pride they take in the success of their own business make each of them averse to any shirking of work either by himself or by his fellow-workmen" (ibid: 255).

Although Marshall envisaged in the lack of managerial skills the main problem faced by cooperative firms at the time of his writing, he was hopeful that cooperative societies could become successful, as the following extract testifies: "it may be hoped that the diffusion of a better knowledge of the true principles of co-operation, and the increase of general education, are every day fitting a larger number of co-operators for the complex problems of business management" (ibid: 255-256).

3 THE DEMOCRATIC FIRM IN CENTRAL AND EASTERN EUROPE

This section illustrates the main stages of the historical development of democratic firms in Central and Eastern Europe, where the cooperative movement started to develop in the second half of the nineteenth century. Both the pre- and post-privatisation periods are considered.

3.1 The ex-Yugoslav experience

Since the early 1950s ex-Yugoslavia deviated from the centralised communism of the Stalinist type and replaced vertical command planning with horizontal relations between more autonomous enterprises through a regulated market (Estrin, 1991b). Federal and republican plans no longer prescribed output norms for firms and industries. Furthermore, the country began experimenting with the introduction of democratic practices in the workplace by establishing the self-management of its industrial enterprises (Ward, 1958; Ramachandran *et al*, 1979). The cardinal principle was that employees had to have a role in the decision-making structures of their enterprises (Estrin, 1991b).

According to Janez Prasnikar and Jan Svenjar (1991), the Yugoslav experience with workers' self-management can be broadly divided in four periods: the introduction of self-management (1952-1960), when central planning was still influential; the period of market self-management (1961-1970), when significant decentralisation and introduction of market forces took place; the period of integrally planned self-management (1971-1988), with more emphasis on bargaining among economic units with varying degrees of political and economic power; the post-1988 system aimed at reintroducing markets and private property, and delimit the self-management rights of workers.

As mentioned above, workers' management was introduced in the early 1950s and provided for an elected council of workers in the firm that had to serve a general policy making function. The council had to approve both the independent plan of the firm and the wage schedule. Differential wages within the firm were subject to the constraint that no wage rate could be set below the State minimum wage. The council was also empowered to issue directives on the execution of the

plan and the management of the firm. Day-to-day supervision of operations was entrusted to the management board, a sub-committee of the workers' council (Ward, 1958). Furthermore, the 1952 reform permitted workers to appropriate any surplus normally allocated to owners and to make accumulation decisions, but retain no individual marketable rights over the assets (Estrin, 1991b).

Observers of the Yugoslavian experience tend to agree that the actual distribution of power in self-managed firms was more hierarchical than a pure self-managed model would suggest (Rus, 1978; Vejnovic, 1978; Prasnikar and Svenjar, 1991). Mark Shaffer (1994) argues that levels of participation were in practice low or non-existent despite worker participation was extolled. The institutions that should have suggested that some kind of participation existed (e.g. workers' councils), typically had little or no influence on power. The main reason for their existence was to provide ideological support for the economic and political system. Indeed the State reserved the right to intervene directly to alter any decisions that it did not approve (Ward, 1958).

Furthermore, the legal and institutional settings provided negative incentives in terms of promoting the efficiency of labour-managed firms. For instance, until the late 1980s individuals were not legally allowed to start self-managed firms. In addition, to prevent unemployment the authorities tended to rehabilitate, rather than liquidate, unsuccessful self-managed firms (Ramachandran *et al*, 1979; Prasnikar and Svenjar, 1991).

When ex-Yugoslavia introduced the market socialism reforms of the period 1961-1970, the possibility for the emergence of genuine worker participation was allowed. The reforms instituted worker councils in State-owned enterprises, which however had power only in limited spheres, such as wage determination and

employment decisions. Similar changes occurred also in Hungary and Poland. However, the councils had not considerable authority in the above countries (Shaffer, 1994).

In the period 1971-1988 reforms represented a move back from allocation by markets, which was replaced by bargaining between enterprise management, local government officials and bankers. In that phase firms were broken into units within plants. These units, called Basic Organisations of Associated Labour (BOAL henceforth), had their own self-management apparatus (Estrin, 1991b).

In 1980 the self-managed sector produced more than 85% of gross national product and employed almost six million people, who were organised in 20,064 BOAL, 14,039 working organisations with BOAL and 4,157 working organisations without BOAL (Prasnikar, 1994). Throughout the 1980s problems emerged in terms of declining labour productivity, low capital productivity and absence of financial discipline of firms (Lydall, 1984; 1989, in Estrin, 1991b). Estrin (1991b) argued that probably the causes of these problems were: the breaking up of firms into BOAL, which transformed managers into functionaries and levied workers from any responsibility for poor choices; the absence of decentralised capital market institutions to be associated with self-managed enterprises.

Shaffer (1994) evaluates the ex-Yugoslav experience with self-management arguing that it seems to have been genuinely popular among workers. It also contributed positively to the legitimacy of the political system and of the Yugoslav State. From 1988 ex-Yugoslavia embarked on reforms which implied abandoning their unique system and moving towards Western-type capitalism. Ethnic tensions then overshadowed economic issues (Estrin, 1991b).

3.2 Cooperative firms in Poland

The first three Polish cooperatives were organised in 1876 and soon afterwards a remarkable network became established (Fallenbuchl, 1978). During the late nineteenth and early twentieth century the movement played a significant role not only in economic terms but also from a social and political point of view. It was accepted by the dominant institutions for two main reasons. First, people found in its ideology a hold in their struggle for economic, cultural and political self-determination. Second, the movement had the support of the church and of the nationalistic organisations, which made determined efforts to promote it (Pluta, 1978). Parish priests had an important role in the development of cooperatives, especially in rural areas. Moreover, the support for the movement was not limited to any particular political camp. Indeed a number of Socialists, as well as of Christian Democrats were cooperative activists before World War I (Fallenbuchl, 1978).

Despite the above, in practice the authorities treated cooperatives as essentially no different from State-owned enterprises. Their activity was integrated into the economic planning hierarchy and was directed by the national cooperative organisations (Shaffer, 1994). Nonetheless, in all periods of economic development in socialist Poland, the State authorities appreciated and supported the activities of workers' cooperatives, and attempted to direct these activities toward the productive sectors that were regarded as especially important. In regard to worker cooperatives, they had an important role for the employment of economically handicapped groups, such as work and war invalids, as well as of people (mainly women) that could not leave their homes (Gajda, 1978).

During the interwar period cooperatives were used to reduce the impact of the great depression. Workers coops were involved in setting up small industrial plants,

while agricultural cooperatives were intended to protect the welfare of the rural population (Fallenbuchl, 1978).

After World War II, the cooperative sector played an important role in the reconstruction. The following period was that of the sovietisation of the Polish State and economy, the collectivisation drive, and the establishment of the centralised model of planning. Cooperatives were regarded as a tool for the liquidation of the private property, particularly during the collectivisation drive in agriculture in the early 1950s (Fallenbuchl, 1978). Hence, agricultural cooperatives increased from 243 in 1949 to 10,510 in 1956, and membership passed from 23,300 in 1950 to 205,200 in 1955. In industry part of the small industrial firms were forced into cooperatives, with the result that the cooperative sector expanded from 6.2 percent in 1949 to 10.5 percent in 1950 (Fallenbuchl, 1978).

The cooperative sector declined from 1956 when de-collectivisation started,[1] but regained consistency starting from 1960, following the introduction of a policy of incentives and fiscal measures. In the 1960s the development of worker cooperatives was directed toward provisioning local markets, using local labour and raw materials. Instead, in the 1970s the role of worker cooperatives was oriented to service provision (Gajda, 1978).[2]

3.3 The effects of privatisation

The transformation process that began in 1989 brought a number of significant changes for democratic firms. When the transition of Central and Eastern European countries began, firms were suddenly given substantial autonomy and became subject to the competing property rights of four groups of actors: nominal owners;

management; workers, and the State. Where the interests of workers dominated, firms became worker-controlled (Shaffer, 1994). In regard to the effects produced by the transformation process of former socialist states in the ex-Yugoslav republics, a negative stand towards economic democracy was observed after the abolition of self-managed socialism and the new interest towards the increase in productivity (Prasnikar, 1994).

Observers suggest that the most remarkable case of the emergence of worker control is the Polish one. Shaffer (1994) argues that the main difference between Polish and Yugoslavian firms was the external environment: Polish State-owned enterprises were genuinely independent from the political authorities and operated in a financial environment in which the government did not finance firms that had defaulted. Instead, it has been pointed out earlier in this chapter that this was not the case for Yugoslavian firms. It is worth noting that as of 31 December 2001, 411,700 persons were employed in the Polish cooperative sector, which represented 2.9% of total employment. This figure was down from 642,000 at the end of 1995 (Lowitzsch and Woodward, 2006).

When the privatisation process started in Central and Eastern Europe, firms could be bought by: outside owners; the general public; the management and the workers. In this process, Polish cooperatives began to be treated as part of the private sector. Shaffer argued in 1994: ‘the economic outlook for the producer co-operatives is not good. Industrial cooperatives in Poland have done worse during the transition than the State sector in terms of both output and employment’ (ibid: 324). A declining performance characterised also coops in other countries. For instance, GDP in the Hungarian cooperative sector fell by 41 per cent between 1990

and 1992, and employment in cooperatives fell by 48 per cent in the same period (Valentinyi, 1993, in Shaffer, 1994).

In a recent work Mygind (2008) evaluates the impact of the privatisation process on employee ownership. He points out that after a first initial strong positive impact, this wave lost soon its momentum, and today profit sharing and worker cooperatives are not widespread in Eastern Europe.

Mygind (2008) argues that there were special conditions in the above mentioned privatisation models in the initial period of the transition process that favoured employee ownership in some countries. In Lithuania, Poland, Romania and Slovenia employees were given the possibility to takeover the majority of shares at low prices. In Bulgaria, Estonia, Croatia, Latvia and Hungary employee ownership was established in some sectors, especially in small companies and in the very early stages of transition. Instead, in the Czech Republic and Slovakia practically no worker-owned firms were started up.

In regard to Croatia and Slovenia, Mygind (2008) claims that the experience with workers' self-management from the old Yugoslavia is probably the main reason why employee ownership is still relatively more stable in these countries. In most of the other countries managers dominated the employee companies from the start and took over the majority of ownership. In later rounds, most of these companies were taken over by outside owners, often foreign ones.

The evidence does not point to lower efficiency in employee owned firms. However, in most countries neither the institutions and the level of incomes nor the goals of the workers were ready for this type of ownership requiring a degree of involvement from the employees from both a financial and a mental point of view (Mygind, 2008).

4 THE CHANGING FORTUNES OF THE UK COOPERATIVE SECTOR

The origins of the cooperative sector in the British economy can be traced back to 1844 when the first producer cooperative was established in Rochdale.[3] Cooperatives were granted legal status and limited liability by the Industrial and Provident Societies Act of 1852 and 1862, and some two hundred were formed in the years up to 1880. With a few exceptions their life spans were short and the twentieth century saw numbers reduce to just 19 in 1975 (Estrin and Pérotin, 1987). It has been argued that one reason for this decline is that the British financial environment has been restrictive on coops' ability to raise finance (Oakeshott, 1978; Logan and Gregory, 1981). Keith Jefferis and Nigel Mason (1990) point out that in the United Kingdom cooperative firms face particularly severe problems with regard to finance availability at start-up and in their early years. These firms have low levels of capitalisation, an almost total lack of resources from commercial sources, and strongly rely on members' loans.

However, the mid 1970s marked a turning point in the fortunes of the cooperative sector. The event that set off this change was a substantially increased availability of finance from public sources in the decade from 1976 to 1986. This institutional change enabled cooperative firms to break out the previous situation. Their number began to grow rapidly, reaching 330 in 1980 and 1,400 in 1985.[4] The explanation of such an extraordinary growth probably lies in a combination of factors.[5] That was a period of high unemployment; moreover the dominant "educational, social and moral standards … [may have led] some workers to seek from democratic forms of enterprise organization the satisfaction from the workplace that traditional firms are unable to offer" (Estrin, 1985: 363). However, it has been pointed out that the most important factor sustaining the observed rapid

development of the cooperative sector was the provision of institutional support from the Industrial Common Ownership Movement, instituted in 1971, and the Co-operative Development Agency, founded in 1978 (Estrin and Pérotin, 1987; Jefferis and Mason, 1990). Following the establishment of these institutional bodies, a major transformation in coops' financial environment occurred in those years, with an increasing amount of funds being provided by the local and central government. Finance from public sources was allocated to cooperatives based on the assessment of their commercial viability. However, the criteria used to conduct the assessment, as well as the credit terms offered, were substantially more sympathetic and generous than those offered by banks (Jefferis and Mason, 1990).

By alleviating the initial problem of undercapitalisation, more cooperatives could become successfully established without some of the financial constraints previously faced, and could eventually raise loans from banks. This change represented an intervention in the workings of the credit markets that provided cooperatives a further option for raising finance, beyond the limited resources of members and sympathisers, and the inadequate terms offered by commercial banks.

The available data on the cooperative sector undoubtedly support the claim that the above institutional changes contributed to the massive expansion of the sector between 1980 and 1986. Jan Podivinsky and Geoff Stewart (2007) report data on annual registrations of cooperative firms by industrial sector (Standard Industrial Classification – SIC 1980) drawn from the Worker Co-operative Database. The figures reveal that over the ten year period 1976-1985, registrations increased by more than 13%. Looking at the general pattern of entry in the United Kingdom, measured by Value Added Tax (VAT) registrations, a comparison of the first half of the period

(1976-1980) with the second one (1981-1985) reveals a growth rate of more than 300% for coops, compared with just 11% in VAT registrations for other firms.

Considering the significance of the above figures, it is striking that after 1986 the funding introduced in the previous decade started to gradually vanish. This occurred despite the fact that the new range of financial sources was being widely used by new and expanding cooperatives.[6] This adversely impacted the cooperative sector and the observed formation rate of coops declined since then. The 2004 figure for the contribution of UK cooperatives to employment was 0.66% (Unioncamere, 2004). Hence the United Kingdom case appears to be emblematic for the impact that a changing institutional environment can exert on the fortunes of the democratic firm.

5 THE EXPERIENCE OF BELGIUM, DENMARK AND THE NETHERLANDS

Despite the early inception of the Belgium cooperative movement (the first cooperative was founded in 1848),[7] the sector has never reached a considerable dimension in this country. Indeed according to a 1998 report of the International Cooperative Alliance (ICA),[8] only 1,553 cooperative firms were present in Belgium in 1996. It has been argued that one reason for this limited diffusion is that the cooperative legislation is drawn in a fairly broad sense. Hence, there is not always a clear-cut distinction between the discipline of coops and that reserved to other small and medium enterprises (Thomas, 1990). Insofar as the financial structure and performance of Belgian cooperative firms is concerned, a study by Jean-Luc Geron (1990) compares data on coops with industry norms, and shows that shortage of

equity finance is only one among a number of other difficulties – such as the restriction of cooperatives to some industrial sectors, and a more general shortage of start-up finance for small firms.

Also in the Netherlands cooperatives started to appear in the nineteenth century, and as early of 1855 a specific cooperative legislation was adopted. The movement had a steady diffusion in a number of sectors, such as credit, retail, insurance, housing, manufacture and agriculture. Analysing the performance of a variety of enterprises with different degrees of self-management, and drawing also on reviews of other studies and anecdotal evidence, Henk Voets (1990) argues that in the Netherlands cooperatives perform as well as other business structures, although the sector is not particularly significant in numbers. Moreover, these firms do not seem to have particular difficulties in accessing finance.[9]

Turning to discuss the Denmark case, this is a peculiar one since no specific legal framework for cooperative firms has been adopted. Legislation is, basically, in terms of traditional ownership structures (Shaffer, 1999; Unioncamere, 2004). Thus, although there is some special legislation for consumer cooperatives, the law in some cases discriminates against the sector and in other cases does not take into account the special needs of cooperative firms (Mygind, 1990).

It could be for the absence of specific regulations that Denmark has few cooperatives of any kind, and data on the performance of those few (reported in Mygind, 1990) show that financing issues constitute one of the important obstacles to an increase in the number of democratic firms.[10] The most important financial obstacle is identified in the special need of starting capital, combined with the fact that there are no special financial institutions supporting cooperative firms. Hence Mygind (1990) concludes that any weaknesses of the cooperative sector, compared

to industry norms, are mainly due to lack of start-up capital, rather than particular difficulties with their financial structure. His argument is that without dedicated financial institutions, Danish cooperatives have to use the ordinary banking system. The attitude of banking institutions towards employee owned firms is difficult to measure. On one hand, since employee ownership is so rare in Denmark, banks lack knowledge about cooperatives. On the other hand, there have been cases of banks discriminating against employee owned firms because of the ownership structure (Mygind, 1988, 1990). Mygind (1990) claims that the lack of knowledge on cooperative firms, not only on the part of financial institutions but also among potential entrepreneurs and workers, represents an important obstacle to their development in Denmark.

The three cases discussed in this section provide further anecdotal evidence supporting the claim that the presence of dedicated institutions represents an important factor contributing to the development of the democratic firm. Indeed, the absence of a specific institutional framework for Belgian and Danish cooperatives had a negative impact on the significance and performance of their cooperative sectors. In contrast, the Netherlands experience, where specific coop legislation exists since the nineteenth century, shows that cooperatives' performance does not suffer any particular deficit compared to conventional firms.

6 THE JAPANESE COOPERATIVE SECTOR

The modern history of the Japanese cooperative sector began in the second half of the nineteenth century in the silk and tea retail industries, and in the rural purchasing sector. After the 1906 Japanese-Russian war the government put

substantial effort into the development of cooperatives, mainly agricultural ones. In 1921 the Industry Cooperative Law was revised and the Central Industry Cooperative Bank was established in 1923. Following the 1930 agricultural recession, the Government set up the five-year Industry Cooperative Development Plan and encouraged farmers to join a cooperative (Shaffer, 1999).

In 1938 cooperatives faced a turning point: the government brought them into a non-democratic organisation, the Agricultural Association. Only after World War II the governance of the Association became more democratic. In 1947 the Agricultural Cooperative Law was passed. The aim was to encourage the creation of local cooperatives by increasing the provision of financial support from the government. This regulatory reform allowed a rapid expansion of the cooperative sector and led to the creation of forestry, fishery and consumer cooperatives, as well as of credit unions. From the 1960s onwards, cooperatives' development followed the growth pattern of the Japanese economy: a rapid expansion first, followed by stagnation after the 1973 oil shock (Japanese Joint Committee on Cooperatives, 1992).

Nowadays the sector is especially strong in agriculture and related industries, in the retail distribution of food, medical care, insurance, housing, universities and in the financial industry. Mark Klinedinst and Hitomi Sato (1994) report that in the 1990s more than 30 million people were members in cooperatives, and that the strongest organisations were those operating in the agricultural sector. One factor accounting for the good performance of agricultural cooperatives is the financial support they still obtain through the so-called 'system loan': the government lends them funds at interest rates that are lower than those charged to conventional firms. Typical system loans are the Agricultural Financial Institution Funds and the Agricultural Cooperative Modernization Funds. These funds, tied to the

government's agricultural and financial policies, beside providing financial resources to cooperatives, also advise them on how to best use the loans (Klinedinst and Sato, 1994).

7 COOPERATION IN FRANCE

France has a relatively well developed cooperative sector, which had its genesis in the intellectual tradition of Fourier and Buchez. The movement had a continuous presence since its inception in the mid nineteenth century, and worker cooperatives (*sociétés coopératives de production* or SCOPs) often show remarkable longevity (Batstone, 1982). The French cooperative history is associated with numerous State interventions. As early of 1867 a legal form for cooperatives was established; a number of laws were approved in subsequent decades to give specific status and privileges to worker cooperatives (Thomas and Defourny, 1990).[11]

The oldest SCOP currently trading was created in 1882, and 16 of today's cooperatives were created before World War I (Pérotin, 2006). This longevity may be explained by the fact that, as for Spanish and Italian cooperatives, also French SCOPs are less exposed to the main exit processes identified in the literature – namely self-extinction due to underinvestment and degeneration to the capitalist structure (Pérotin, 1999). Evidence in favour of this argument is offered by Jacques Defourny (1990), who uses data on a large sample of French cooperatives to analyse specific aspects of their performance. The research does not find support for the theoretically predicted tendency of cooperatives to underinvest. The performance profile of more mature cooperatives is very similar to that of capitalist firms operating

in similar industrial sectors. Moreover new cooperatives that invest less than conventional firms do so due to lack of capital and the need to build up reserves.

As far as the consistency and composition of the cooperative sector is concerned, a 2001 Eurostat report counted 22,147 cooperatives in 1998, accounting for 0.64% of total French firms. The study shows that cooperatives were more numerous in the sectors of real estate, renting and business activities, agriculture, hunting and forestry. In terms of number of employees, in 1998 French cooperatives represented 1% of total employment, of which the most important part was in the sectors of financial intermediation (7.30%), agriculture, hunting and forestry (4.86%), and wholesale and retail trade (2.12%). Producer cooperatives represent a very small proportion of all French firms, with around 1,700 firms employing about 36,000 people out of a total of 2.5 million firms. Nonetheless, the movement is sizeable by the standards of several industrialised countries (Pérotin, 2006).

The data above presented show that, despite its longevity, the French cooperative sector does not hold a very high share in the economy. It seems that problems with firm creation, rather than exit, may explain the limited incidence of cooperative firms even in countries where issues related to their structural viability have been resolved (Pérotin, 2006).

8 THE ITALIAN CASE

Italy has the largest cooperative sector in Western Europe and there is specific regulation governing it. At the end of 2005 there were 70,400 cooperative firms, providing 4.7% of total employment, against a European average of about 2.5% (Unioncamere, 2006). From a geographical point of view, the contribution of

cooperatives to employment and value added is greater in the South (5% and 4.7%, respectively) and in the North-Eastern regions – 6.9% and 5.5% (Unioncamere, 2006). Looking at some figures on the longevity of coops, 2% of those active in 2005 were established before 1940, while this figure is 0.1% for other business types (Unioncamere, 2006). This seems to suggest that, on average, Italian cooperatives survive longer than conventional firms. The few statistics presented illustrate that cooperation is an important and still vital component of the Italian economic system. It seems reasonable to argue that the factors accounting for this 'success' must be somehow rooted in the history of the cooperative movement and the wider institutional environment in which it developed.

Conventionally, the origin of the Italian cooperative movement is dated back to 1854, when the first cooperative was established in Turin. The first producer cooperative was founded in Savona in 1856, while the first credit cooperative was established in Lodi in 1864. An important event in the history of the movement was the creation of the National League of Cooperatives and Mutuals (*Lega Nazionale delle Cooperative e Mutue*) in 1886. In the first quarter of the twentieth century, the cooperative sector grew considerably and several laws were approved in order to stimulate the creation of cooperative consortia. In 1913 Luigi Luzzatti founded the National Credit Institute for the cooperative movement and in 1919 the Italian Cooperative Confederation (*Confederazione Cooperativa Italiana*) was established (Zangheri *et al*, 1987).

During World War I the government promoted the expansion of cooperatives since they were considered important to cushion the social costs of the war. In those years coops experimented a phase of development in several sectors. The scenario changed in the early 1920s, when the recession negatively affected the national

economy, hence also the cooperative sector. Those were also the early years of the fascist movement. Mussolini soon realised that the cooperative organisations represented a bridge between the civil society and mass groups. For this reason, breaking those links became an absolute priority for fascists (Fabbri, 1979). However, later under the regime the cooperative movement started to be regarded as an instrument to gain consensus among the masses. For this reason the regime attempted to transform the cooperative identity into a model more consonant with the fascist ideology. To this end, both the National League of Cooperatives and Mutuals and the Italian Cooperative Confederation were dissolved, and replaced by a fascist organisation (Fornasari and Zamagni, 1997).

The collapse of fascism and the end of World War II represented a central turning point for cooperatives and their organisations since they could regain the lost independence and autonomy. The cooperative movement benefited also from a favourable institutional framework: the new Republican Constitution recognised the social function of cooperation, and assigned its promotion and development to the State. In 1947 an important legislative intervention was the Basevi Law. This law established the principles of democracy and solidarity on which the creation of cooperatives would have had to be grounded; it also set clauses to verify the compliance with the mutual aid principle (Canosa, 1978).

During the 1950s and 1960s, the expansion of the cooperative sector was sizeable. This growth was related to the favourable economic conjuncture of those years (known as the years of the 'Italian miracle'), but it also benefited from the more mature entrepreneurial culture that started to spread among cooperatives and from an increased awareness of their potential (Bianco, 1975). The 1970s represent an important decade in the history of the Italian cooperative movement. Despite that

period being one of crisis, not only economic but also political, due to terrorist activity, cooperatives experienced a rapid and sustained development, especially in the late 1970s. This expansion continued in the 1980s, when social cooperation started to bloom and managerial expertise developed also in the cooperative sector (Sapelli, 1981; Zamagni, 2006).

In the 1990s the hot topic for cooperatives was that of capital acquisition. With the growing financialisation of the economy, the cooperative movement revealed an increasing need of financial resources, and coops' under-capitalisation became an issue for concern (Fici, 2004). In a 1990 paper, Alberto Zevi argued that despite the many pro-cooperative State measures such as tax incentives, and various financial initiatives undertaken by the cooperative movement, there is still shortage of the finance required to stimulate the growth of cooperative firms. To stimulate the capitalisation of cooperative firms through the conferment of funds by third parties, the 59/1992 Law introduced the figure of financial backer member (i.e. *socio sovventore*) – a category of partners having the role of financiers, but not engaging in the mutualistic exchange. The reform established that, beside the right to vote in the company meetings, these financiers could also receive a remuneration higher (maximum +2%) than the one assigned to cooperator members. Commentators argued that the 1992 law did not achieve the intended outcomes in terms of the amount of financial resources that have been mobilised (La Loggia Albanese, 2003; Salani, 2005; Zevi, 2005).

In the early 2000s the Italian corporate law has been reformed and new regulations have been introduced for cooperative firms. Among the most important changes that the reform brought about is the possibility for cooperatives to access a wider range of financial instruments. Whether or not the new regulations will have

positive effects for the capitalisation of cooperative firms is an issue that only future research can assess.

9 SPAIN: A SUCCESS STORY

Spain has a relatively large cooperative sector, though it is concentrated in certain regions. Specific legislation is intended to promote and regulate the cooperative sector. For instance, a variety of instruments have been designed in order to assist the financing of Spanish cooperatives, including obligatory collective reserves and non-working financing members. In addition, legal restrictions have been set out to preserve the cooperative nature of the enterprise, while allowing the greatest possible access to funds of all types. The importance of these various sources of finance lies in the fact that each of them will have a specific weight at different stages of development of the firm, thus sustaining investment and growth (Morales, 1990).

In the Spanish case a fascinating and well known experience is that of Mondragón cooperatives, in the Basque region of Spain. This is often quoted in the literature as one of the most successful cooperative practices in the Western world. Henk Thomas (1982), Keith Bradley and Alan Gelb (1983), William White and Kathleen White (1988), and Stephen Smith (2001) identify the following main stages in the history of Mondragón cooperatives

Mondragón's story began thanks to Jose Maria Arizmendi, a priest that after the civil war started in 1943 a democratically-managed Polytechnic School, as a way to raise again the city by making the most of the local youth. Arizmendi was familiar with the ideas of Owen and the principles adopted by the Rochdale Pioneers.[12] He had a profound influence on five of his pupils, who became engineers and started in

1956 their own factory, Ulgor, producing paraffin heaters and cookers. In the following years several other local cooperatives were developing, all facing the same problems: insufficient access to capital; exclusion from the Spanish Social Security System, and limited technological base. The solution to the first two problems was found in a cooperative savings bank, the *Caja Laboral Popular*, founded in 1959. The *Caja* had among its members not only the manufacturing cooperatives, but also members of the local community. It is for this reason that it has been termed a second degree cooperative. The bank initially took responsibility also for social security needs; then, in 1970 this function was taken over by another second degree cooperative, named Lagun Aro. As far as the expansion of the technological base is concerned – the third challenge experienced by early cooperatives – this goal was accomplished by founding Alecoop, a factory with a training school. In the 1980s the various cooperatives joined together in the *Mondragón Corporación Cooperativa*. For the period from 1988 to 2008, data on the performance of the group show that: industrial sales grew from 890 to 6,511 million of Euro; retail sales passed from 310 to 9,073 million of Euro; employment grew from 20,818 to 92,772 employees; resources administered by the *Caja Laboral Popular* grew from 1,328 to 13,988 million of Euro (Mondragón Corporación Cooperativa, 2009).

A consensus has emerged among the scholars that have analysed the Mondragón case in considering the cooperative bank *Caja* the driving force towards success. Commentators as Oakeshott (1978) and Fairclough (1987) concluded that the availability of specialised sources of finance, through the valuable interventionist role of the *Caja*, was a major factor accounting for the success of these Spanish coops. Indeed at an early stage in the group's history, the *Caja Laboral Popular*

was set up with the explicit purpose of providing external funds to cooperative firms (Thomas and Logan, 1982).

Podivinsky and Stewart (2007) recall that in his analysis of labour-managed firms' financing, Vanek (1977) argued that to solve the issue of poor performance of this sector a non-profit agency, the 'National Labor-Management Agency', needed to be created. This should have provided external finance to labour-managed firms (but without any associated rights of control). The experience of the Mondragón group of cooperatives in the Spanish Basque region is interesting in this regard.

To recapitulate, in the Spanish case the linkage between a bank and producer cooperatives has been a highly innovative choice that provided cooperative firms with the financial means necessary to satisfy their credit requirements. This link, of course along with other factors, has led Mondragón to become what could be called a 'good practice' in cooperation.

10 THE U.S. EXPERIENCE

Another country where dedicated financial institutions proved to be of extreme importance for cooperatives, especially for agricultural ones, is the United States. As Kimberly Zeuli and Robert Cropp (2004) report,[13] the Farm Credit System – a nationwide network of cooperative financial institutions and service organisations – provides loans, crop insurance and other financial services to farmers, agribusinesses, agricultural cooperatives and rural utility cooperatives.[14] Within the Farm Credit System, CoBank is the national bank charged with providing credit to cooperatives. This is an independent financial institution which has the development of new cooperatives as part of its charter. CoBank was created in 1989

as a result of the consolidation of 11 out of the original 13 Banks for Cooperatives, established by the Farm Credit Act of 1933. In 1999 CoBank merged with the St. Paul Bank for Cooperatives and became the national leader in cooperative lending.

Other financial institutions serving cooperatives include the National Rural Utilities Cooperative Finance Corporation, which loans funds to rural, electric and telephone cooperatives since 1969, and the National Cooperative Bank, providing loans to housing, consumer, and other non-agricultural cooperatives. The various Banks for Cooperatives (and in particular CoBank) have been the primary source of credit for U.S. cooperatives, as the banking industry has been reluctant to lend to these firms (Hazen, 2003). In contrast, the Banks for Cooperatives had a fundamental understanding of the cooperative philosophy, and this allowed them to provide a source of specialised expertise which sustained the development of cooperatives (Kenkel, 2005).

A particularly successful cooperative experience in the U.S. is found within the State of Minnesota. The Minnesota Association of Cooperatives indicated several reasons explaining why this State succeeded in developing and operating cooperatives. Specifically, leadership, legislative support, and ‘believers’ are cited as three keys to this success. Among the ‘believers’ forming part of the support network, institutions as the St. Paul Bank of Cooperatives, the National Cooperative Bank, the Rural Finance Authority, and many other banks have set the stage for a financial framework supportive of cooperative development (Waner, 2000).

11 CONCLUSION

The anecdotal evidence presented in this chapter gives a rather mixed picture of the cross-country performance of cooperative firms. The discussion carried out shows the existence of variety in the types of cooperatives existing in different countries, as well as in legal, financial and historical contexts. Furthermore, different problems seem to have emerged at various stages of development of the cooperative sector.

In some countries, despite its early inception, the cooperative movement has experienced varying fortunes over time, and today occupies a marginal position in the economic system. Considering for instance the UK case, it has been shown that coops' performance has followed changing patterns, and this has affected the relative significance of the sector in the national economy. The history of the British experience reveals that the changes occurred in the institutional context had a profound impact on cooperatives. These firms have been very sensitive to contextual conditions. In particular, following the structural change that in the second half of the 1970s allowed coops to access a wide range of public sources of financing, the cooperative sector expanded considerably, outperforming the creation rate of capitalist firms. When the financial environment became less 'friendly' towards coops, they have declined both in terms of numbers and economic impact. It can be argued that the pattern of evolution followed by the British capitalist system, and the consequent changes that occurred in the institutional framework, have been inhospitable to the flourishing of the cooperative economy.

A different conclusion can instead be drawn by other cases that have been examined in this chapter, among which France, Spain and Italy. These countries have been able to promote and sustain cooperative development, by implementing a number of institutional reforms in the workings of their financial systems, and also

in other spheres, so as to deal with coops' needs and peculiarities. However, while in France and Spain the development of the cooperative sector has been concentrated in particular geographical and sectoral areas, the Italian case appears to be particularly significant not only for the current size of the cooperative sector – the largest in Western Europe – but also in terms of its cultural embeddedness within society, as well as its wide diffusion in the national territory and across economic sectors.

The above stylised facts on the evolution of the cooperative sector in contemporary capitalist systems suggest that history, and economic development, do not follow a unidimensional pattern. In other words, the theoretically predicted inefficiency of cooperative firms does not hold invariably in different institutional contexts. In fact, reality is multifaceted, with cooperatives performing well in some economic systems and not in others. Coops seem to be very sensitive to the prevailing institutional arrangements; where these create a climate that is hospitable to them (or at least not disfavouring), democratic firms tend to perform at least as well as capitalist firms. Hence, economic analysis should not disregard the role and impact of context dependence mechanisms.

In regard to coops' financing requirements, there is evidence showing that the financial regime operating in the (local or national) economy has a major impact on the performance of cooperatives. Where coops have access to external sources of financing, primarily in the form of bank loans, their performance profile does not seem to show particular problems. The Spanish Mondragón case is emblematic of how the availability of a specialised source of financing can foster coops' development. This evidence on the importance of financial institutions to foster the economic performance of cooperative firms can be interpreted as indicating a

relationship of institutional complementarity: the effectiveness, hence the viability of coops is influenced, among other things, by the behaviour of financial institutions. This proposition will be empirically investigated in the next chapters with reference to the Italian case.

It is worth clarifying at this stage that there may be other relevant institutional complementarities between cooperative firms' performance and the wider legal, political and cultural environment. It would be worthwhile investigating other possible relationships of institutional complementarity and the impact these have on the Italian cooperative sector. However the need to focus the analysis developed in this thesis imposes leaving these other avenues to future research.

NOTES

1 The number of production cooperatives collapsed from 10,510 to 1,803 and the membership from 205,200 to 31,600 in 1956 and 25,000 in 1957. In industry there was a slight increase in the share of both the private and cooperative sectors, at the expense of the State sector. In retail trade, instead, there was a significant decline of the cooperative sector (Fallenbuchl, 1978).

2 Jozef Gajda (1978) reports the following figures taken from Poland's 1977 statistical yearbook: there were 899 cooperative societies in 1960, while this figure was 2,103 in 1976.

3 On the history of the British producer cooperative movement see Estrin (1985), and Estrin and Pérotin (1987).

4 The 1985 total of 1,400 is a Co-operative Development Agency figure cited by Estrin and Pérotin (1987). Calculations by Hobbs and Jefferis (1990) put the total at just under 800. The disparity reflects differences in the definition of 'worker cooperative' and in the method used to compile the data.

5 In those years the cooperative sector expanded also elsewhere in Europe and in the U.S. (see Estrin, 1985).

6 Jefferis and Mason (1990) argue that there a number of reasons why the provision of finance from public sources has not been sustained, and these are largely due to the wider political process.

7 On this point see Shaffer (1999).

8 The report was commissioned by the European Union.

9 The EUROSTAT (2001) report on EU cooperatives shows that 4,106 coops existed in the Netherlands in 1986. ICA data present a figure of 2,492 for 1997.

10 A theoretical analysis of the factors constraining Danish cooperatives can be found in Mygind (1988).

11 On this point, Bradley (1994) argues that Napoleon conceded to cooperatives' demands to win the support of the working class. According to Bradley, Napoleon believed that he could have appeased workers' potential militancy by encouraging cooperative societies. This could contribute to explain why numerous worker cooperatives were established in France in the building industry under Napoleon's public works projects.

12 The Rochdale Pioneers was a trade-unionist Christian socialist group which, influenced by Owen, founded the first cooperative in Britain in 1844.

13 Their work is a revision of Marvin's (1980) book on the cooperative experience in the U.S.

14 The Farm Credit System was created by the Congress in 1916.

PART II

DEVELOPING AN EMPIRICAL CONTRIBUTION TO THE INVESTIGATION OF INSTITUTIONAL COMPLEMENTARITIES

CHAPTER 6

BANKING MARKET STRUCTURE, CREATION AND ACTIVITY OF FIRMS: EARLY EVIDENCE FOR COOPERATIVES IN THE ITALIAN CASE

1 INTRODUCTION

The economic literature discussed in Chapter Four has shown that the cooperative firm has been analysed, on both theoretical and empirical grounds, with respect to a number of different but related issues. Among these, we have seen that the role of external sources of financing, and especially bank credit, has been regarded a critical factor influencing the creation, functioning and survival of cooperatives (Ben-Ner, 1988a, b). It has been argued that their property rights structure creates a number of issues in the relationship with external financers, due to the problem of guarantees offered to third parties financing the firm (Jossa and Cuomo, 1997). Indeed, workers' typically limited wealth, and consequent risk aversion and liquidity constraints, bound the personal collateral available for obtaining loans (Ben-Ner, 1988a). Moreover, the so-called cooperatives' *vaguely defined property rights* (Cook, 1995) create a commitment problem of members (Schlicht and von Weizäcker, 1977), which makes agency problems in credit markets more severe for these firms than for other enterprises (Vitaliano, 1983; Drèze, 1993; Dow, 2003).

Therefore, although the banking system represents also for other firms an important channel of resources acquisition, it seems reasonable to argue that the structure of the financial sector can have particularly relevant implications for cooperatives.

This chapter empirically investigates whether, *ceteris paribus*, the structure of the local banking market – an important feature of the institutional environment embedding entrepreneurship – influences differently the financing of cooperatives, as compared to the effects produced for other business types, in relation to both firm creation and entrepreneurial activity. This is not a trivial issue since the economic literature analysing the effects of bank market power has not provided yet a univocal answer to the question of how competition among banks affects the availability of credit to firms, hence indirectly their formation and functioning.

The *structure-conduct-performance* (SCP) scheme claims that, as for other economic sectors, lower competition in the banking industry leads to welfare losses (Pagano, 1993; Guzman, 2000). Yet, the studies belonging to the *information-based-approach* show that, in general terms, the implications of banking market structure can be different from those predicted by the traditional SCP framework, and that the effects on firms' financing are also related to the possibility of setting in and maintaining lending relationships (e.g. Petersen and Rajan, 1995). In light of the above considerations, analysing the impact of bank market power on firms' financing, hence on entrepreneurship, by distinguishing among different business structures, assumes relevance since cooperative firms' institutional characteristics may impact on the establishment and/or maintenance of lending relationships.

By discerning among cooperatives and other firms, and between creation and activity, this chapter enriches the existing literature in several respects. First, it contributes to explore the link between the behaviour of banking institutions and

cooperative firms' performance, which is a highly disputed issue. Indeed, although the difficulties that cooperators might face in obtaining and providing financial capital have been used as an argument against the viability of these firms (Blair *et al*, 2000), Chapters Four and Five have shown that research on cooperatives suggests that their performance is highly dependent on the type of financial and cultural climate prevailing in the local and national economy (Horvat, 1975; Doucouliagos, 1990; Thomas and Defourny, 1990).

Secondly, although other contributions studied the impact of bank competition on entrepreneurship (Black and Strahan, 2002; Bonaccorsi Di Patti and Dell'Ariccia, 2004), they have not accounted for the possibility that the impact of differences in credit market structure on firms' financing may vary among business types.

The present research, and this is its third distinctive feature, aims to evaluate the results of the econometric investigation by means of the institutional complementarities approach, earlier explored in Chapter Three. In perhaps the most extensive treatment so far existing on this issue, Aoki (2001) claims that the relationships among the characteristics of various market governance mechanisms prevailing in one economy, at any particular point in time, may be complementary in the sense that the effectiveness (or the presence) of one governance mechanism can be reinforced - either directly or indirectly - by the presence of a particular arrangement in the same or embedding domain. So that, in terms of the concept *à la* Aoki (2001), this work intends to (indirectly) assess whether the institutional counterpart complementary to the creation and activity of different business structures is a local banking market characterised by a higher or lower degree of competition.

To carry out the investigation the research uses data on firms operating in 27 industries in the 103 Italian provinces during the period 1998-2003. The analysis is developed at the province level since the Italian Antitrust Authority defines the administrative province as the relevant local market in banking. Until 1990 also the Bank of Italy used this definition to decide whether to authorise new branches openings (Guiso *et al*, 2004a). The structure of the Italian banking industry differs substantially across local markets. This provides cross-sectional variability within a single institutional framework. Given this regulatory uniformity, there is no need to control for different regimes (Bonaccorsi di Patti and Dell'Ariccia, 2004). Building upon several other works on competition in banking, bank market power is measured by using the *Herfindahl-Hirschman Index* on deposits. Two models are then estimated: one for firm birth, the other for firm activity.

The remainder of the chapter is organised as follows: Section 2 presents a review of the major literature on the economic effects of bank competition, as well as a more in-depth exploration of some of the issues related to the financing of cooperative firms (earlier touched upon in Chapter Four); Section 3 illustrates the econometric specifications and the methodology adopted; Section 4 describes the data; Section 5 comments on the results obtained and the robustness checks performed; finally, Section 6 concludes.

2 BANKING MARKET STRUCTURE AND ENTREPRENEURSHIP: A BRIEF LITERATURE REVIEW

In recent years newly created firms received considerable attention in the economic literature, especially as regards small and medium sized ones. It has indeed been

argued that since a significant proportion of employment is created by new firms, which often bring productive innovation, it is essential to understand the factors promoting or mitigating entrepreneurial activity (Lee *et al*, 2004; see Georgellis, Sessions and Tsitsianis, 2005 for an excellent review on longitudinal dynamics).

A first line of research focuses on the personal characteristics of entrepreneurs (e.g. Blanchflower and Oswald, 1990; Chell *et al*, 1991), whereas a second line of study explains firm start-up and activity focusing on environmental and institutional characteristics. In this latter strand of analysis capital availability has been considered an important issue. In fact, since entrepreneurship may be limited by liquidity constraints (Evans and Jovanovic, 1989), the financial resources that potential entrepreneurs have to finance their business are expected to influence firm creation and activity. However, while numerous studies have shown that entrepreneurship is bounded by liquidity constraints (e.g. Storey, 1982; Garofoli, 1994; Keeble and Walter, 1994, Fotopoulos and Spence, 1999; Guiso *et al*, 2004a), fewer works investigated how, by influencing credit availability, the structure of the financial sector affects entrepreneurial activity (Black and Strahan, 2002). This issue forms part of the wider debate on the economic effects of bank competition that has lately attracted the attention of many scholars. The conclusions so far reached in this dispute are not univocal, on both theoretical and empirical grounds.

The conventional *structure-conduct-performance* (SCP) scheme argues that restraining competition in the banking industry produces welfare losses, since banks enjoying market power can lower the amount of credit granted and charge higher interest rates on loans (Pagano, 1993; Guzman, 2000; Cetorelli, 2001). Among the studies providing empirical support to this approach, Sandra Black and Philip Strahan (2002) show that the late 1970s U.S. branching and interstate banking

reform, which fostered competition in the credit sector by removing restrictions on branching, has been beneficial to entrepreneurship. Indeed, the rate of new incorporations in local markets increased significantly when States opened to external competition. In line with this conclusion, also Strahan (2002) and Nicola Cetorelli (2004) document a positive link between bank competition and entrepreneurship.

The Black and Strahan (2002) model has been questioned by Howard Wall (2004), who shows that when the effects of U.S. deregulation are allowed to differ across regions, entrepreneurship is inversely related to increased banking competition in some regions, and positively associated in others. Recent studies proposed within the *information-based-approach* question the supposedly beneficial impact of bank competition on the economy. Broadly speaking, these works place the emphasis on problems of asymmetric information in lending relationships and show that, by favouring the set in of lending relationships, market power in banking allows firms to obtain better financing terms.

Within the *information-based-approach*, Mitchell Petersen and Raghuram Rajan (1995) prove, in what is the most widely cited work within this line of study, that where banks hold relatively high market power, young firms may receive more loans and at more favourable terms. The reason for this is that, although unknown young firms should face higher cost of credit and receive lower amount of loans, as a result of being riskier borrowers, banks enjoying market power may adopt the following lending strategy to young businesses. They may initially charge lower loan interest rates in order to establish a lending relationship, and then increase interest rates to extract rent from eventually successful firms. Basically, in implementing this strategy, banks aim to maintain lending relationships in the

future. However, this is less likely to occur where firms can be driven out by competitors. In fact, in more competitive credit markets banks have less incentive to pay the initial cost of lending at lower rates to riskier borrowers. As a result, the latter could actually receive a lower amount of credit at higher rates. Nonetheless, Arnoud Boot and Anjan Thakor (2000) argue that "(i) there is more transaction lending at lower levels of interbank competition than at higher levels; (ii) increased interbank competition will increase relationship lending, but each loan will have less added value for borrowers" (ibid: 708).

In support to the *information-based-approach*, Emilia Bonaccorsi di Patti and Giovanni Dell'Ariccia (2004) find that bank market power is beneficial to firm birth only up to a certain point, after which it exerts a negative impact. Rebecca Zarutskie (2006) traces the firm-level effects of the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994, a major U.S. banking market deregulation which increased competition in credit markets. The author finds that, by increasing financial constraints, the deregulation had an adverse effect on the entrepreneurial activity of newly formed businesses. Sherill Shaffer (1998) shows that funds' allocative efficiency is negatively influenced by increased banking competition. This is because the probability that low-quality applicants receive credit is higher as the number of banks in the market increases, when banks have imperfect screening models and are not able to distinguish new borrowers from those that have already been rejected by other intermediaries. In line with this result is the work by Melanie Cao and Shouyong Shi (2001), which claims that the amount of loans is smaller and loan rates higher in markets where there are many competing banks, as competition would reduce the number of banks that perform screening and compete in credit supply. Moreover, Robert Marquez (2002) shows that borrower-specific

information becomes more disperse in more competitive credit markets. This is because in such markets each bank has information on a smaller pool of borrowers and this leads to less efficient screening and higher interest rates.

Yet, beside the above studies, other works reach different conclusions. Xiaofen Chen (2007) finds that increased banking competition improved loans quality in EU-15 countries, after the Second European Banking Directive has been introduced.[1] Marianne Bertrand *et al.* (2007) document that, in the French case, following the deregulation process that started in 1985 (which promoted, among other things, a more vigorous banking competition) banks improved their monitoring and/or screening functions and this had a positive effect on entrepreneurship. Moreover, Luigi Benfratello *et al.* (2008) argue that higher competition can lead banks to introduce better practices in screening, selecting, evaluating and monitoring firms since, as Chen (2005) claims, when facing competitive pressures they are more likely to choose screening activity instead of collateral requirements.

In between the two lines of research above discussed, other studies claim that market power in banking may have both positive and negative effects on the economy, making it difficult to establish which one predominates (e.g. Cetorelli, 1997; Cetorelli and Peretto, 2000). This result is supported empirically by works as Cetorelli and Strahan (2006), finding that, depending on the degree of bank competition, some firms benefit while others lose. Also, Cetorelli (2003) shows that increased banking competition influences industries' life-cycle dynamics by promoting job creation and growth at the start-up phase and in the early stages of entry. Yet, banking competition accelerates the exit of more mature establishments.

The studies surveyed indicate unsettlement in both the theoretical and empirical literature as to the impact of banking market structure on entrepreneurs' access to credit, hence on entrepreneurial activity. This calls for further research and the present work aims to bring a new contribution on the topic by looking at the effects that differences in the structure of local credit markets can exert on the creation and activity of cooperative and non-cooperative firms.

2.1 Cooperative firms and the relationship with external financiers: Theory and evidence

Distinguishing firms according to their institutional form is a non-trivial issue. In fact, in Chapter Four it has been shown that the availability of external sources of financing, and especially bank credit, has been regarded a critical factor influencing the creation, functioning and survival of cooperatives (Ben-Ner, 1988a, b). In this section, we take a closer look at some of the issues related to the external financing of cooperative firms in order to point out how these relate to the research question addressed in the present chapter.

We have already seen in Chapter Four that it is widely accepted by scholars that internal financing is neither sustainable nor efficient – due to the bias toward short-term investment and/or underinvestment created by the *horizon problem*[2] (Furubotn and Pejovich, 1970a, b). So that external financing is the main channel of resources' acquisition for cooperatives (Mygind, 1990). In his analysis on the financing of cooperative firms, Vanek (1975) points out that to avoid the problem created by self-financing, a cooperative economy needs a banking system providing the required funds. However, as discussed in Chapter Four, the institutional characteristics of cooperative firms are held to create a number of issues in the

relationship with external financers. By leading to agency problems in credit markets, cooperatives' *vaguely defined property rights* (Cook, 1995) imply that these firms are likely to face higher costs of capital and/or credit rationing (Vitaliano, 1983; Drèze, 1993; Putterman, 1993; Dow, 2003), and this limits their extension in market economies (Enberg, 1993).

To recapitulate here the main points discussed in Chapter Four, a first issue that has been stressed in the debate on the external financing of cooperative firms is that, by creating a problem in terms of guarantees offered to third parties financing the firm (Jossa and Cuomo, 1997), workers' limited wealth can constrain the amount of debt that can be raised and increase the cost of borrowing (Ben-Ner, 1988a). According to Putterman (1993), workers' limited wealth, and the high cost to them of not diversifying risk,[3] explain why cooperative firms are relatively rare as an organisational form.

A further issue that contributes to render the bank-firm link more complex for cooperatives than for other business structures is the so-called *commitment problem* of members (Schlicht and von Weizäcker, 1977). This entails that if capital is externally financed, then partners may lack effort to operate successfully if in risky situations substantial parts of the losses can be get rid off by bankruptcy. From the bank's viewpoint this implies that lending to a firm of yet unknown future profitability may be much riskier in the case of a cooperative firm, since decisions tend to be short-sighted.

An additional impediment to the financing of cooperatives, hence to their creation and development, results from their relative rarity as an organisational form (Ben-Ner, 1988b). This increases establishment costs for two main reasons. First, the issues mentioned above imply that acquisition of information about coops on

the part of financial intermediaries is costlier than information on capitalist firms. Secondly, since financial expertise on cooperatives is relatively scarcer and more expensive, potential lenders may restrict loans and/or require higher interest rates for funding firms with unknown track records (Jefferis and Mason, 1990). In other words, "capital may be more costly [or less available] for cooperatives than for other firms because, being an unfamiliar type of organization, they may be perceived as riskier organizations than capitalist firms" (Ben-Ner, 1998a, p. 290).[4]

Further to the issues so far discussed, another set of arguments should be considered. Cooperatives are not profit-oriented and, for financial intermediaries, this poses the problem of how to evaluate the performance of these firms. Conventional economic indicators of performance and efficiency provide an incomplete basis for comparing cooperative and capitalist firms, since these enterprises tend to operate under, at least partially, different sets of objectives (Bartlett *et al*, 1992). It can be argued that the major discriminant between cooperative and capitalist firms lies in the role ascribed to capital. In the former, capital is an instrument necessary to realise the ultimate aim of those who decide to join in a cooperative, be this the satisfaction of a need, the procurement of a job, and so on. By contrast, in the latter capital is both instrument and ultimate aim. In other words, beside economic purposes, cooperatives also pursue social goals; therefore, the role of relational goods – often able to counterbalance free riding and promote economic performance – should not be neglected (Zamagni 2005). However, how to account for them when assessing potential loans remains an issue.

The difficulties that cooperators might face in obtaining and providing financial capital have been used as an argument against the viability of these firms (Blair *et al*, 2000). However, research on cooperatives suggests that their success depends to

a large extent on the type of financial and cultural climate that prevails in the economy (Milenkovitch, 1971; Horvat, 1975; Thomas and Logan, 1982; Thomas and Defourny, 1990). There is, in fact, substantial evidence showing that limited access to finance and/or inappropriate financing mechanisms imply that cooperatives have less impact than they could have (Thomas and Defourny, 1990). In Chapter Five it has been remarked that Jefferis and Mason (1990) point out that one reason for the decline of the British cooperative sector is the restrictiveness of the financial environment on coops' ability to raise finance (on this point see also Oakeshott, 1978; Logan and Gregory, 1981). Still in Chapter Five we have been informed that an exception to this general attitude on the part of financial institutions occurred in the decade from 1976 to 1986, when there was a substantially increased availability of finance from public sources. This contributed to the massive expansion of the British cooperative sector between 1980 and 1986 (Estrin and Pérotin, 1987; Jefferis and Mason, 1990).[5]

Several studies have shown that finance does not represent a particular problem for cooperatives when institutional conditions are such that banks develop experience in lending to the cooperative sector, as this tends to favour the acquisition of information on cooperatives' credit riskiness (Bonin *et al*, 1993; Smith, 2001). Analysing the historical concentration of cooperative and capitalist firms, Avner Ben-Ner (1988b) concludes that cooperatives' diffusion (in labour and skill intensive industries) has been positively impacted by mainly two factors that reduced their formation costs: easier credit availability on more competitive and less discriminatory capital markets, and access to capital through specialised banks supported by the State or cooperatives' organisations. In the Basque region of Spain, for instance, where Mondragón cooperatives are based, the availability of a

specialised source of finance, through the interventionist role of the *Caja Laboral Popular* bank, has been a major factor accounting for the success of these Spanish coops (Fairclough, 1987). Indeed, at an early stage in their history, the *Caja* bank was set up with the explicit purpose of providing external funds to cooperative firms (Thomas and Logan, 1982).

3 EMPIRICAL QUESTION AND METHODOLOGY

This work empirically assesses the relationship between bank market power and the creation and activity of Italian firms, with a special focus on cooperatives. The central hypothesis of the research is that, *ceteris paribus*, local differences in the structure of the banking market influence differently the financing of cooperatives, as compared to other forms of business organisations (namely, partnerships and corporations – henceforth, non-cooperative firms), in relation to both firm creation and entrepreneurial activity.

The reasoning set out in the previous section provides the justification for carrying out the analysis by distinguishing between cooperative and non-cooperative firms. On one hand, it is reasonable to argue that, other things held equal, at an informative level cooperatives represent the least transparent (or more opaque) category of firms. Hence (potentially) the riskiest business type for financial intermediaries. On the other hand, the studies belonging to the *information-based-approach* show that, in general terms, the implications of bank market structure can be different from those predicted by the traditional *structure-conduct-performance* scheme, with the effects on firms' financing, hence on entrepreneurship, being also related to the possibility of setting in and maintaining

lending relationships. In light of these considerations, focusing on possible differences among business structures assumes relevance since cooperative firms' institutional characteristics may impact negatively on the establishment and/or maintenance of lending relationships. The empirical strategy employed to carry out the analysis is presented in the following sub-sections.

3.1 Measuring firm birth and activity

Firms' annual birth rate in industry *i*, province *p* and year *t* is measured as the flow of newly registered firms in year *t* on the stock of firms registered at the end of year *t-1*:

$$birth_{ipt} = \frac{newreg_{ipt}}{reg_{ipt-1}}, \text{ where } i=1,\ldots,27;\ p=1,\ldots,103;\ t=1998,\ldots,2003. \quad (1)$$

As far as firms' activity rate is concerned, this is given, for each province *p* and sector *i*, by the flow of active firms in year *t* divided by the stock of firms registered at the end of the same year:

$$activity_{ipt} = \frac{active_{ipt}}{reg_{ipt}}, \text{ where } i=1,\ldots,27;\ p=1,\ldots,103;\ t=1998,\ldots,2003. \quad (2)$$

The activity rate is here interpreted as a rough measure of firms' 'good health', since – as indicated by *InfoCamere* (2006)[6] – the stock of firms registered at the end of each year includes, beside the active ones, also those inactive, suspended, in liquidation and bankrupted. Thus, the activity rate gives the proportion of firms which at least are not in a declared state of difficulty.

3.2 Measuring bank market power

Bank market power is measured at provincial level by using the *Herfindahl-Hirschman Index* (HHI) on deposits.[7] Data at local banking office level are not publicly available in Italy (this is the case also in most other European countries). To deal with this issue, each variable *x* needed in the computation of the HHI indicator is drawn as[8]:

$$d_{ipt} = D_{it} * \left(\frac{BR_{ipt}}{BR_{it}} \right), \tag{3}$$

where $i=1,...,N$; $p=1,...,103$; $t=1998,\ldots,2003$; d_{ipt} indicates deposits for each branch office of bank *i* in province *p* in year *t*; D_{it} is the balance sheet value of deposits for bank *i* in year *t*; BR_{ipt} is the number of branch offices of bank *i* in province *p* in year *t*; finally, BR_{it} is the total number of branch offices of bank *i* in year *t*. Then, for each year considered in the analysis, the indicator of local banking concentration is computed as:

$$HHI_p = \sum \left(ms_{ip} \right)^2, \tag{4}$$

where $ms_{ip} = \left(\frac{d_{ip}}{D_p} \right)$ is the market share on deposits for each branch office of bank *i* in province *p*, and $D_p = \sum_i d_{ip}$.

Employing the above methodology to compute HHI permits the average value of deposits per branch office to vary across banks and over time. This removes two limiting assumptions that characterise most past studies, namely that the average value of deposits per branch office of a bank is the same for all branches at all banks and is the same over time (Carbò Valverde *et al*, 2003). Data availability precludes

instead the possibility to deal with another assumption that is implicit in the calculation of HHI. This is that the average value of deposits per branch office of a bank is the same for all branch offices of the same bank.

In the *structure-conduct-performance* paradigm, the HHI index is viewed as an inverse measure of bank competition: higher values of HHI are associated with a higher concentration of the credit market, hence with lower competition. Conversely, lower values of HHI indicate a less concentrated banking industry, and thus more competition.[9]

3.3 Estimation methods

Firms' birth and activity rates are computed on the separate samples of cooperative and non-cooperative firms. The distribution of these variables is such that firms' birth rate takes on the value of zero for a considerable range of observations in both samples (i.e. cooperative and non-cooperative firms). Instead, firms' activity rate assumes zero values for a non-trivial proportion of data only in the case of cooperatives.

Given the features of the dependent variables, the empirical analysis is implemented by applying the Tobit technique to estimate the models for the creation and activity of cooperatives, and also for the creation of non-cooperative firms. Linear regressions are, instead, carried out when the average activity rate is the dependent variable in the equation estimated for the sample of non-cooperative firms. The next sub-section offers a brief description of the Tobit model, while leaving aside the discussion on the traditional regression model.

3.3.1 The Tobit model

The censored Tobit model is usually used when dealing with a continuous variable having positive probability mass point at zero. It has been first applied by James Tobin (1956) and, following Takeshi Amemiya's (1985) taxonomy, is also known as type I Tobit model. The general formulation of the Tobit model, estimated by maximum likelihood, is given in terms of the following index function:

$$y_{it}^{*} = \mathbf{x}_{it}\boldsymbol{\beta} + \varepsilon_{it} \quad i=1,\ldots,N;\ t=1,\ldots,T \tag{5}$$

$$y_{it} = 0 \quad \text{if} \quad y_{it}^{*} \le 0$$

$$y_{it} = y_{it}^{*} \quad \text{if} \quad y_{it}^{*} > 0,$$

where $\varepsilon_{it} \sim N\left(0, \sigma^2\right)$. This is a standard regression model, where observations are censored at zero from below. In (5), when the model for firm birth is estimated, y_{it} is first the average birth rate of cooperatives and then the average birth rate of non-cooperative firms. y_{it} is also the average activity rate of cooperative firms when considering the model for firm activity. $\mathbf{x}_{it}$ is a $\left(1 \times k\right)$ vector of explanatory variables and includes an intercept. Finally, $\boldsymbol{\beta}$ is a $\left(k \times 1\right)$ vector of unknown parameters. The parameters in $\boldsymbol{\beta}$ have a double interpretation: one as the impact of a change in $\mathbf{x}_{it}$ on the probability of observing a non-zero rate of birth (in the first model) and of activity (in the second one); the other interpretation as the impact of a change in $\mathbf{x}_{it}$ on the level of these rates. The interest is in computing:

$$E\left(y_{it} \mid x_{it}, y_{it} > 0\right) = \mathbf{x}\boldsymbol{\beta} + \left[\frac{\varphi\left(\mathbf{x}\boldsymbol{\beta} / \sigma\right)}{\phi\left(\mathbf{x}\boldsymbol{\beta} / \sigma\right)}\right] \tag{6}$$

and

$$\frac{\partial E(y_{it} \mid x_{it})}{\partial x_i} = \beta\phi + \left(\frac{x'_i \beta}{\sigma}\right) \tag{7}$$

where φ is the probability density function and ϕ is the cumulative probability density function.

As argued by Jeffrey Wooldridge (2002), applying a Tobit model to a panel data structure entails some problems. First, one of the main assumptions underlying the unobserved effects (both random and fixed) Tobit model is the strict exogeneity of regressors. However, as it will be argued in Section 5, there is reason to suspect that the indicator of bank market power may be endogenous. Secondly, a fixed effects Tobit model would bring about, as the main doctrine argues, a further shortcoming. "Estimating limited dependent variable models with fixed effects entails an incidental parameters problem, which leads to inconsistent estimation of $\boldsymbol{\beta}$ with T fixed and $N \to \infty$" (Wooldridge 2002, p. 484).

To avoid the abovementioned drawbacks, estimations are carried out on firms' average birth and activity rates. These are computed – for each province – at industry level on the years 1999-2003, since some of the variables controlling for market specific effects are computed at the beginning of the period under analysis (see sub-section 3.3.2).[10] Employing average values brings about two further advantages: it allows smoothing the effect of possible temporary shocks, and leaves the opportunity to include in the analysis both industry-specific effects and the heterogeneity across markets.

3.3.2 The econometric specifications

The econometric specification of the model concerning firm birth (BIRTH)[11] includes the following explanatory variables: the 1999-2003 firms' average cancellation rate (DEATH),[12] which should be positively correlated to firm birth since, due to firms' turnover, relatively more firms should be created where a larger proportion of existing firms go out of business[13]; the initial industry share in each province (INDUSHARE), accounting for the fact that new firms are less likely to be formed in more densely populated markets[14]; the indicator of local banking concentration (HHI), described in sub-section 3.2; the (log of) average provincial population (POP), as a measure of local market size; the share of workforce holding high school diploma or higher degree in 1997 (EDUC), proxying for human capital endowment; a proxy for the strength of community ties (STIES) – or, as some authors claim, a proxy for civicness, hence for social capital[15] – obtained by averaging data on electoral participation,[16] so as to account for the possible impact of differences in social structure on firm birth; a proxy for adherence to corporate law, given by the crimes committed against the economy normalised by population and averaged over the years 1999-2003 (CRIMEECO)[17]; a location dummy variable (CEN-NORTH), taking on the value of 1 for Centre Northern provinces and 0 otherwise; the share of municipalities having less than 30,000 residents in 1996 (SMALLTOWN), accounting for the presence of external and agglomeration economies which should lead firm creation to be higher in urban areas (Vernon, 1960); a proxy for local infrastructures endowment (ROADS), measured as kilometres of non-urban roads at the end of 1996 normalised by province area, and expected to have a positive effect on economic activity, hence on entrepreneurship; the provincial real per capita income in 1998 (RPI) as a proxy for local wealth

controlling for the fact that, if convergence effects are at work, economies with low initial incomes should grow faster (Barro, 1991; Mankiw *et al*, 1992), hence should display higher rates of firm creation; finally, to account for sectoral specific effects, industry dummies are included (INDUSTRY).

Turning to the specification for the regressions on firms' activity rate (ACTV),[18] beside the variables so far described, it accounts also for firms' average birth rates. Moreover, in the equation estimated for cooperatives, the average activity rate of other firms (ACTV_OF) is also employed.[19]

For a more detailed description of the variables included in the empirical models, their main summary statistics and the correlation matrix see Tables 6.1, 6.2 and 6.3 respectively.

TABLE 6.1 - Description of Variables

Variable	*Description*
BIRTH_OF	Average birth rate of partnerships and corporations for the years 1999-2003
BIRTH_COOP	Average birth rate of cooperative firms for the years 1999-2003
ACTV_OF	Average activity rate of partnerships and corporations for the years 1999-2003
ACTV_COOP	Average activity rate of cooperative firms for the years 1999-2003
DEATH_OF	Average death rate of partnerships and corporations for the years 1999-2003
DEATH_COOP	Average death rate of cooperative firms for the years 1999-2003
INDUSHARE	Registered firms in industry i and province p on total registered firms in the province in 199
HHI	Average *Herfindahl-Hirschman Index* on deposits at provincial level for the period 1999-2003 (*100
HHI2	Squared of the average *Herfindahl-Hirschman Index* on deposits
POP	Average provincial population for the period 1999-2003
EDUC	Share of workforce with a high school diploma or higher degree in 1997
STIES	Average electoral participation to the 1995 and 2001 referenda, and to the 1999 European elections
CRIMEECO	N° of crimes committed against the economy normalised by population (average 1999-2003) *1000
CEN-NORTH	Dummy = 1 if firm is located in the Centre Northern area and zero otherwise
SOUTH	Dummy = 1 if firm is located in the South and zero otherwise
SMALLTOWN	Share of municipalities with less than 30,000 residents in 1996
ROADS	Kilometers of non-urban roads at the end of 1996 normalised by province area (km^2)
RPI	Real per capita income in 1998

All variables are drawn from *InfoCamere* except for: i) HHI and HHI2, obtained by calculations on data BILBANK (ABI) and Bank of Italy; ii) RPI, POP, STIES and CRIMEECO, drawn from ISTAT; iii) EDUC, SMALLTOWN and ROADS, drawn from Bonaccorsi di Patti and Dell'Ariccia (2004).

TABLE 6.2 - Summary Statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
BIRTH_OF *	2220	2.1657	2.2184	0	25.0
BIRTH_COOP *	2220	2.0617	4.7024	0	50.0
ACTV_OF *	2220	78.165	12.106	0	100
ACTV_COOP *	2220	66.021	25.991	0	100
DEATH_OF *	2220	2.7468	1.4213	0	15.0
DEATH_COOP *	2220	3.1506	5.3288	0	50.0
INDUSHARE *	2220	4.4060	7.8410	0.0020	48.8177
HHI	2220	13.177	5.525	5.15	42.45
POP +	2220	591,913	645,737	90,065	3,721,603
EDUC *	2220	37.207	4.099	22.406	49.460
STIES *	2220	54.045	8.090	36.767	68.906
CRIMEECO	2220	3.5993	1.3861	1.1218	11.7971
CEN-NORTH	2220	0.6329	0.4821	0	1
SOUTH	2220	0.3671	0.4821	0	1
SMALLTOWN *	2220	48.519	25.650	0	93.330
ROADS *	2220	17.986	3.545	7.800	26.300
RPI #	2220	16.684	4.279	8.965	27.728

For the description of the variables see Table 6.1. * In percentage terms; # in thousand of Euro; + in units. All the other variables are dummies, with the exception of HHI and CRIMEECO (see Table 6.1).

TABLE 6.3 - Correlation matrix

	BIRTH_OF	BIRTH_COOP	DEATH_OF	DEATH_COOP	ACTV_OF	ACTV_COOP	INDUSHARE	HHI	HHI2	POP	EDUC	STIES	CRIMEECO	CEN_NORTH	SMALLTOWN	ROADS	RPI
BIRTH_OF	1																
BIRTH_COOP	0.282	1															
DEATH_OF	0.164	0.047	1														
DEATH_COOP	0.079	-0.005	0.056	1													
ACTV_OF	0.078	-0.008	0.029	0.016	1												
ACTV_COOP	0.056	0.039	0.037	-0.133	0.350	1											
INDUSHARE	0.132	-0.050	0.037	0.027	0.122	-0.015	1										
HHI	-0.014	-0.040	-0.123	-0.107	0.107	0.079	0.011	1									
HHI2	-0.023	-0.051	-0.131	-0.095	0.105	0.091	0.009	0.959	1								
POP	-0.081	-0.021	0.018	-0.021	-0.281	-0.104	-0.035	-0.276	-0.206	1							
EDUC	-0.058	0.048	0.020	-0.019	-0.293	-0.120	-0.006	0.012	-0.068	0.108	1						
STIES	0.161	0.089	0.238	0.127	0.210	0.055	0.022	-0.186	-0.172	-0.031	-0.091	1					
CRIMEECO	-0.076	-0.023	0.014	-0.032	-0.126	-0.034	-0.003	0.087	0.057	0.084	0.386	-0.248	1				
CEN_NORTH	0.163	0.107	0.216	0.112	0.187	0.082	0.025	-0.157	-0.156	-0.013	0.041	0.645	-0.092	1			
SMALLTOWN	-0.033	-0.023	-0.031	0.026	0.147	0.086	0.024	0.264	0.244	-0.322	-0.064	0.042	0.196	0.182	1		
ROADS	-0.092	-0.009	0.050	0.019	-0.192	-0.101	-0.005	-0.128	-0.183	0.003	0.394	-0.403	0.426	-0.400	0.016	1	
RPI	0.175	0.093	0.225	0.134	0.174	0.083	0.019	-0.229	-0.185	0.175	-0.149	0.631	-0.151	0.663	0.115	-0.413	1

For the description of the variables see table 6.1.

4 DATA

The data used in this study come from several sources. Information on firms has been obtained from Movimprese, a database compiled by *InfoCamere* containing data on firms' demographics collected from local firm registries. Gross flows of newly created, active and cancelled firms are present in this dataset, as well as end of year stocks of registered firms. This piece of information is available for 103 provinces, 28 industrial sectors and firm legal structure (i.e. sole traders, partnerships, corporations, cooperatives, and other legal forms).[20] The dataset for the period 1998-2003 is initially made up of 17,304 observations. From it, are dropped observations on firms operating in the financial sector, since the great part of financial firms are banks. This leads to 16,686 observations. Then, since the intention is to focus on enterprises, sole traders are excluded. The category labelled 'other firms' is also deleted because it groups a heterogeneous class, comprising a great number of typologies, in many cases representative of only a small number of firms. Finally, after taking the average values for the period 1999-2003, and checking for the presence of outliers, the sample employed in the estimations is made up of 2,220 observations.[21]

A second dataset employed is BILBANK, edited by the Italian Banking Association (ABI) and containing balance sheet data on nearly all Italian banks for each year in the period 1998-2003. A third piece of information comes from the Bank of Italy and regards the provincial distribution of branches for each Italian bank over the period 1998-2003. This is used to disaggregate banking balance sheet data at provincial level, as illustrated in sub-section 3.2. A fourth data source is the Italian National Statistical Institute (ISTAT): figures on provincial income, population, voters' turnout and crimes against the economy are drawn from here.

Finally, data on human capital, municipal distribution of population and infrastructural endowment are drawn from the Bonaccorsi di Patti and Dell'Ariccia (2004) database.

Table 6.2 reports the main summary statistics for the sample employed in the estimations. As shown there, non-cooperative firms' average birth rate is 2.17%. This rate is highest (25%) in fishery, and in the leather tanning and finishing industry, while its lowest (positive) value is in (other) public, social and personal services (0.09%). Passing to cooperatives, Table 6.2 reports that their average birth rate is 2.06%. This is maximum (50%) in transports, storage and communications, and in the manufacture of mechanical machinery and equipment. Yet, fewest coops are formed in agriculture, hunting and forestry (0.06%).

As far as firms' average activity rate is concerned, this is 78.17% for non-cooperative firms (see Table 6.2), and it is maximum (100%) in the sectors of: fishery; mineral extraction; chemical production; manufacture of transport means; electricity, water and gas production and distribution, and education. In all the just mentioned sectors but fishery, also cooperative firms have the highest activity rate (100%) – on average equal to 66.02% (see Table 6.2) – as well as in the remaining manufacturing industries, the hospitality and restoration sector, the transports, storage and communications industry, and the health and social services sector. On the other hand, firms' lowest (positive) activity rates are in chemicals production for non-cooperative firms (22.56%) and in constructions for cooperatives (7.54%).

It is worth noting that the average cancellation rate is maximum in the fishery sector for non-cooperative firms (15%), and for cooperatives in the non-energy minerals extractive industry, in some manufacturing sectors, and in electricity, water and gas production and distribution (50%). Moreover, the minimum

(positive) rate of cancellation is in the transports, storage and communication industry for non-cooperative firms (0.26%), and in the construction industry for cooperatives (0.63%).

Regarding territorial differences in entrepreneurship, in the sample, the average birth rate of non-cooperative firms is 2.44% in the Centre-Northern area and 1.69% in the Southern one. For cooperatives, instead, these figures are 2.45% and 1.40%, respectively. Also firms' activity rate is higher in the Centre-North than in the South (79.89% versus 75.19% for non-cooperatives, and 67.63% versus 63.24% for cooperatives). Finally, with respect to firms' cancellation, this is higher in the Centre-North than in the South, for both non-cooperative (2.98% versus 2.34%) and cooperative firms (3.61% versus 2.37%).

5 RESULTS

Estimation results are reported in Tables 6.4-6.7. All estimations have been carried out using robust standard errors[22] (i.e. adjusted standard errors that are valid in the presence of heteroskedasticity of unknown form).[23] After having run all regressions, the average value of the square of HHI (HHI2) has been included in the econometric specifications, in order to test for non-monotonic effects of local banking concentration on firm creation and activity. Results obtained from these latter estimations reveal statistically significant non-linear effects of bank market power for both samples. This suggests that the specifications with non-linearity are the relevant ones. Yet, a major criticism that could be advanced to the analysis is that the indicator of local banking concentration may be endogenous, if banks tend to enter local markets where the rates of firm creation and activity are higher for exogenous

reasons. To deal with this potential objection all regressions are re-estimated by testing for endogeneity. To do so, the Wald test is carried out for the Tobit regressions and the Hausman test is run for the OLS regressions.[24] Regarding the instruments employed, these are the HHI indicator and DENSITY (provincial population over province area), both taken at their 1995 values, and MUN (number of provincial municipalities in logarithmic terms). [25]

The estimations carried out on the sample of cooperative firms do not reveal presence of endogeneity of HHI and HHI2 for both BIRTH_COOP and ACTV_COOP (see Table 6.4). Therefore, the results previously obtained, and reported in Table 6.4, are the relevant ones for these models. Focusing on the variable of interest, that is the measure of bank market power, column BIRTH_COOP in Table 6.4 shows that HHI follows a bell-shaped pattern. This suggests that a relatively concentrated local credit market benefits the creation of cooperative firms, while it has a detrimental impact after it reaches a threshold. Looking at the results on the quadratic functional form of HHI in the estimations for the model on firm's activity (column ACTV_COOP in Table 6.4), the evidence shows a U-shaped relationship between bank market power and cooperatives' activity rate. This indicates that active cooperatives benefit from more intense banking competition, even though this latter has negative effects when too exasperated.

Turning to the results obtained for the sample of non-cooperative firms, presented in Table 6.5, the Wald test reported in column BIRTH_OF fails to reject the null hypothesis of exogeneity of the concentration indicator in the model for birth. Figures in the same table show that, as for BIRTH_COOP, also in the case of BIRTH_OF the relationship between non-cooperative firms' creation and bank market power presents a bell-shaped pattern. As regards the model for firm activity, the Hausman test reveals

evidence of endogeneity of HHI and HHI2 (Table 6.5, column ACTV_OF). As opposed to the evidence obtained for the sample of cooperatives, the non-linear pattern followed by these variables is once again bell-shaped, showing that for the activity of non-cooperative firms some market power in the local credit market is beneficial, while it has negative effects after it goes beyond a threshold.

To recapitulate the empirical evidence obtained, the results for the model of firm creation show a bell-shaped relationship between bank market power and firm birth, for both cooperative and non-cooperative firms. This finding can be interpreted arguing that, at the time of their establishment, it is likely that firms are considered to be equally risky by banking institutions, independently of their legal structure.[26] In other words, this seems to suggest that, when firms start-up, cooperatives' institutional characteristics would not represent for banks an element for discriminating between these firms and other business structures.

Passing to firms' activity rate, the results show that a relatively higher concentration of the credit market tends to favour non-cooperative firms, while this would be detrimental for cooperatives – which seem to benefit from a more intense banking competition.[27] This conclusion appears to be coherent with the hypothesis put forward in this chapter, according to which the effects produced by the structure of the credit market can differ between coops and non-coops, due to the fact that cooperatives' institutional specificities can jeopardise the maintenance of lending relationships; so that, where the credit market is more concentrated, these firms would be disadvantaged.

On the other hand, the evidence according to which a greater banking competition would be beneficial for cooperatives could be explained by resorting to at least two arguments. First, a higher number of banks operating in the market could lead (the most) opaque firms to fractionalise their debt among several intermediaries, so as to

maximise the amount of credit they obtain. On their part, relying on the monitoring activity of the other intermediaries involved, banks are more prone to lend to opaque firms. This interpretation could be in line with the multiple banking relationship phenomenon (known as *multiaffidamento*) characterising the Italian business practice (e.g. Pagano *et al*, 1998; Ongena and Smith, 2000). Another possible interpretation could be that increased competitive pressures encourage more efficient bank screening procedures, so that banks are inclined to lend to (more) opaque firms based on their expected performance rather than past records. As claimed by Benfratello *et al*. (2008), higher competition may induce banks to "introduce better and more advanced practices in the screening, selection, evaluation and monitoring of projects and entrepreneurs. […] These practices could include looking more carefully and with better tools at borrowers' future prospects, as opposed to relying purely on firms' marketable assets as collateral, which characterizes standard operating behavior in many cases" (ibid: 9-10).

The findings can be interpreted by means of the institutional complementarity approach: the relationships between firms and banking institutions can be considered complementary in the sense that the presence of firms (i.e. their birth rate) and their effectiveness (evaluated in terms of their activity rate) are reinforced by the institutionalised presence of specific arrangements characterising the governance mechanisms operating in the financial domain. More precisely, a relatively more concentrated banking system seems to be complementary to both the creation and activity of non-cooperative firms. On the other hand, while banks enjoying some market power appear to favour also the creation of cooperatives, it is a relatively more competitive banking system the institutional counterpart that strengthens cooperatives in their activity.

TABLE 6.4 - Cooperative firms' birth and activity rates results

	DEPENDENT VARIABLE			
	BIRTH_COOP		**ACTV_COOP**	
	Interval regression		*Interval regression*	
BIRTH_OF	1.0973	*0.0000*		
DEATH_OF	0.1659	*0.3690*		
BIRTH_COOP			0.1205	*0.3480*
DEATH_COOP	-0.0752	*0.1490*	-0.6513	*0.0000*
ACTV_OF			0.6633	*0.0000*
INDUSHARE	0.0669	*0.0210*	-0.1504	*0.0680*
HHI	0.2732	*0.0550*	-0.7503	*0.0300*
HHI2	-0.9006	*0.0100*	2.1432	*0.0060*
POP	1.3266	*0.0000*	-1.0433	*0.2600*
EDUC	0.0847	*0.1500*	-0.0835	*0.6230*
STIES	0.0254	*0.6090*	-0.4088	*0.0060*
CRIMEECO	-0.1322	*0.3920*	-0.1131	*0.8160*
CEN-NORTH	0.5630	*0.5870*	2.9590	*0.3130*
ROADS	0.0971	*0.2660*	-0.0807	*0.6710*
SMALLTOWN	-0.0028	*0.7600*	0.0028	*0.9130*
RPI	0.0156	*0.8720*	0.5715	*0.0420*
Wald test	531.56	*0.0000*	862.56	*0.0000*
Wald test of exogeneity	2.64	*0.2676*	3.61	*0.1647*
N.OBS	2,220		2,220	
left-censored	1,204		110	
uncensored	1,016		2,110	

TABLE 6.5 - Non-Cooperative firms' birth and activity rates results

	DEPENDENT VARIABLE			
	BIRTH_OF		**ACTV_OF**	
	Two-step Tobit		*2SLS*	
BIRTH_OF			-1.1410	*0.0270*
DEATH_OF	0.1609	*0.0030*	-1.2872	*0.1430*
INDUSHARE	0.0176	*0.3180*	0.0343	*0.9080*
HHI	0.9416	*0.0630*	24.907	*0.0040*
HHI2	-2.3917	*0.0800*	-66.551	*0.0040*
POP	0.0010	*0.9950*	2.9724	*0.2660*
EDUC	-0.0873	*0.0180*	-2.5048	*0.0000*
STIES	-0.0230	*0.1550*	-0.1436	*0.5970*
CRIMEECO	0.0198	*0.7940*	2.6991	*0.0330*
CEN-NORTH	-0.6031	*0.3860*	-26.406	*0.0240*
ROADS	-0.0867	*0.2400*	-3.3365	*0.0080*
SMALLTOWN	-0.0070	*0.1030*	0.1429	*0.0420*
RPI	0.1866	*0.0030*	2.5733	*0.0180*
Wald test	831.58	*0.0000*		
Wald test of exogeneity	11.81	*0.0027*		
F-test			1.81	*0.0017*
Uncentered R-Squared			0.703	
Sargan Statistic			0.019	*0.8903*
Wu-Hausman test			86.09	*0.0000*
Durbin-Wu-Hausman test			162.64	*0.0000*
N.OBS	2,220		2,220	
left-censored	222			
uncensored	1,998			

For the description of the variables see Table 6.1. The regressions are estimated employing market-industry observations. In italics are reported the p-values of the tests. The z and t statistics (not reported) are based on robust standard errors. In both tables, industry dummies and constant included but not reported. Interval regression is a Tobit estimation with robust SE. The instrumental variables used in the regressions testing for endogeneity are: the 1995 value of HHI; DENSITY (provincial population over province area), and MUN (number of municipalities present in a province in logarithm terms).

5.1 Robustness

To test the robustness of the results, several sensitivity checks are performed. First, to account for market specific effects, the models are re-estimated by including market dummy variables. This specification is robust to the existence of market specific omitted variables; moreover, it reduces the concern for the endogeneity of the bank market power index. Results obtained from these estimations, presented in Table 6.6, fully confirm the conclusions previously drawn.

The empirical models are then augmented with an interaction term between HHI and the geographical dummy CEN-NORTH (HHINTE) with the view to control for possible regional heterogeneity between the centre-north and south macro areas. These estimations validate the findings obtained even though the interaction term HHINTE is not statistically significant. Results from this robustness proof are not reported but are available from the author upon request.

As a further check, an alternative indicator of banking market structure is employed (ΔHHI). This is given by the absolute value of the change of HHI between the beginning and end of the period examined (Bonaccorsi di Patti and Dell'Ariccia, 2004). This is an inverse measure of bank market power, under the assumption that significant changes in industry structure affect banks' expectations of extracting future rents from borrowers. To make ΔHHI positively correlated with market power, its linear transformation is taken (1-ΔHHI). Then, all regressions are re-run by including 1-ΔHHI and its squared (1-ΔHHI2). The results (not reported, but available from the author upon request) are basically unchanged.

Conclusions continue to hold also when sole traders are included in the sample of non-cooperative firms. Table 6.7 reports the marginal effects and threshold values of HHI for the estimates in Tables 6.4, 6.5 and 6.6.

TABLE 6.6 - Robustness: including market fixed effects

	DEPENDENT VARIABLE							
	BIRTH_COOP		**BIRTH_OF**		**ACTV_COOP**		**ACTV_OF**	
	Interval regression		*Interval regression*		*Interval regression*		*Linear regression*	
BIRTH_OF	0.2496	*0.0410*					-0.1964	*0.2780*
DEATH_OF	-0.0299	*0.8690*	0.0722	*0.2850*			0.3167	*0.3180*
BIRTH_COOP					-0.0067	*0.9600*		
DEATH_COOP	-0.0769	*0.1550*			-0.6888	*0.0000*		
ACTV_OF					0.1976	*0.0640*		
INDUSHARE	0.0668	*0.0390*	0.0116	*0.3240*	-0.1377	*0.0620*	-0.0138	*0.7010*
HHI	0.6712	*0.0360*	0.1222	*0.0300*	-2.2365	*0.0020*	1.1159	*0.0000*
HHI2	-1.4592	*0.0370*	-0.2320	*0.0570*	4.8961	*0.0010*	-2.0514	*0.0000*
POP	1.5763	*0.0310*	-0.0840	*0.4860*	-6.8612	*0.0020*	-2.5538	*0.0000*
EDUC	0.1352	*0.4430*	-0.0776	*0.0170*	0.4408	*0.2580*	-0.8592	*0.0000*
STIES	0.0033	*0.9710*	0.0471	*0.0140*	-0.6469	*0.0480*	-0.2816	*0.0010*
CRIMEECO	-0.2230	*0.5330*	-0.1187	*0.1310*	-2.8514	*0.0010*	-1.1950	*0.0000*
ROADS	-0.0048	*0.9840*	0.0492	*0.3930*	0.0902	*0.8520*	0.4496	*0.0210*
SMALLTOWN	0.0221	*0.2670*	-0.0010	*0.7790*	0.0546	*0.4010*	-0.0083	*0.7030*
RPI	0.4928	*0.0160*	0.0115	*0.7790*	2.0229	*0.0000*	0.4987	*0.0030*
F-test							51.37	*0.0000*
R-Squared							0.6774	
Wald test	716.91	*0.0000*	3117.37	*0.0000*	1914.68	*0.0000*		
N.OBS	2,220		2,220		2,220		2,220	
left-censored	1,204		222		110			
uncensored	1,016		1,998		2,110			

For the description of the variables see Table 6.1. The regressions are estimated employing market-industry observations. In italics are reported the p-values of the tests. The z and t statistics (not reported) are based on robust standard errors. Industry dummies, market dummies and constant included but not reported.

TABLE 6.7 - Marginal effects and threshold values for firms' birth and activity rate

	DEPENDENT VARIABLE			
	BIRTH_COOP	**BIRTH_OF**	**ACTV_COOP**	**ACTV_OF**
A - Industry fixed effects				
BIRTH_OF	0.3195			-1.1410
DEATH_OF	0.0483	0.1290		-1.2872
BIRTH_COOP			0.0871	
DEATH_COOP	-0.0219		-0.4707	
ACTV_OF			0.4795	
INDUSHARE	0.0195	0.0094	-0.1087	0.0343
HHI	0.0796	0.0386	-0.5424	24.907
HHI2	-0.2623	-0.0830	1.5491	-66.551
POP	0.3863	-0.1882	-0.7541	2.9724
EDUC	0.0247	-0.0158	-0.0604	-2.5048
STIES	0.0074	-0.0072	-0.2955	-0.1436
CRIMEECO	-0.0385	-0.0370	-0.0818	2.6991
CEN-NORTH	0.1629	0.1760	2.1483	-26.406
ROADS	0.0283	0.0024	-0.0584	-3.3365
SMALLTOWN	-0.0008	-0.0067	0.0020	0.1429
RPI	0.0045	0.0556	0.4131	2.5733
Threshold value of HHI	0.1517	0.2327	0.1750	0.1871
B - Industry and market fixed effects				
BIRTH_OF		0.0720	-0.1964	
DEATH_OF	0.0504	-0.0086	0.3167	
BIRTH_COOP				-0.0051
DEATH_COOP		-0.0222		-0.5202
ACTV_OF				0.1493
INDUSHARE	0.0081	0.0193	-0.0138	-0.1040
HHI	0.0854	0.1937	1.1159	-1.6892
HHI2	-0.1620	-0.4210	-2.0514	3.6979
POP	-0.0587	0.4548	-2.5538	-5.1821
EDUC	-0.0542	0.0390	-0.8592	0.3329
STIES	0.0329	0.0009	-0.2816	-0.4886
CRIMEECO	-0.0829	-0.0643	-1.1950	-2.1536
ROADS	0.0343	-0.0014	0.4496	0.0682
SMALLTOWN	-0.0007	0.0064	-0.0083	0.0413
RPI	0.0080	0.1422	0.4987	1.5278
Threshold value of HHI	0.2635	0.2300	0.2720	0.2284

For the description of the variables see Table 6.1. In the models for BIRTH_OF, BIRTH_COOP and ACTV_COOP the interpretation of the marginal effects is in terms of the impact of a change in the independent variables on the expected value of BIRTH and ACTV, conditional on being uncensored. The standard interpretation applies to the model for ACTV_OF. In all models *dy/dx* is for discrete change of dummy variable from 0 to 1

6 CONCLUSION

This chapter investigated the relationship between banking market structure and the creation and activity of firms. In order to test for differences among business structures, the empirical analysis confronted cooperative and non-cooperative firms. The econometric investigation, carried out on a sample of Italian firms operating in 27 industries during the period 1998-2003, leads to some major conclusions.

The first one is that the impact of bank market power on the creation of cooperatives does not seem to be different from that exerted on non-cooperative firms operating in the same local market. For all business types, the empirical analysis finds a bell-shaped relationship between bank market power and firms' birth rate, suggesting that firm creation is favoured by a moderate bank market power, which is instead detrimental after it reaches a threshold. This finding – in line with the conclusions reached, for instance, by Petersen and Rajan (1995) and Zarutskie (2006) – can be interpreted arguing that, at the time of their establishment, firms tend to be considered equally risky by banking institutions. In other words, when firms start-up, cooperative firms' institutional characteristics would not represent for banks an element for discriminating between these firms and other business types.

A less homogeneous pattern, and this is a second main conclusion, is found with respect to firms' activity rate. The empirical evidence still finds a bell-shaped parabola for non-cooperative firms. By contrast, a U-shaped relationship emerges for cooperatives: this seems to indicate that active cooperatives in the market benefit from more intense banking competition, even though it produces negative effects when too exasperated. This result lends support to the hypothesis put forward in this chapter, according to which the effects produced by the structure of

the banking market can differ between coops and non-coops, since cooperatives' institutional specificities can jeopardise the possibility of maintaining lending relationships; so that, where the credit market is more concentrated, these firms would be disadvantaged. On the other hand, the evidence showing that a greater banking competition would be beneficial for established cooperatives can be explained by resorting to at least two arguments. First, a higher number of banks operating in the market could lead (the most) opaque firms to fractionalise their debt among several intermediaries, so as to maximise the amount of credit obtained. On their part, in such a situation, banks are more inclined to lend to opaque firms counting on the monitoring activity of the other intermediaries involved (Pagano *et al*, 1998; Ongena and Smith, 2000). An alternative interpretation could be that increased competitive pressures encourage more efficient bank screening procedures, so that banks are inclined to lend to (more) opaque firms on the basis of expected performance rather than past records and firms' marketable assets as collateral (Benfratello *et al*, 2008).

In terms of the institutional complementarity approach, the findings suggest that, for the Italian case, a relatively more concentrated banking system is complementary to both the birth and activity of non-cooperative firms. Moreover, while banks enjoying some market power tend to favour also the creation of cooperatives, it is a relatively more competitive banking system the institutional counterpart that strengthens their activity. Overall considered, the results for cooperatives are in line with the studies showing that the performance of these firms strongly depends on the institutional context in which they are embedded (e.g. Horvat, 1975; Thomas and Logan, 1982).

In terms of the economic literature discussed in Chapter 4, the present research work shows that cooperatives' property rights structure does not necessarily result in higher costs of capital and/or credit rationing – as argued instead by studies as Drèze (1993), Putterman (1993) and Dow (2003). In support to those writers who instead point out the need for financial institutions to develop experience in lending to the cooperative sector (Horvat, 1982b; Ireland and Law, 1982; Bowles and Gintis, 1986; Ben-Ner, 1988a,b; Gintis, 1989, 1990), the results obtained in this Chapter inform that in relatively more competitive credit markets banking institutions may be better able to adopt screening and monitoring technologies that enable developing such experience.

A major implication of the evidence obtained is that, with regard to the creation phase of their life-cycle, cooperatives are not different from other firms – at least for how they tend to be perceived by banking institutions and respond to bank market power. It is, however, during their activity that cooperatives appear to manifest a behaviour different from other enterprises and, in this respect, further research is called for to inquire into the sources and consequences of this diversity.

NOTES

1 The Second European Banking Directive was introduced in 1989 and implemented in 1993 (Chen, 2007).

2 The horizon problem concerns the impossibility for partners to recoup the self-financed capital invested in the firm when their expected tenure in the firm is shorter than the time it takes for the stream of discounted net returns from the project to equal the initial cost of the investment. For a detailed discussion on the theme of internal financing in cooperative firms the reader is referred to Chapter Four.

3 Cooperative members cannot diversify the risk to their employment, human capital and financial capital which are bundled in the same coop (Ben-Ner, 1988b).

4 On the issue of cooperatives' credit riskiness, Jefferis and Mason (1990) argue that it is important to distinguish between actual and perceived risk. Unfamiliarity with coops on the part of banks causes an information deficiency, which results in a higher level of risk being perceived by the lender, hence in either a higher interest rate on loans or a restriction on funds. However, this does not necessarily mean that the actual risk is greater. The crucial factor is the risk perceived on the basis of the available information.

5 Podivinsky and Stewart (2007) report that cooperative firms' registrations increased by more than 13% over the 10-year period 1976-1985. Moreover, looking at the general pattern of entry in the U.K. a comparison of the first half of the period (1976-1980) with the second one (1981-1985) reveals a growth rate of more than 300% in VAT registrations for cooperatives and of 11% for other firms.

6 *InfoCamere* is the source from which data on firms' demographics have been obtained. This organization coordinates, at national level, the network of provincial Chambers of Commerce.

7 The HHI is computed on deposits (and not on loans) since depositors typically have less market power than borrowers. Moreover, "the HHI for deposits represents a good proxy for competition in loan markets if the empirical investigation involves firms that largely borrow from local markets, that is if credit markets are local for the firms under consideration" (Petersen and Rajan, 1995, p. 418). This is the case for the sample units of the present work. In fact, as Francesco Cesarini (2003) highlights, once internal funds are depleted, the banking channel is often the only way for Italian firms - usually facing high costs in employing arm's length finance - to gain access to external funds.

8 In disaggregating national data on deposits at provincial level, we follow Santiago Carbò Valverde *et al*. (2003), and Mariarosaria Agostino and Francesco Trivieri (2008).

9 The *Herfindahl-Hirschman Index* is the measure used in most studies on bank market power, though it has been criticised by several authors (for a critical review see Guzman, 2000). Alternative indicators suggested by the literature are the Lerner Index and the non-structural *H* statistic of John Panzar and James Rosse (1987). Data availability has precluded the use of such indicators in the empirical analysis of this work.

10 Using variables defined in a period preceding the one considered in the empirical investigation underlies the assumption that some provincial characteristics take time to display their impact on firm creation and activity.

11 This variable is labelled BIRTH_OF for non-cooperative firms and BIRTH_COOP when referred to cooperatives.

12 DEATH is obtained by averaging over the years 1999-2003 the annual cancellation rates, computed for sector *i* and province *p* as the ratio of firms cancelled in year *t* over the stock of firms registered at the end of year *t-1*. This variable is labelled similarly to BIRTH, depending on which group of firms it refers to.

13 The regressions having BIRTH_COOP as dependent variable include also the birth and death rates of other firms (BIRTH_OF and DEATH_OF).

14 INDUSHARE is calculated as the ratio of firms registered in industry *i* and province *p* in 1998 over the total number of firms registered in province *p* in the same year.

15 Starting from Robert Putnam's (1993) study, various indexes proxying for social capital have been used in the literature. It is, however, still debated which is the most appropriate indicator. The electoral participation to referenda and elections has been used by studies as John Helliwell and Robert Putnam (1995), Mario Forni and Sergio Paba (2000), Luigi Guiso *et al*. (2004a, b) and Benfratello *et al*. (2008).

16 The rounds of voting included in STIES are: the 1995 referenda, the 1999 European elections and the 2001 referenda. The choice of these rounds has been driven by data availability. Indeed, information on participation to the general elections is not available at provincial level, but only for constituencies. Moreover, regional elections do not always take place for all regions in the same year, so that data on voters' turnout are not evenly available.

17 The crimes this variable includes are: falsity in acts and persons; counterfeit, alteration or use of trademarks; other crimes against the safety, the economy and the public trust. Since information on

this variable was accessible only for the years 2000-2003, the 2000 figures have been imputed to the year 1999, so as to compute the mean value over the period 1999-2003.

18 Also this variable is labelled differently depending on the group of firms that is taken into account. It is identified as ACTV_COOP in the estimations for cooperatives and as ACTV_OF in those carried out on non-cooperative firms.

19 Data availability precluded the possibility to explicitly account for other non-financial variables that may impact on firms' activity. Nonetheless, both industry and market specific effects can be included in the empirical models to mitigate the concern for omitted variables (see sub-section 5.1). Yet, the intention for future research is to dispose of a more varied and richer dataset.

20 The Italian corporate law disciplines firms' legal structures according to the principle of juristic personality. A first typology of firms is that of sole trader, a business entity having no separate existence from its owner. Basically, under this legal structure a person does business in his own name and under unlimited liability. Secondly, have partnerships, unincorporated businesses without juristic personality since their legal personality is not separated from that of their members. These enterprises normally operate under the unlimited liability of partners, although other forms (i.e. *societa' in accomandita semplice*) have evolved in which only certain members have unlimited liability, while the others have limited liability. A third legal form is that of corporations, incorporated businesses which are legal entities recognised as a (fictious) person by law. These enterprises are, in other words, juristic persons and operate under limited liability. Fourthly, have cooperative firms, hinging on the principle of mutual aid, which have legal personality and can operate under both limited and unlimited liability. Finally, among the typologies established lately from the classical forms so far presented are the *s.r.l. unipersonale* (an incorporated company having a single owner), *societa' di professionisti* (professionals' company) and *societa' Europea* (European company).

21 Following Luis Servèn (2003), the criterion used to operate the outliers' correction is to consider as outliers the observations for which any of the variables lie beyond 10 standard deviation away from the mean.

22 A way to compute robust standard errors for the Tobit model is to resort to interval regression. To do so, it is first necessary to reconfigure the data by assigning two values of the response variable to each observation. When the response variable is left-censored, as in the case under exam, the first value is set to missing and the other to zero. Of course, the point estimates obtained with the interval regression are exactly the same as those of the Tobit regression. Therefore, to avoid cluttering, only the interval regression estimates are reported.

23 One of the core assumptions of the regression model is that the variance of the error term, conditional on the explanatory variables, is constant (i.e. homoskedasticity assumption). If the variance of the error term, given the explanatory variables, is not constant then we are in the presence of heteroskedasticity. In such case the estimators of the variances are biased. Since standard errors are based directly on those variances, they are no longer valid for constructing confidence intervals and test statistics. To correct heteroskedasticity it is necessary to adjust the standard errors so that they are valid in the presence of heteroskedasticity of unknown form.

24 The Wald test of exogeneity is a test of joint correlation between the error terms in the structural equation and those in the reduced-form equations for the endogenous variables. In the two-step estimator, the residuals from the first stage are included as regressors in the second stage. The Wald statistics is a test of significance of those residuals.

25 Results for the Hansen-Sargan test are reported only for the OLS regressions. This is because econometric software do not allow to carry out such a test for the Tobit model. However, in order to have at least a feeling about the validity of the instruments used, the Tobit specifications have been estimated by OLS, so as to obtain the Hansen-Sargan statistic. The outcomes of the Hansen-Sargan test never rejected the null that the instruments were valid.

26 It is worth noting that in the sample of non-cooperative firms more than 90% observations lie below the threshold value of HHI, while this figure is nearly 80% for cooperatives.

27 For both cooperative and non-cooperative firms, almost 90% observations fall before the parabolas minimum and maximum points, respectively.

CHAPTER SEVEN

FINANCIAL DEVELOPMENT AND THE GROWTH OF COOPERATIVE FIRMS

1 INTRODUCTION

This chapter continues the empirical investigation of institutional complementarities by looking at the relationship between financial development and firm performance. This is an issue of interest in the analysis of the determinants of cooperative firms' growth, as it interrelates with the far more reaching research topic of the financing of cooperatives, which we have extensively discussed in past chapters.

Banking development represents an important factor influencing firms' resources acquisition, hence their economic performance. It has been argued that a more developed banking sector is more effective in screening and monitoring investors, thus increasing the efficiency of resource allocation (see Goldsmith, 1969; Greenwood and Jovanovic, 1990, among others). This greater ability to collect and process information might result in lower costs of bank financing (Rajan and Zingales, 1998) and greater availability of funds (Bencivenga and Smith, 1991; Levine, 1992). Furthermore, these positive effects may be particularly beneficial for

firms that are more dependent on financial intermediaries for their external financing (Benfratello *et al*, 2008).

The arguments just discussed make it of great interest to investigate whether the growth of cooperative firms is influenced by local banking development. The analysis is once again comparative, therefore beside cooperatives, partnerships and corporations are also taken into account. This allows to assess whether local banking development impacts differently on the growth of diverse enterprises, hence permitting to evaluate for which business type, if any, it exerts a stronger influence. The working hypothesis is that financial development could be especially beneficial for those firms, such as cooperatives, that are particularly dependent on banks for their external financing. To address the research question, the analysis developed in this chapter tests empirically this hypothesis by applying the institutional complementarity approach. The interest is in assessing whether specific features of banking institutions (i.e. their degree of development) and of firms (i.e. the legal form they assume) are complementary in the sense that the effectiveness of firms (evaluated in terms of their growth rate) is reinforced by the presence of a particular order characterising the financial domain (i.e. the degree of development of banking institutions).

In the previous chapter institutional complementarities have been investigated indirectly by using the sample split method and looking at differences between samples. In this chapter we take the analysis a step further and implement a direct test of the institutional complementarity hypothesis. To do so, a multiplicative interaction model is estimated on a sample of firms operating in the Italian provinces during the period 1995-2003. Implementing the analysis at the province level, which is the relevant local market in the Italian case, is important because

there is significant evidence that credit markets are sub-national – particularly for small firms (Kwast *et al*, 1997; Bonaccorsi di Patti and Gobbi, 2001a), so that distance matters in the provision of funds (Petersen and Rajan, 2002; Bofondi and Gobbi, 2003). Moreover, as already mentioned in Chapter Six, in Italy the structure of the banking industry differs substantially across local markets and this provides sufficient cross-sectional variability within a single institutional framework (Bonaccorsi di Patti and Dell'Ariccia, 2004).

Several features distinguish this work from the extant literature. For the first time, the institutional complementarity approach is adopted to analyse the relationship between local financial development and firm growth. Furthermore, even though previous research has investigated the impact of financial development on firm growth, this work enriches the existing literature by exploring the possibility that this effect may vary among different business types.

The chapter is organised as follows. Section 2 reviews the main literature proposed on the issue of financial development, with a special focus on the reasons that make it relevant for cooperative firms. Section 3 specifies the measures of firm growth and banking development used, as well as the econometric specification. Section 4 describes the data employed to implement the empirical analysis. Section 5 presents and discusses the results obtained and the sensitivity checks performed. Finally, Section 6 concludes.

2 THE ROLE OF FINANCIAL DEVELOPMENT: A REVIEW OF THE LITERATURE

The relationship between financial development and economic performance has been analysed by a substantial body of literature. In this line of study several contributions investigated the economic effects of more developed banking institutions, since bank debt represents for many firms, especially small and medium sized ones, the dominant source of external financing (on this point see, for instance, Cesarini, 2003; Onida, 2004). A common conclusion reached by these studies is that financial development impacts on firms' ability to grow, hence on countries' growth prospects (see, among others, King and Levine, 1993; Levine and Zervos, 1998; Bekaert *et al*, 2005).[1]

The debate on the channels through which financial institutions affect the real economy centres on the relative importance of different, but interrelated, effects. The first one is that better financial intermediation improves the efficiency of investments, even when it does not increase their level. In other words, financial development facilitates better screening and monitoring of investors by banks and this raises the marginal productivity of capital (Goldsmith, 1969; Greenwood and Jovanovic, 1990; Fernandez and Galetovic, 1994). Evidence favouring this view is offered, among others, by Jose De Gregorio and Pablo Guidotti (1995), and Jith Jayaratne and Philip Strahan (1996). The latter authors analyse the economic impact of the American intrastate branch banking reform. This amendment affected banking in 35 States by relaxing restrictions on intrastate branching since the early 1970s. The reform allowed bank holding companies to consolidate bank subsidiaries into branches and to ease *de novo* branching State-wide. Jayaratne and Strahan (1996) find evidence that the real per capita growth rate increased significantly following intrastate branch reform.

They also find that bank lending quality is the main channel through which this financial sector reform influenced economic growth.

Related to the just discussed channel, financial development can improve economic performance at both firm and industry level by reducing the cost of raising funds from sources external to the firm, relative to the cost of internally generated cash flows (Rajan and Zingales, 1998). In broad terms, external funds are thought to be costlier because outsiders have less control over borrower's actions (Jensen and Meckling, 1976) or because they know less about what the borrower will do with the funds (Stiglitz and Weiss, 1981; Myers and Majluf, 1984). Under such circumstances financial development – in the form of better accounting and disclosure rules, and better corporate governance through institutions – reduces the wedge between the cost of internal and external funds and enhances growth, especially for firms that are mostly reliant on external financing (Rajan and Zingales, 1998; Benfratello *et al*, 2008).

Strictly related to the above mechanism is the role that financial development plays in regard to credit availability, thus in fostering investment levels. According to several studies, pioneered by works as Ronald McKinnon (1973) and Edward Shaw (1973), a more developed financial sector is better able to mobilise a larger amount of savings and translate them into investments. In other words, financial institutions insure individuals and firms against the risks associated with their liquidity needs, hence allowing them to invest in productive assets and technologies (Bencivenga and Smith, 1991; Levine, 1992; Saint-Paul, 1992, only to quote a few).

Among the empirical analyses carried out on these issues, Asli Demirgüç-Kunt and Vojislav Maksimovic (1998) provide a micro-level test of the hypothesis advanced by Robert King and Ross Levine (1993), and Ross Levine and Sara Zervos (1998) that the extent to which financial markets and intermediaries are developed is

a determinant of growth. More precisely, in order to investigate how differences in financial systems affect firms' use of external financing to finance growth, the authors estimate a financial planning model. This enables them to obtain the maximum growth rate that each firm in their thirty-country sample could attain without accessing long-term financing. Then, these predicted growth rates are compared to those realised by firms in countries with differing degree of development in their legal and financial systems. The main finding of this work is that firms in countries having active and more developed financial markets are better able to obtain external finance and grow faster.

Rajeev Dehejia and Adriana Lleras-Muney (2003) use data on U.S. State bank branching and deposit insurance regulation, which they consider to be an exogenous source of variation in financial development. The authors show that changes in State banking regulations have a significant impact on financial development, as proxied by the level and growth of bank loans. They also find evidence that banking development impacts on components of growth: it facilitates the shift from the agricultural to the manufacturing sector, has a positive effect on human capital accumulation and also on wealth acquisition.

Using a firm-level survey database covering 44 countries, Thorsten Beck *et al*. (2003) analyse the relationship between firm size and the development of banking institutions and legal protection of investors. With regard to the former aspect, which is more prominent for the issues under discussion, the authors find that there exists a positive relationship between the level of development of a country's banking system and firm size. Furthermore, this impact is stronger for firms that depend more heavily on external finance. Continuing to employ a firm-level survey database, this time covering 54 countries, Beck *et al*. (2005) find that financial and institutional

development weakens the constraining effects of financial, legal and corruption obstacles to firm growth. They also find that small firms, which are more constrained by corruption, benefit the most from financial development.

Working on Italian data, Guiso *et al.* (2004a) investigate the effect of financial development within regions. To measure financial development, these authors build a local indicator of how much more likely an individual is to obtain credit in a region, rather than in another one. Therefore, this index is a measure of how easy it is for an individual to borrow at the local level. It is based on the notion that developed financial markets grant individuals and firms easier access to external funds. The empirical analysis finds strong effects of local financial development: in more financially developed regions individuals are more likely to become entrepreneurs at a younger age; more firms are created and firms grow more; finally, per capita income is higher.

Benfratello *et al*. (2008) have analysed the impact of local banking development on the innovative activity of Italian firms during the period 1992-2000. They find that local banking development, as measured by branch density, has a positive effect on the probability that a firm introduces a process or product innovation. In particular, for process innovation the effect is larger for small firms operating in more high-tech sectors and in sectors characterised by a greater need of external finance.

To recapitulate, the literature surveyed in this section, summarised in schematic form in Table 7.1, strongly supports – both at the micro and macro levels – the existence of a close link between financial development and economic performance. This provides scope to inquire into the effects of local financial development for the growth of different typologies of enterprises.

TABLE 7.1 - A taxonomy of the literature on financial development

THEORETICAL STUDIES			
Channels through which financial development impacts on the economy			
Goldsmith (1969), Greenwood and Jovanovic (1990), Fernandez and Galetovic (1994)	Better screening and monitoring of investors by banks increase the marginal productivity of capital, hence the efficiency of investments		
Rajan and Zingales (1998), Benfratello *et al*. (2008)		Better accounting and disclosure rules, and better corporate governance through institutions, lower the costs of raising funds from external sources, especially for firms mostly reliant on external financing	
McKinnon (1973), Shaw (1973), Bencivenga and Smith (1991), Levine (1992), Saint-Paul (1992)			Greater credit availability, which increases investments level since individuals and firms are insured against the risks associated with their liquidity needs
EMPIRICAL STUDIES			
	Level and area of analysis	**Measure of financial development**	**Main finding**
Jayaratne and Strahan (1996)	United States (50 states) during the period 1972-1992	Bank branching deregulation measured through an indicator of intrastate branch reform equal to 1 for states without restrictions on branching via mergers and acquisitions	Improvement in bank lending quality is the main channel through which the American intrastate branching reform influenced economic growth
Demirgüç-Kunt and Maksimovic (1998)	Micro-level analysis on a sample of 30 countries over the period 1980-1991	A financial planning model predicts the max growth rate firms can attain without long-term external financing. These rates are then compared to those realised by firms in countries with different degrees of financial development	Firms operating in countries having active and more developed financial markets are better able to obtain external finance and grow faster

(continued)

TABLE 1 (*continued*) - A taxonomy of the literature on financial development

EMPIRICAL STUDIES			
	Level and area of analysis	**Measure of financial development**	**Main finding**
Dehejia and Lleras-Muney (2003)	United States during 1900-1940	Level and growth of state bank loans	By improving lending quality, banking development facilitates the shift from agri-culture to manufacture, has a positive impact on human capital accumulation and on wealth acquisition
Beck *et al*. (2003)	Firm-level survey database covering 44 countries for the period 1988-1997	Claims of deposit money banks on the private sector as share of GDP, as a measure for financial intermediary development. Value of outstanding shares on GDP, measuring stock market development	Banking development is positively related to firm size. This relationship is stronger for firms more dependent on external financing
Beck *et al*. (2005)	Firm-level survey database covering 54 countries for the period 1995-1999	Domestic bank credit to the private sector on GDP	Financial and institutional development weakens the constraining effects of financial, legal and corruption obstacles to firm growth, particularly for small firms
Guiso *et al*. (2004)	Regional level analysis on Italian data for the period 1989-1997	Local indicator measuring how much more likely an individual is to obtain credit in a region, rather than in another one	Financial development stimulates entrepreneurship, firm growth and the creation of wealth
Benfratello *et al*. (2008)	Provincial level analysis on Italy for the period 1992-2000	Branch density, measured as number of bank branches over population	Local banking development has a positive impact on firm innovative activity, especially for small firms strongly dependent on external finance

The taxonomy has been drawn from the literature surveyed in Section 2 of Chapter 7.

2.1 The external financing of Italian cooperative firms

In Chapter Five some issues related to the financing needs of Italian cooperatives have been touched upon. We now elaborate on that discourse in light of its relevance for the themes investigated in the present chapter.

We have already introduced that to stimulate the capitalisation of Italian cooperative firms through the conferment of funds by third parties, the 59/1992 Law introduced the figure of financial backer member (i.e. *socio sovventore*), a category of partners having the role of financiers, but not engaging in the mutualistic exchange. By attributing to these external members up to one third of votes in the company meetings, this reform, and more generally those introduced in the last two decades in most European countries, altered the traditional cooperative principle 'one head, one vote', hence – at least potentially – the governance of these firms.[2] Clear-cut answers as to the actual impact of the legislative changes introduced in the 1990s are still absent. However, this is beyond the immediate point. What is important to remark here is that the very reason motivating the reform was the need to attract the resources, scarce for cooperatives, required to foster growth. Bearing this in mind, the figure of financial backer member, along with the participatory rights it assigns, can be regarded functional to fulfil the instrumental role of capital in cooperative firms.

The 59/1992 Law established that financial backer members, beside the vote right previously mentioned, could also receive a remuneration higher than the one assigned to cooperator members, even though this extra-dividend could not be greater than 2%. This measure aimed to reconcile the non-profit nature of cooperatives with the profitability strategy of these financiers, so as to increase the amount of financial resources that could have been attracted. Whether or not

this reconcilement of interests has been achieved is still debated among observers, who also question the effectiveness of the reform itself. In this regard, it has been argued that the 1992 Law did not respond adequately to the needs that motivated it, since the amount of financial resources it has been able to mobilise did not match cooperatives' requirements. A possible explanation for this is that the new financial instruments have never been sold in official financial markets (La Loggia Albanese, 2003; Salani, 2005; Zevi, 2005).

A further relevant issue characterising the Italian case is that until 2003, although most of the corporate law regulating corporations applied also to cooperatives, an important element of differentiation in the discipline of these two business types was relative to the financial instruments they could access. In fact, an institutional constraint bounded the sources of external financing available to cooperatives. Afterwards, with the 2003 corporate law reform, the lawmaker acknowledged to cooperatives the possibility of using a wider range of financial instruments. However, given the relatively short time that has elapsed since then, it seems reasonable to expect that the effects of this reform (both in terms of financing and corporate governance), will be displayed only after a longer time will have passed. For the above reason, bank credit can still be regarded the main source of external financing for cooperatives.

Considering the arguments so far discussed it can be concluded that – although banks represent the primary source of external financing also for partnerships, and a nonetheless important channel of resources acquisition for corporations – financial development can be particularly relevant in the case of cooperatives, as it might mitigate some of the previously discussed difficulties experienced by these firms, hence contributing to cater their financing requirement.

3 EMPIRICAL QUESTION AND METHODOLOGY

This work intends to empirically assess the relationship existing between local banking development and the growth of Italian firms, with a special focus on cooperatives. More precisely, the interest is in investigating whether local banking development impacts differently on the growth of cooperative firms, as compared to partnerships and corporations (henceforth, non-cooperative firms).[3] The reasoning set out in sub-section 2.1 should have clarified that the cooperative legal form has still strong implications in terms of financial structure of these firms, structure characterised – more than for any other typology – by the relevance of bank financing. Although it is not disputed that, in general, the benefits of a more developed banking sector are contingent upon firm financial structure, the working hypothesis is that these benefits could be especially marked for cooperatives, given their institutional structure.[4]

The empirical analysis tests the research question by applying the institutional complementarity approach *à la* Aoki (2001): the interest is in assessing whether specific features of banking institutions (i.e. their degree of development) and of firms (i.e. the legal form they assume) are complementary in the sense that the effectiveness of cooperatives (evaluated in terms of their growth rate) is reinforced by the presence of more developed local financial intermediaries.

To carry out a direct test of the institutional complementarity hypothesis, a multiplicative interaction model is specified. This enables testing conditional hypotheses, that is hypotheses in which a relationship between two or more variables depends on the value of one or more other conditioning variables (Brambol *et al*, 2006). Using a multiplicative interaction model in the present research work allows the impact of local banking development on firm growth to

differ between cooperatives, on one side, and non-cooperative firms, on the other side.[5] In other words, in this model the partial effect of local banking development (BRANCH) on firm growth (GROWTH) is made conditional on firm's legal structure (COOP). More precisely, the marginal effect of BRANCH is given by

$$\frac{\partial GROWTH}{\partial BRANCH} = \hat{\beta}_{BRANCH} + \hat{\beta}_{INTE} * COOP\,, \tag{1}$$

where $\hat{\beta}_{BRANCH}$ is the marginal effect of local banking development on the growth of non-cooperative firms, while $\hat{\beta}_{INTE} * COOP$ is the estimated coefficient on the interaction term multiplied by the conditioning dichotomous variable COOP, which is equal to 1 when the condition "firm is a cooperative" is met and 0 otherwise. From equation (2) it follows that the marginal effect of local banking development on the growth of cooperative firms is $\hat{\beta}_{BRANCH} + \hat{\beta}_{INTE}$. If complementarities are at work, $\hat{\beta}_{INTE}$ must display a positive sign. In order to test the significance of (2), it is necessary to compute the standard error of this quantity, which is given by:

$$\hat{\sigma} = \left[\mathrm{var}\left(\hat{\beta}_{BRANCH}\right) + COOP^2\,\mathrm{var}\left(\hat{\beta}_{INTE}\right) + 2COOP\,\mathrm{cov}\left(\hat{\beta}_{BRANCH}\hat{\beta}_{INTE}\right)\right]^{1/2}. \tag{2}$$

The following sub-sections present the measures of firm growth and local banking development, and discuss the other variables included in the empirical specification, as well as the econometric strategy adopted.

3.1 Measuring firm growth

To test the previously discussed research question, it is first necessary to define the measure of firm growth employed in the empirical analysis. Real sales are the

chosen indicator of growth; therefore, the dependent variable is the annual growth rate of firm's real sales.

Although several other measures have been used in the literature on firm growth, focusing on sales appears to be appropriate for a series of reasons. First, beside employment, this is the most widely used indicator in empirical growth research (Delmar, 1997) and there seems to be an emerging consensus that if only one indicator is to be chosen as a measure of firm growth, this should be sales (Hoy *et al*, 1992; Sutton, 1997; Ardishvili *et al*, 1998; Delmar *et al*, 2003). Secondly, data on sales are relatively easily accessible and are insensitive to capital intensity and degree of integration (Delmar *et al*, 2003). Thirdly, sales are a suitable indicator across different conceptualisations of the firm (Davidsson and Wiklund, 2000). Finally, demand and, therefore, sales are a precursor of growth in other indicators (Flamholtz, 1986; Delmar, 1997).

Beside the above advantages, drawbacks of sales as a growth indicator are that this measure is sensitive to fluctuations in currency exchange rates and inflation. The latter is not an issue for concern in this work, since firms' growth rates are computed on real sales.[6]

3.2 Measuring local banking development

Local banking development is measured for province *p* and year *t* as number of bank branches normalised by population:

$$BRANCH_{pt} = \frac{bankbranches_{pt}}{population_{pt}}, \text{ where } p=1,\ldots,103;\ t=1995,\ldots,2003. \quad (3)$$

This variable has been widely used in studies on local banking development (e.g. Degryse and Ongena, 2005). It describes the structure of the banking system in the provinces and, in particular, captures the dimension of banking development within the market (Bonaccorsi di Patti and Gobbi, 2001b) mostly affected by the deregulation process that has greatly contributed to transform the physiognomy of the Italian banking system in the last two decades (Benfratello *et al*, 2008).[7] A further advantage of using BRANCH to measure local financial development is that this variable is available on a homogeneous basis for long periods of time (Benfratello *et al*, 2008).

3.3 The econometric specification

As already mentioned, in the empirical model the dependent variable is the annual growth rate of firm's real sales (GROWTH), while BRANCH is the main explanatory variable. The vector of other regressors includes the following variables accounting for firm specific, local market and sectoral characteristics. Firm size (EMPLOY) is measured as number of employees and, according to the relevant literature in the field, this variable could exert either a relevant or insignificant impact on firm growth.[8] Firm age (AGE) is expected to be negatively related to GROWTH.[9] Firm cash flow (CASHFLOW) is measured as the sum of declared income, depreciation and quiescence fund scaled by total assets, and is a proxy for internally generated finance (Carpenter and Petersen, 2002), hence for firm liquidity constraints (Fagiolo and Luzzi, 2006).[10] The ratio of bank loans (i.e. short and long-term bank debts) on firm's total assets (BANKDEBT) indicates the proportion of bank debt a firm employs to finance its assets. The dummy variable COOP distinguishes between different firms' legal structures, by taking on the value of 1 for cooperatives and 0 for non-cooperative firms. The interaction term (INTE)

between BRANCH and COOP accounts for the possibility that the impact of local banking development on firm growth varies with firm legal structure. The dichotomous variable GRU takes on the value of 1 if the firm belongs to a group and 0 otherwise. The (log of) provincial population (POP) is a measure for province size. The provincial real per capita income (RPI) proxies for local wealth. The dichotomous variable CEN-NORTH captures geographical differences in firm growth between Centre Northern provinces and Southern ones. Three dummy variables distinguishing between firms operating in the supplier dominated, scale intensive, or specialised suppliers sectors (PAV) control for sectoral heterogeneity within the manufacturing industry (the control group is the science based sector).[11] Finally, time dummies are included to control for year fixed effects. In order to mitigate any potential simultaneity bias all variables have been lagged one year.[12]

The econometric specification is estimated by applying the technique of panel data. Rather than estimating separate equations for cooperative and non-cooperative firms (as it has been done in Chapter Six), the empirical analysis is implemented on the whole sample. Then, by introducing the dummy variable COOP and the interaction term INTE, it is possible to distinguish between firms' legal structures and analyse if local banking development impacts differently on the growth of diverse typologies of firms. Such an empirical strategy presents two distinctive advantages: first, using the multiplicative interaction term INTE allows to test directly for the presence of complementary relationships between specific features of the banking system and of business types; secondly, the number of cooperatives present in the original dataset is rather limited.[13]

Tables 7.2, 7.3 and 7.4 provide a more detailed description of the variables presented in this section, their main summary statistics and the correlation matrix.

TABLE 7.2 - Description of Variables

Variable	*Description*
GROWTH	Firm's annual growth rate of real sales
EMPLOY	Firm's number of employees
SIZE	Firm's total assets
AGE	Firm age measured as current year minus year of establishment
CASHFLOW	Firm's declared income plus depreciation and quiescence fund scaled by total assets
BANKDEBT	Short and long-term bank loans on firm's total assets
INV	Investments in installation, machinery, and equipment on total assets
BRANCH	Number of bank branches operating in a province normalised by population, scaled by 10,000
COOP	Dummy variable which takes on the value of 1 if firm is a cooperative and 0 otherwise
GRU	Dummy variable which takes on the value of 1 if firm belongs to a group and 0 otherwise
POP	Provincial population
RPI	Provincial real per capita income
CEN-NORTH	Dummy variable which takes on the value of 1 if firm operates in a Centre Northern province and 0 otherwise
SOUTH	Dummy variable which takes on the value of 1 if firm operates in a Southern province and 0 otherwise
PAV1	Dummy variable which takes on the value of 1 if firm operates in the supplier dominated sector and 0 otherwise
PAV2	Dummy variable which takes on the value of 1 if firm operates in the scale intensive sector and 0 otherwise
PAV3	Dummy variable which takes on the value of 1 if firm operates in the specialised suppliers sector and 0 otherwise
PAV4	Dummy variable which takes on the value of 1 if firm operates in the science based sector and 0 otherwise

All variables are drawn from Capitalia except for: i) BRANCH, obtained by calculations on data ISTAT and Bank of Italy, ii) RPI and POP which are drawn from ISTAT.

TABLE 7.3 - Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
GROWTH *	17479	3.35	17.21	-44.99	105.33
EMPLOY+	17477	79	158	11	2,200
SIZE #	15570	8,194	20,941	12	376,483
AGE ++	17479	24	17	0	191
CASHFLOW *	15570	12.99	8.27	-62.14	69.98
BANKDEBT *	15570	16.51	17.90	0.00	89.78
INV *	12893	9.712	11.433	0	77.09
BRANCH	17479	5.8423	1.4650	1.5531	10.2865
COOP	17479	0.0326	0.1775	0	1
GRU	17479	0.2279	0.4195	0	1
POP +	17479	1,050,100	1,068,675	89,775	3,775,765
RPI #	17479	21.4862	4.7012	9.3096	31.9725
CEN-NORTH	17479	0.8595	0.3475	0	1
SOUTH	17479	0.1405	0.3475	0	1
PAV1	17479	0.5147	0.4998	0	1
PAV2	17479	0.1767	0.3814	0	1
PAV3	17479	0.2577	0.4374	0	1
PAV4	17479	0.0509	0.2197	0	1

For the description of the variables see Table 7.2. *In percentage terms; # In thousands of Euro; + In units; ++ Years. All the other variables are dummies, with the exception of BRANCH (see Table 7.2).

TABLE 7.4 - Correlation matrix

	EMPLOY	SIZE1	SIZE2	AGE	CASHFLOW	INV	BANKDEBT	BRANCH	COOP	GRU	PAV1	PAV2	PAV3	PAV4	POP	RPI	CEN-NORTH
EMPLOY	1																
SIZE1	0.6913	1															
SIZE2	0.6812	0.9427	1														
AGE	0.1856	0.2269	0.2606	1													
CASHFLOW	0.0160	-0.1439	-0.2076	0.0634	1												
INV	-0.0191	-0.0867	-0.1104	-0.0438	0.1928	1											
BANKDEBT	0.0855	0.2941	0.3252	0.0739	-0.3714	-0.0927	1										
BRANCH	0.0358	0.0716	0.0288	0.0486	0.0567	-0.0448	0.0392	1									
COOP	0.0096	0.0189	0.0504	0.1315	-0.1184	0.0177	0.0231	-0.0126	1								
GRU	0.4025	0.4603	0.4714	0.0423	-0.0301	-0.0526	0.0756	0.0428	-0.0674	1							
PAV1	-0.0617	-0.0543	-0.0534	0.0159	-0.1261	-0.0002	0.1005	-0.0635	0.1210	-0.1172	1						
PAV2	0.0103	0.0207	0.0216	0.0182	0.0443	0.0524	-0.0194	-0.0381	-0.0224	0.0289	-0.4740	1					
PAV3	0.0326	0.0386	0.0310	-0.0313	0.0751	-0.0351	-0.0751	0.1269	-0.0964	0.0698	-0.6055	-0.2822	1				
PAV4	0.0575	0.0099	0.0216	-0.0052	0.0591	-0.0212	-0.0444	-0.0440	-0.0429	0.0768	-0.2309	-0.1076	-0.1375	1			
POP	0.0374	0.0333	0.0418	0.0926	0.0562	0.0049	-0.0693	-0.2204	-0.0760	0.0477	-0.1757	0.0646	0.0887	0.1098	1		
RPI	0.0719	0.0955	0.0641	0.1351	0.1004	-0.0635	-0.0391	0.5622	-0.0775	0.0763	-0.1711	-0.0093	0.1683	0.0682	0.4361	1	
CEN-NORTH	0.0516	0.0621	-0.0067	0.0868	0.0971	-0.0218	-0.0025	0.6535	-0.0818	0.0006	-0.1173	-0.0093	0.1376	0.0070	0.0113	0.6559	1

For the description of the variables see table 7.2.

4 DATA

The dataset used to implement the econometric analysis covers the nine-year period 1995-2003 and has been derived combining information obtained from three main sources. Data on firms come from the last three waves of the survey *Indagine sulle imprese manifatturiere* conducted with triennial cadence by Capitalia's observatory on small and medium sized enterprises. The sample of Italian manufacturing firms used in the surveys is stratified and randomly selected for firms with 11 to 500 employees, while it is by census for firms with more than 500 employees. Data collected through the surveys are both qualitative and quantitative. Qualitative information is obtained by dispensing a questionnaire to sample firms and is referred to the end of the three-year period of each survey wave. Quantitative data are obtained from examining firms' yearly balance sheets.

Information collected through the questionnaire, which is made up of six sections, covers a number of aspects. The first section gathers information on establishment year, legal form, prevailing sector of activity, ownership and control, and participation in consortia activities. The second section collects data on employment, while the third one examines investment and R&D activities, and their financing. The fourth section is concerned with the internationalisation process, and covers aspects such as the export activity, its geographical distribution, foreign direct investments, etc. The fifth part of the questionnaire analyses firm's market and gives information on distributive channels and characteristics of main competitors. Finally, the sixth section deals with the issue of firm financing, and contains questions regarding banking relationships, the access to the latest financial instruments, the use of financial incentives and several other pieces of information.

The dataset for the period 1995-2003 is made up of 6,452 firms. Since not all firms are present in each survey wave, the panel is unbalanced and made up of 28,185 observations. A careful examination of the original dataset showed that in some cases the year of firm establishment was taking on two clashing values. To correct these inconsistencies, and homogenise the sample, the mean value of the two clashing years has been imputed when the time span was less than a decade, while excluding from the sample observations for which the time span elapsing between the two clashing years was longer than ten years. After operating these adjustments, the sample consists of 25,491 observations.

The sub-sample of cooperatives includes 190 firms, for a total of 831 observations.[14] Of these, 26.3% (amounting to 219 observations) operate in Southern regions, while 73.7% (i.e. 612 observations) are run in Centre Northern ones. Regarding the Pavitt sectoral distribution of sampled cooperatives, 160 firms (for a total of 696 observations) belong to the supplier dominated sector, 21 cooperatives (96 observations) operate in the scale intensive sector, 9 firms (amounting to 39 observations) are in the specialised suppliers sector, while none of the cooperatives included in the sample belongs to the science based sector. As far as the number of employees is concerned, 26.3% cooperatives (216 observations) employ between 11 and 20 workers, 44.2% (for a total of 405 observations) have between 21 and 50 employees, 22.1% firms (equal to 153 observations) employ between 51 and 100 workers, 3.2% (amounting to 27 observations) have between 101 and 250 employees, finally, 4.2% cooperatives (amounting to 30 observations) employ between 251 and 500 workers.[15]

A second source of data comes from the Bank of Italy and regards the provincial distribution of branches for each Italian bank over the period considered in the

analysis. Finally, figures on provincial population and real value added are drawn from the Italian National Statistical Institute (ISTAT).

After correcting for the presence of outliers, and excluding sole traders and firms classified in the category “other legal structures”, the number of observations for each variable employed in the empirical investigation is reported in Table 7.3.[16]

5 RESULTS

Estimation results are presented in Tables 7.5-7.9. The Breusch-Pagan Lagrange Multiplier test always favours the linear regression model against the random effects one. Therefore, the figures reported in the tables are obtained from running pooled regressions. All estimations have been carried out by using robust standard errors. The Wooldridge test for serial correlation in panels reveals no autocorrelation in the residuals. Looking at Table 7.5, MOD1 reports the results for the general model of firm growth. Since some of the control variables turn out to be not statistically significant, the general-to-simple procedure of reiterated elimination is applied to the specification of MOD1 and several nested models are estimated. First, being CEN-NORTH the less statistically significant variable, this is excluded from the model and estimations are re-run on MOD2. Then, since results obtained for MOD2 reveal that POP is not statistically significant, this is not included in MOD3, which is the final model.[17] Estimation results for MOD3 are reported in Table 7.5.

TABLE 7.5 - Estimation results

Dependent variable: GROWTH

	MOD 1	MOD 2	MOD 3
EMPLOY	-0.0019	-0.0019	-0.0019
	0.0500	*0.0490*	*0.0490*
AGE	-0.0334	-0.0335	-0.0332
	0.0010	*0.0010*	*0.0010*
CASHFLOW	-0.1094	-0.1094	-0.1095
	0.0000	*0.0000*	*0.0000*
BANKDEBT	0.0204	0.0204	0.0203
	0.0510	*0.0520*	*0.0520*
BRANCH	0.4393	0.4282	0.3417
	0.0270	*0.0250*	*0.0220*
COOP	-5.1204	-5.0433	-5.1618
	0.0840	*0.0860*	*0.0780*
INTE	1.0160	1.0053	1.0238
	0.0380	*0.0390*	*0.0360*
GRU	1.4625	1.4692	1.4710
	0.0010	*0.0010*	*0.0010*
POP	0.1886	0.2079	
	0.5460	*0.4850*	
RPI	-0.1611	-0.1709	-0.1393
	0.0360	*0.0080*	*0.0030*
CEN-NORTH	-0.1862		
	0.8270		
PAV1	-2.6168	-2.6157	-2.6452
	0.0040	*0.0040*	*0.0030*
PAV2	-0.6900	-0.6925	-0.6917
	0.4590	*0.4580*	*0.4580*
PAV3	-1.6715	-1.6715	-1.6780
	0.0690	*0.0690*	*0.0680*
LM Test	0.03	0.02	0.03
	0.8731	*0.8752*	*0.8710*
AR(1) test	0.4250	0.3840	0.3790
	0.5148	*0.5358*	*0.5381*
Model Test	25.32	26.62	28.05
	0.0000	*0.0000*	*0.0000*
R-squared	0.0452	0.0452	0.0452
F Test (BRANCH INTE)	5.430	5.730	5.960
	0.0044	*0.0033*	*0.0026*
N. OBS	10,202	10,202	10,203

For the description of the variables see Table 7.2. In italics are reported the p-values of the tests. The t statistics (not reported) are based on robust standard errors. INTE is the interaction term between BRANCH and COOP. With exception of this latter, and of territorial and industrial dummies, all the explanatory variables have been lagged once, to avoid simultaneity. The variable POP is taken in logarithm terms. Time dummies and constant included but not reported. LM test is the Breusch and Pagan Lagrange Multiplier test for random effects. AR(1) test is the Wooldridge test for serial correlation in panels; it is a F-test under the null of no first order autocorrelation. F test is a test of joint significance of the variables indicated in round brackets. From MOD 1 to MOD 3 the general-to-simple procedure has been applied.

To begin with the comment on the significant control variables, figures for MOD3 in Table 7.5 suggest an inverse relationship between firm size and firm growth; this result, in line with most studies (such as Mata, 1994; Weiss, 1998; Audretsch *et al*, 1999; Becchetti and Trovato, 2002), rejects Gibrat's law of proportionate effects, according to which firm growth should be independent of size.[18] A negative impact on GROWTH is also found for AGE and this suggests – in line with the *a priori* expectations and the findings of studies as Keith Glancey (1998) and Per Davidsson *et al*. (2002) – that younger firms grow faster.[19] Moreover, the results show that CASHFLOW is inversely related with firm growth,[20] and that firms employing a larger amount of bank debt (BANKDEBT) and those belonging to a group (GRU) have higher growth rates. It is then found that firms located in less wealthy provinces grow more (RPI). Finally, firms operating in supplier dominated (PAV1), scale intensive (PAV2) and specialised suppliers (PAV3) sectors grow less than those working in the science based sector (PAV4).

Passing to the main variables of the investigation, the results suggest that, other things being equal, cooperatives tend to grow less than non-cooperative firms (COOP). This result would seem to support those studies claiming that the institutional characteristics of cooperative firms pose constraints to their performance (see, for instance, Williamson, 1975, 1980, 1985; Vitaliano, 1983; Putterman, 1993). Moreover, the empirical evidence shows that local banking development is an important determinant of firm growth: the sign on BRANCH suggests that local banking development has a positive impact on the growth of non-cooperative firms. The beneficial effect of BRANCH on GROWTH is even stronger for cooperative firms, since the positive sign on the interaction term INTE indicates that as local banking markets become more developed, cooperatives tend

to grow at a rate higher than non-cooperative firms. This result seems to provide evidence in favour of the existence of a relationship of institutional complementarity: the effectiveness of cooperative firms, measured in terms of their growth rate, is reinforced by the presence of more developed local banking institutions.

The empirical evidence obtained could be interpreted as suggesting that banking development allows financial intermediaries to better collect and process the information embedded in the local market, therefore reducing the scope for moral hazard and adverse selection (Goldsmith, 1969; Greenwood and Jovanovic, 1990). This can encourage risk-taking on the part of cooperatives. It can also favour the reproduction of some cooperatives' firm-specific resources, such as social relations and social values, which are embedded in the local community and are important for the economic governance of these firms (Dixit, 2007). It could be through these channels that banking development particularly enhances the growth of cooperatives.[21] This seems to be evidence in favour of Raghuram Rajan and Luigi Zingales (1998) and Benfratello *et al.* (2008), who show that financial development especially benefits firms that are mostly dependent on banks for their external financing.

Finally, it is worth noting that the variables BRANCH and INTE are statistically significant when considered individually and also when tested jointly.

5.1 Sensitivity analysis

A potential issue in the analysis presented is that BRANCH may be endogenous, if local banking markets tend to be more developed where firms' growth rates are higher for exogenous reasons. A similar reasoning could apply also to BANKDEBT

and CASHFLOW. Therefore, to address this potential problem MOD3 is re-estimated by testing for endogeneity. The instruments used to implement this check are: the provincial area in square kilometres (AREA); the number of municipalities present in the province (MUNI); the geographical dummy CEN-NORTH; one lag of BANKDEBT and CASHFLOW, also this lagged once. Results from this estimation are reported in Table 7.6.

Figures for MOD3 in Table 7.6 show that the Wu-Hausman and Durbin-Wu-Hausman tests find no evidence of endogeneity; moreover, the Hansen-Sargan test reveals that the instruments employed are valid. Therefore, the results previously discussed for MOD3 are fully confirmed.

To check the robustness of the empirical specification, some new variables are then introduced. In order to account for the impact of investments on firm growth, the model is estimated by including the variable INV, measured as investments in installation, machinery and equipment on total assets.[22] Results from this check are presented in column MOD4 of Table 7.6. Figures obtained for INV show that, as expected, firms investing more have a higher growth rate. Moreover, the previous findings continue to be valid, as no change is registered neither for the core variables of this study (BRANCH, COOP, INTE), nor for the control ones.

The next step of the robustness analysis is to include INV among the endogenous regressors in the specification testing for endogeneity, since also INV may be endogenous, at least potentially. To carry out the two stage least squares regression, beside the instruments previously used, INV lagged once is included as well. Results obtained from this check on MOD4 do not show evidence of endogeneity (see Table 7.6), thus confirming the conclusions discussed in the previous section.

TABLE 7.6 - Robustness: checking for endogeneity and including new regressors

Dependent variable: GROWTH

	MOD 3 (Endogeneity check)	**MOD 4**	**MOD 4** (Endogeneity check)
EMPLOY	-0.0030	-0.0022	-0.0025
	0.0330	*0.0280*	*0.0850*
AGE	-0.0312	-0.0307	-0.0265
	0.0470	*0.0040*	*0.1130*
CASHFLOW	-0.0502	-0.1628	-0.1057
	0.2570	*0.0000*	*0.0780*
INV		0.0868	0.0470
		0.0000	*0.4250*
BANKDEBT	0.0306	0.0282	0.0280
	0.0920	*0.0170*	*0.1780*
BRANCH	0.5197	0.3354	0.7099
	0.1840	*0.0400*	*0.1150*
COOP	-0.1849	-6.2213	-1.9194
	0.9710	*0.0750*	*0.7620*
INTE	0.3242	1.0661	0.4618
	0.6940	*0.0600*	*0.6510*
GRU	1.3665	1.1718	1.0709
	0.0360	*0.0120*	*0.1210*
RPI	-0.1939	-0.1664	-0.2869
	0.0220	*0.0010*	*0.0020*
PAV1	-2.1004	-2.5744	-1.2849
	0.0920	*0.0040*	*0.3070*
PAV2	-0.2441	-0.5146	0.5879
	0.8510	*0.5850*	*0.6540*
PAV3	-1.3185	-1.2229	-0.4833
	0.3010	*0.1870*	*0.7080*
LM Test		0.31	
		0.5762	
AR(1) test		1.9600	
		0.1619	
Model Test	13.74	25.93	10.97
	0.0000	*0.0000*	*0.0000*
R-squared		0.0594	
UN R-squared	0.0505		0.0646
F Test (BRANCH INTE)		4.81	
		0.0081	
Tests of endogeneity:			
Wu-Hausman F test:	0.5904		0.6565
	0.6213		*0.6223*
Durbin-Wu-Hausman test	1.7777		2.6400
	0.6198		*0.6198*
Hansen-Sargan statistic (overidentification test of all instruments)	1.765 *0.4138*		4.375 *0.1122*
N. OBS	5,205	7,988	3,858

For the description of the variables see Table 7.2. In italics are reported the p-values of the tests. The t statistics (not reported) are based on robust standard errors. INTE is the interaction term between BRANCH and COOP. With exception of this latter, and of territorial and industrial dummies, all the explanatory variables have been lagged once, to avoid simultaneity. Time dummies and constant included but not reported. LM test is the Breusch and Pagan Lagrange multiplier test for random effects. AR(1) test is the Wooldridge test for serial correlation in panels; it is a F-test under the null of no first order autocorrelation. F test is a test of joint significance of the variables indicated in round brackets. The tests of endogeneity for the estimations on MOD 3 regard the variables BRANCH, BANKDEBT, CASHFLOW, while those for the estimations on MOD 4 are for the variables BRANCH, BANKDEBT, CASHFLOW and INV. In the first case the instruments used are: the provincial area in square kilometres (AREA), the number of municipalities (MUNI), the dummy CEN-NORTH, one lag of BANKDEBT and one lag of CASHFLOW. In the second case the instruments include also one lag of the variable INV.

Taking the robustness analysis a step further, the original specification (MOD1) is estimated by changing the dependent variable: firm growth is now measured as the annual growth rate of employees (GROWTH2).[23] Furthermore, EMPLOY is replaced with SIZE1 (measured as the log of real sales lagged once) and INV is included as well. Results from this sensitivity check are reported in column MOD5 of Table 7.7. The figures in this table show that, although some control variables are no longer significant, the main conclusions of this study are confirmed: local banking development is beneficial for the growth of non-cooperative firms (BRANCH); this positive impact is even more marked for cooperatives (INTE), suggesting that financial development contributes to mitigate some of the initial disadvantages that coops, compared to other enterprises, experience (COOP). These same conclusions are reached also when firm size is first measured by (the log of) total assets lagged once - SIZE2 - (MOD6 in Table 7.7) and then by EMPLOY (MOD7 in Table 7.7).

As a further check, since firm growth in one period is likely to be affected by unobserved area specific factors, which may be at work also in other periods, the robustness analysis clusters observations at the province level. Clustering makes allowance of within zone correlation of the error terms over time, so that it is necessary to correct standard errors and tests statistics for within cluster correlation. The regressions re-run by clustering on provinces are relative to MOD3 (Table 7.5), MOD4 (Table 7.6), and the models having GROWTH2 as dependent variable (Table 7.7). Figures from these estimations are presented in Table 7.8.

Table 7.9 reports figures on the significance of the quantity of interest (the impact of BRANCH on GROWTH when COOP=1), computed by applying expression (3), and on the relevant marginal effects.[24]

TABLE 7.7 - Robustness: changing the dependent variable

Dependent variable: GROWTH2

	MOD 5	MOD 6	MOD 7
EMPLOY			-0.0024
			0.0100
SIZE1	0.2754		
	0.0880		
SIZE2		0.2618	
		0.0890	
AGE	-0.0568	-0.0576	-0.0483
	0.0000	*0.0000*	*0.0000*
CASHFLOW	-0.0391	-0.0370	-0.0395
	0.0580	*0.0740*	*0.0540*
INV	0.0471	0.0474	0.0464
	0.0020	*0.0020*	*0.0020*
BANKDEBT	0.0076	0.0074	0.0127
	0.4480	*0.4630*	*0.1930*
BRANCH	0.3941	0.3945	0.3621
	0.0270	*0.0270*	*0.0420*
COOP	-10.211	-10.359	-10.768
	0.0030	*0.0030*	*0.0020*
INTE	1.8152	1.8356	1.9229
	0.0010	*0.0010*	*0.0010*
GRU	0.1533	0.1482	0.8764
	0.7080	*0.7190*	*0.0260*
POP	0.4989	0.4921	0.4920
	0.0850	*0.0890*	*0.0900*
RPI	-0.1903	-0.1898	-0.1915
	0.0080	*0.0080*	*0.0070*
CEN-NORTH	0.0482	0.1044	0.2240
	0.9520	*0.8960*	*0.7800*
PAV1	-0.4492	-0.4243	-0.5055
	0.4760	*0.5010*	*0.4220*
PAV2	0.2694	0.2894	0.2082
	0.6960	*0.6750*	*0.7620*
PAV3	-0.0417	-0.0260	-0.0442
	0.9480	*0.9670*	*0.9450*
LM Test	0.550	0.540	0.590
	0.4577	*0.4605*	*0.4442*
AR(1) test	1.6390	1.5140	1.5730
	0.3967	*0.4261*	*0.4759*
Model Test	7.03	6.99	6.97
	0.0000	*0.0000*	*0.0000*
R-squared	0.0294	0.0293	0.030
F Test (BRANCH INTE)	8.96	9.08	9.22
	0.0001	*0.0001*	*0.0001*
N. OBS	4,065	4,065	4,065

For the description of the variables see Table 7.2. In italics are reported the p-values of the tests. The t statistics (not reported) are based on robust standard errors. GROWTH2 is the annual growth rate of employees. SIZE1 is the log of real sales, while SIZE2 is the log of total assets. INTE is the interaction term between BRANCH and COOP. With exception of this latter, and of territorial and industrial dummies, all the explanatory variables have been lagged once, to avoid simultaneity. Time dummies and constant included but not reported. LM test is the Breusch and Pagan Lagrange multiplier test for random effects. AR(1) test is the Wooldridge test for serial correlation in panels; it is a F-test under the null of no first order autocorrelation. F test is a test of joint significance of the variables indicated in round brackets.

TABLE 7.8 - Robustness: clustering on provinces

	DEPENDENT VARIABLE				
	GROWTH		**GROWTH 2**		
	(on) MOD 3	**(on) MOD 4**	**(on) MOD 5**	**(on) MOD 6**	**(on) MOD 7**
EMPLOY	-0.0019	-0.0022			-0.0024
	0.0480	*0.0350*			*0.0180*
SIZE1			0.2754		
			0.1480		
SIZE2				0.2618	
				0.1380	
AGE	-0.0332	-0.0307	-0.0568	-0.0576	-0.0483
	0.0010	*0.0010*	*0.0000*	*0.0000*	*0.0000*
CASHFLOW	-0.1095	-0.1628	-0.0391	-0.0370	-0.0395
	0.0000	*0.0000*	*0.0630*	*0.0780*	*0.0530*
INV		0.0868	0.0471	0.0474	0.0464
		0.0000	*0.0060*	*0.0060*	*0.0070*
BANKDEBT	0.0203	0.0282	0.0076	0.0074	0.0127
	0.0500	*0.0100*	*0.3710*	*0.3870*	*0.1340*
BRANCH	0.3417	0.3354	0.3941	0.3945	0.3621
	0.0140	*0.0200*	*0.0670*	*0.0670*	*0.0960*
COOP	-5.1618	-6.2213	-10.211	-10.359	-10.768
	0.0870	*0.0890*	*0.0070*	*0.0060*	*0.0040*
INTE	1.0238	1.0661	1.8152	1.8356	1.923
	0.0330	*0.0710*	*0.0040*	*0.0030*	*0.0020*
GRU	1.4710	1.1718	0.1533	0.1482	0.8764
	0.0000	*0.0110*	*0.7090*	*0.7280*	*0.0200*
POP			0.4989	0.4921	0.4920
			0.1130	*0.1190*	*0.1250*
RPI	-0.1393	-0.1664	-0.1903	-0.1898	-0.1915
	0.0000	*0.0000*	*0.0090*	*0.0090*	*0.0090*
CEN-NORTH			0.0482	0.1044	0.2240
			0.9490	*0.8890*	*0.7700*
PAV1	-2.6452	-2.5744	-0.4492	-0.4243	-0.5055
	0.0000	*0.0000*	*0.4370*	*0.4600*	*0.3870*
PAV2	-0.6917	-0.5146	0.2694	0.2894	0.2082
	0.3530	*0.4950*	*0.6480*	*0.6250*	*0.7300*
PAV3	-1.6780	-1.2229	-0.0417	-0.0260	-0.0442
	0.0240	*0.0720*	*0.9450*	*0.9660*	*0.9420*
Model Test	32.39	24.96	9.48	9.00	8.11
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*
R-squared	0.0452	0.0594	0.0294	0.0293	0.03
F Test (BRANCH INTE)	7.78	5.01	7.96	8.09	8.45
	0.0007	*0.0085*	*0.0006*	*0.0006*	*0.0004*
N. OBS	10,203	7,988	4,065	4,065	4,065

For the description of the variables see Table 7.2. In italics are reported the p-values of the tests. The t statistics (not reported) are based on robust standard errors adjusted for clustering on provinces. GROWTH is the annual growth rate of real sales, and GROWTH2 is the annual growth rate of employees. SIZE1 is the log of real sales, while SIZE2 is the log of total assets. INTE is the interaction term between BRANCH and COOP. With exception of this latter, and of territorial and industrial dummies, all the explanatory variables have been lagged once, to avoid simultaneity. The variable POP is taken in logarithm terms. Time dummies and constant included but not reported. F test is a test of joint significance of the variables indicated in round brackets.

TABLE 7.9 - The impact of BRANCH on GROWTH when COOP=1

	MOD 3	***MOD 4***	***MOD 5***
Est. coeff. of BRANCH (1)	0.4393	0.3354	0.3941
Est. coeff. of INTE (2)	1.0160	1.0661	1.8152
Var of (1)	2.22E-02	2.66E-02	3.18E-02
Var of (2)	2.37E-01	3.21E-01	3.17E-01
COV. (1) (2)	-1.37E-02	-1.79E-02	-1.55E-02
t-ratio	*2.8362*	*2.5112*	*3.9200*

	MOD 6	***MOD 7***
Est. coeff. of BRANCH (1)	0.3945	0.3621
Est. coeff. of INTE (2)	1.8356	1.9229
Var of (1)	3.18E-02	3.18E-02
Var of (2)	3.18E-01	3.15E-01
COV. (1) (2)	-1.56E-02	-1.54E-02
t-ratio	*3.9511*	*4.0661*

	MOD 3 *(clustered)*	***MOD 4*** *(clustered)*	***MOD 5*** *(clustered)*
Est. coeff. of BRANCH (1)	0.3417	0.3354	0.3941
Est. coeff. of INTE (2)	1.0238	1.0661	1.8152
Var of (1)	1.85E-02	2.01E-02	4.54E-02
Var of (2)	2.24E-01	3.41E-01	3.68E-01
COV. (1) (2)	-1.90E-02	-9.27E-03	-3.08E-02
t-ratio	*3.0202*	*2.3942*	*3.7247*

	MOD 6 *(clustered)*	***MOD 7*** *(clustered)*
Est. coeff. of BRANCH (1)	0.3945	0.3621
Est. coeff. of INTE (2)	1.8356	1.9229
Var of (1)	4.54E-02	4.63E-02
Var of (2)	3.67E-01	3.59E-01
COV. (1) (2)	-3.05E-02	-3.22E-02
t-ratio	*3.7636*	*3.9159*

For the description of the variables see Table 7.2. For the computation of the tests statistics see expression (2) in the main body of the chapter.

6 CONCLUSION

The aim of this chapter has been to empirically investigate whether local financial development influences the growth of Italian firms. To assess if the degree of development of local credit markets impacts differently on the growth of diverse business types, the empirical analysis allowed the effect of local banking development on firm growth to differ between cooperative and non-cooperative firms.

The econometric investigation, implemented on a sample of Italian firms for the period 1995-2003, leads to two main conclusions. The first one is that, compared to non-cooperative firms, cooperatives tend to grow less. In fact, the empirical evidence seems to suggest that, even after controlling for firm specific and local market characteristics, cooperatives exhibit a lower growth rate. Thus, this result would seem to support those studies claiming that the institutional characteristics of cooperative firms pose constraints to their performance (see, for instance, Williamson, 1975, 1980, 1985; Vitaliano, 1983; Putterman, 1993).

A second result is that local banking development is a determinant of firm growth, since firms operating in more developed credit markets are found to have higher growth rates. Therefore, this seems to indicate that the characteristics of the institutional context in which firms operate influence their performance. Furthermore, and this is the main finding of this work, the results suggest that the beneficial effect of local financial development is stronger for cooperative firms: as local banking markets become more developed, cooperatives tend to grow at a rate higher than non-cooperative firms. This seems to be empirical evidence in favour of the existence of a relationship of institutional complementarity between local banking institutions and cooperative firms, as the effectiveness of cooperatives,

evaluated in terms of their growth rate, appears to be reinforced by the presence of more developed local financial intermediaries.

This conclusion is in line with studies claiming the importance of supportive financial institutions for cooperatives' flourishing and success (Estrin and Jones, 1988; Bonin *et al*, 1993; Smith, 2001; Mathews, 2002; Stiglitz, 2004, among others). It could be interpreted as suggesting that banking development allows financial intermediaries to better collect and process the information embedded in the local market, therefore reducing the scope for moral hazard and adverse selection (Goldsmith, 1969; Greenwood and Jovanovic, 1990). In turn, this can encourage risk-taking on the part of cooperatives and favour the reproduction of firm-specific resources, as social relations and social values, which are embedded in the local community and are important for the economic governance of cooperatives. The evidence supports also Rajan and Zingales (1998) and Benfratello *et al*. (2008), who show that financial development especially benefits firms that are mostly reliant on banks for their external financing.

The findings obtained in this Chapter further corroborate the main conclusions stemming from the analysis carried out in Chapter 6. Robust empirical evidence shows that cooperatives' performance is strongly context dependent. There are important institutional complementarities between the behaviour of local banking institutions and cooperative firms' performance. This requires re-thinking the economic theory of the cooperative firm to incorporate institutional contexts. Chapter 4 has pointed out the inconsistencies between mainstream and institutionalist accounts (e.g. Ward, 1958; Alchian and Demsetz, 1972; Jensen and Meckling, 1979; Williamson 1975, 1980, 1985 versus Horvat, 1982a; Bowles and Gintis, 1994a; Hodgson, 1999). The anecdotal evidence reconstructed in Chapter

5 has illustrated that historically the cross-country relative performance of the cooperative sector has been affected by country-specific legal, financial, political and cultural contexts. This Chapter, along with Chapter 6, demonstrates how framing the analysis of the cooperative firm within the institutional complementarity approach (discussed in Chapter 3) enables overcoming the above impasse.

Regarding the policy interpretation of the results obtained in the present Chapter, it could be argued that initiatives aiming to promote a relatively more deregulated banking system would represent an important step toward the creation of an institutional context that strengthens firms, especially cooperatives, hence promoting economic activity.

NOTES

1 It is worth mentioning that in this literature a large number of contributions have focused on cross-country analysis (see Levine, 1997 for a survey of the main studies), while fewer works have investigated within-country differences.

2 For a discussion of the European reforms introduced in the 1990s – as the 1991 Belgian Law, the 1992 Italian and French Laws, the 1992 Catalonian Law, and the 1993 Basques Law – see the volume edited by Jose Monzon Campos *et al*. (1996).

3 For a brief discussion on the legal structures disciplined by the Italian corporate law see Chapter Six, endnote 20.

4 In this analytical framework, what matters are cooperative firms as a whole, that is as an organisational form having traits that, on one hand, still render it mostly dependent upon banking institutions and, on the other hand, make the bank-firm link complex. Thus, given the purpose of the empirical investigation, possible differentiations in the financial structure of these firms are left aside. Yet, this latter aspect deserves further in depth inquiry, on both theoretical and empirical grounds, in future research.

5 See Thomas Brambol *et al*. (2006) for an excellent analysis of multiplicative interaction models and their applications.

6 It is worth noting that it has been preferred to control for the sensitivity of sales to inflation, even though in Italy inflation rates are rather contained.

7 Up to the early 1990s, the main features of the Italian banking industry were the result of the regulation introduced in 1936 in order to avoid banking instability. Many restrictions were laid down on banks' activity - among which the total control upon entry and exit in the industry, as well as on branching decisions. A radical regulatory reform, introduced at the beginning of the 1990s, has modified this scenario (see Costi 2007, for an extensive discussion on this normative). Primed by the new legislative framework, the selling-off of state-held banking shares, large consolidation waves and a rapid growth of branch numbers have transformed the physiognomy of the Italian banking sector. From 1990 to 2006, 444 mergers and 205 acquisitions among Italian credit institutions (excluding operations that involved the same bank more than once) were completed. In the same period, the number of banks operating in the country dropped from 1,064 to 793, whereas bank branches increased from 17,721 to 32,337 (Bank of Italy Annual Reports 1991-2007). Focusing on the geographical expansion of banks following the deregulation process, Benfratello *et al*. (2008) show that branch density at provincial level: *i)* has increased largely, on average; *ii)* has been characterised by a large interprovincial dispersion, and this latter has been

increasing over time; *iii*) displays much more variation between provinces than over time. Moreover, bank geographical expansion and consolidation activities have led to a significant disparity of banking concentration across the Italian provinces; this phenomenon characterises almost all regions, as well as all the macro-areas of the country (see also FinMonitor, 2006).

8 Although Robert Gibrat's law of proportionate effects (1931) states that firm growth is independent of size, empirical research has not reached unequivocal conclusions. Indeed, while most studies rejected the model (Tschoegl, 1983; Evans, 1987; Dunne *et al*, 1989; Dunne *et al*, 1994; Mata, 1994; Weiss, 1998; Audretsch *et al*, 1999; Becchetti and Trovato, 2002), others found evidence in favour of Gibrat's law (Chen *et al*, 1985; Kumar, 1985; Acs and Audretsch, 1990; Wagner, 1992; Diaz-Hermelo and Vassolo, 2004). In between these conclusions, Francesca Lotti *et al*. (2003) found that in some Italian manufacturing industries the behaviour of Gibrat's law depends on the life cycle of the firm. In particular, the law does not hold in the first year following start-up, when smaller entrants grow faster in order to achieve a size that enhances their survival likelihood. Thereafter, the law is not rejected, as smaller and larger entrants are not found to follow different growth patterns.

9 Regarding the relationship between firm age and growth, the general pattern suggested by previous research is that young firms are more likely to grow faster (see, for instance, Glancey, 1998; Almus and Nerlinger, 1999; Wijewardena and Tibbits, 1999; Becchetti and Trovato, 2002; Davidsson *et al*, 2002; Niskanen and Niskanen, 2005).

10 The impact of cash flow on firm growth varies with the availability of external sources of financing, as the latter relax the link between growth and internal finance (Carpenter and Petersen, 2002).

11 This classification of the industrial sectors has been proposed by Keith Pavitt (1984).

12 An exception to this is represented by the variable COOP and by territorial and sectoral dummies.

13 Yet, the intention for future research is to dispose of a much greater amount of observations on cooperatives.

14 The analysis carried out in the present work refers to manufacturing firms. However, cooperatives operate in a number of different sectors, from food industry to a broad range of services, as well as social activities. Future research is, therefore, called to fill this gap.

15 Regarding the composition of the sub-sample of cooperatives across the surveys considered in the analysis – spanning the triennia 1995-1997, 1998-2000 and 2001-2003 – 61% firms are present in one wave, 31.6% are included for six years, hence in two surveys, and 7.4% firms appear in all three waves. As explained by Attilio Pasetto – in charge for Capitalia's *Indagine sulle imprese manifatturiere* – in order to keep in each wave a significant quota of sample units belonging to the preceding surveys, and also to supplement the sample with new units, Capitalia uses the criterion of partial re-sampling of firms (rotation panel design). So that, differences in the firms taking part in the surveys are mainly due to the sampling method adopted. Moreover, as far as non-responding units are concerned, these include firms that did not adhere to initiatives subsequent to the first one, those that run out of business, those whose number of employees fell below 11, and those not belonging to the manufacturing industry anymore.

16 Following Servèn (2003), the criterion used to operate the outliers correction is to consider as outliers all observations for which any of the variables lies beyond 10 standard deviation away from the mean. It is worth pointing out that sole traders have been excluded from the sample as the intention is to focus on enterprises. As regards the category "other legal structures", this has not been considered since it includes very heterogeneous business types.

17 The variable PAV2 is not excluded from MOD3, even if not statistically significant since, as an anonymous referee pointed out, PAV1, PAV2, and PAV3 are to be intended as an integrated set of variables.

18 As Petrunia (2007) points out, rejection of Gibrat's law occurs in previous studies because of one of three reasons. The first is that smaller firms are found to grow more than larger ones (e.g. Kumar, 1985; Evans, 1987; Hall, 1987; Dunne and Hughes, 1994). A second reason for rejection is that growth seems to favour larger firms (e.g. Hart and Prais, 1956; Singh and Whittington, 1975). The final reason for rejecting Gibrat's Law is that the assumption of no persistence in firm growth over time fails to hold (e.g. Chesher, 1979; Kumar, 1985).

19 A possible intuition explaining the estimated inverse relationship between firm age and growth has been provided by Glancey (1998). He argues that "older firms may have developed routines which are out of touch with changes in market conditions, in which case an inverse relationship between age and growth could be observed" (ibid: p. 21). On the other hand, Thomas Cooley and Vincenzo Quadrini (2001) show that in the presence of financial frictions firms are not able to raise all the funds required to make the marginal product of capital equal its opportunity cost. This implies that as capital increases over time, its marginal product declines, and so does firm growth.

20 Also Giorgio Fagiolo and Alessandra Luzzi (2006) found that liquidity constrained firms are those that grow persistently more. The authors show that small and quite dynamic firms are capable of performing well, despite being cash-constrained.

21 It is important to clarify that it would be erroneous to argue that the more banks are developed, the more firms tend to structure themselves as cooperatives, since this would imply to regard the degree of development of financial intermediaries as driving individuals' organisational choice. The institutional complementarity approach does not conflict with this, since one of its major implications is that the presence of institutional complementarities does not necessarily leas to the selection of the Pareto improving institutional arrangement. As discussed in Chapter Three, being a dynamic approach admitting multiple equilibria, institutional complementarity does not rule out that the prevailing institutional arrangements may be Pareto sub-optimal, as well as non comparable in a Paretian sense. This is so because, due to their bounded rationality in perception and choice, agents cannot strategically coordinate their choices across domains, even if they participate in them simultaneously (Aoki, 2001).

22 The outliers correction for INV has been operated after having estimated the models 1-3. Results are unchanged when these models have been re-estimated after this correction.

23 It has been argued that employment is a more informative indicator of organisational complexity than sales, and may be preferable if the focus is on the managerial implications of growth (Greiner, 1972; Churchill and Lewis, 1983). Moreover, some scholars claimed that for resource- and knowledge-based views of the firm, which consider firms as bundle of resources, growth analysis should focus on the accumulation of resources, such as employees (Penrose, 1959; Kogut and Zander, 1992).

24 These figures regard the models from 3 to 7.

CHAPTER 8

CONCLUSION

1 INTRODUCTION

The overall argument of this study is that the dynamics governing the evolution of socio-economic systems are much more complex than conventional accounts suggest, and that the theoretical claims of a universalistic history in which all production systems must follow the same line of development must be abandoned. Utopian claims suggesting that history follows a unilinear path have underestimated the multiplicity of forms that productive organisations may assume. Favoured instead is the analysis of specific social, political, cultural and economic conditions that prevail in different institutional settings, and of the interdependencies arising among these context-specific factors. It is precisely because of the interdependencies, the institutional complementarities that become established in different settings that a multiplicity of historical paths of development exists, and that diversity both among and within socio-economic systems is a persistent phenomenon.

Further, the empirical study on the impact of context-specific institutional factors on firm performance showed no justification for the view that strict efficiency and competitive considerations determine which type of firm is likely to become

established, and eventually prevail over others, in a capitalist environment. Conventional accounts have assumed that such a firm would be the capitalist, hierarchical structure. However, the research findings of the present study do not support the pessimistic prediction that more participatory, non-hierarchical firms would be unequivocally unviable. Instead, the performance of the democratic firm is largely dependent on the institutional conditions prevailing in the environment in which firms operate. There are relations of context dependence, of institutional complementarities that determine the relative performance of different firm types. Hence, the features of the institutional context characterising different spheres of a socio-economic system must be taken as the reference point around which the analysis of the relative performance of different forms of productive organisation has to be centred.

The aim of this chapter is to reflect on the main themes of the institutionalist analysis on diversity in forms of economic organisations in light of the research findings presented in the previous chapters. The second part of the chapter reflects on the implications for policy making and the final part of the chapter discusses future research avenues that emanate from this study.

2 BANKS' BEHAVIOUR, INCENTIVES AND THE PERFORMANCE OF THE DEMOCRATIC FIRM

In the context of the Italian institutional setting, the relative performance of different ownership structures appears to be heavily conditioned by the structure and behaviour of banking institutions. The performance of cooperative firms seems to be linked to the degree of development and competition characterising the local

credit market in a sense of institutional complementarity: Italian cooperatives exhibit higher activity and growth rates in relatively less concentrated and more developed banking markets. In such markets firms operating in the cooperative sector can outperform capitalist firms. The empirical analysis conducted in Chapter 7 has in fact found that although, other things being equal, cooperatives tend to grow less than capitalist firms (in other words, the intercept of the regression line is lower for coops), when local financial development is taken into account, this has a higher positive impact on cooperative firms' growth than on capitalist structures (i.e. the slope of the regression line is steeper for coops). Hence the potential for cooperatives to outperform capitalist firms. In regard to the dynamics underlying the above relationship of institutional complementarity, various interrelated effects could be at work. We do not propose that the following are the precise issues that explain the empirical evidence obtained. Nor we aim to engage in a purely speculative discussion. We mainly try to reflect on the findings of this research work and suggest some possible interpretations.

Firstly, financial intermediaries enjoying a relatively low market power, or in other words operating in relatively more competitive local markets, can adopt screening and monitoring technologies that rely more on soft information, such as evaluating borrowers' future prospects, rather than imposing pure collateral requirements. Such practices can have positive effects on the bank financing of cooperative firms since they could contribute to lower the perceived riskiness of these borrowers, and also in the light of the typically limited financial resources that the members of a cooperative firm can mobilise to guarantee loans applications. In other words, the constraint imposed on cooperatives by a restricted availability of

finance would be less binding. Hence the improvement in their economic performance.

Secondly, more developed local financial intermediaries can be better able to collect and process information and this can have positive effects in terms of reducing problems of moral hazard and adverse selection. In other words, if lenders can perform effective screening and monitoring of investors, borrowers' behaviour tends to become more inclined towards risk sharing, hence more prone towards taking responsibility for the risk associated to their actions and to investment projects. This could be particularly important for cooperative firms, whose members' attitude towards risk is normally aversion, and contribute to boost their performance.

Thirdly, when firms borrow from banks located in the same area in which they operate, personal and social relations can play a role in regard to the outcome and terms of the loan application process. That is to say, if firm members and bank managers work and live in the same local community, and maybe know each other or have reliable information about the other from other community members, then this can add value to the lending relationship, and contribute to make it less formal and more horizontal. This would be particularly important for cooperative firms, as their typical strong local nature places particular emphasis on the value of social interactions for their economic governance. Arguably, these informal institutions of governance are less likely to be reproduced in markets where banks have substantial market power. In that case the bank-firm relationship would be more vertical, with less flexible terms, and banks' behaviour would be more oriented towards long-term rent extraction.

The implications of the empirical findings of this study for the economic theory of the democratic firm and, more in general, for economic analysis are outlined in the next section.

3 RETHINKING THE ECONOMIC THEORY OF THE DEMOCRATIC FIRM AND THE IMPLICATIONS FOR ECONOMIC ANALYSIS

This study provides robust evidence suggesting that there are context dependency effects that influence the performance profile of the democratic firm. In other words, firm-level institutional complementarities are an important determinant of the overall performance of the Italian cooperative sector. The findings contribute to enrich that line of economic analysis contending that the traditional theory of the cooperative firm is essentially flawed. The research provides further empirical support to those studies that have shown that the performance of cooperative firms is largely dependent on the general institutional and cultural climate prevailing in the context in which they operate. The weight of testimony in favour of the above argument requires rethinking the economic theory of the democratic firm. This brings about major implications for the general theory of the firm, and also for economics. This is a challenge that cannot be ignored. In our view, the notion of institutional complementarity and its implications should inform economic analysis. In regard to the theory of cooperatives, introducing institutional complementarity would contribute to remedy to the otherwise mysterious clash between the conventional accounts postulating the inefficiency and unviability of the cooperative organisational form, and the substantial evidence that shows, in various forms, the significance of this firm type in several countries.

Related to the above, this research work has also broader implications that go beyond the economic theory of the democratic firm and contribute to enrich the debate on diversity in forms of capitalism and, more specifically, on variety in forms of economic organisations. The study explains that positive feedback processes mean that the relative performance of the units populating a socio-economic system is the result of the interrelations that become established among them at various levels of the system. These system specific complementarity effects enable explanation of the persistent diversity that is observed both among and within socio-economic systems. They also imply that views proclaiming the superiority, and feasibility, of a single and ubiquitous type of economic arrangement are insensitive to the social and historical dimensions that characterise economic life. Economic analysis must instead be attentive to those dimensions.

4 POLICY CONCLUSIONS

Providing a formula for policy making to improve the performance of cooperative firms, valid for any single country or group of countries, is not the intention here. The entire discourse of this study has been to proclaim the relativity of any general formula and emphasise the need to contextualise the analysis of socio-economic phenomena. Furthermore, it would be easy but disingenuous to add to the extensive list of unsuccessful institutional fixes that have been posited by consultants, governments and academics over the years. This is not to dismiss, however, the role of human agency in changing economic and political trajectories, and it does not mean that important things cannot be said.

In very general terms, the challenge is to provide institutional support that encourages and promotes economic democracy. Of course the large-scale realisation of economic democracy would represent a breakthrough in human history; however it would require radical changes occurring in all the spheres composing of a society. Nevertheless, the pursuit of economic democracy through policy design would also be clashing with the arguably stronger current tendencies that spur the formation of concentrated centres of economic power. Hence if we were to propose the above we would just be formulating another utopia. So what margin of manoeuvre is left for the original idea of promoting economic democracy? A system that can foster the formation, at different levels of the economy, of umbrella organisations supporting in various ways the formation and development of more open and participatory forms of economic organisations would be an appreciable step forward towards the diffusion of a culture open to the introduction of more democratic practices in the workplace.

In regard to the Italian context, and with specific reference to the institutions operating in the financial domain, this study has shown that policies oriented to the promotion of relatively more competitive and developed credit markets would offer incentives that would contribute to the development of democratic economic forms.

5 FUTURE RESEARCH AGENDAS

In terms of research there are four possible future research agendas that emerge from this study. The first research area would be further tracking of the relationship between firm performance and institutional context by investigating institutional complementarity effects in domains other than the financial one. The purpose of the

study would be to look once again at possible differences between democratic and capitalist firms in regard to the impact of context specific characteristics on their relative performance.

The second way in which this study could be built upon would be to deepen the analysis and open up the 'black box' of a number of firms, to examine the relationship between the specific features of their socio-economic environment and their impacts on qualitative and quantitative aspects of employment within the firm.

The third possible area of investigation would be to study performance differentials among firm types across different institutional contexts by carrying out a comparative cross-country analysis. The particular focus would be to identify institutional dimensions along which countries could be compared quantitatively, and use the results of these comparisons to construct a typological map.

The final area of research is perhaps the most important, for the contribution it would make to improved economic analysis, and certainly the most challenging and emanates from the implications of this study earlier discussed. The challenge would be to identify some building blocks for a theory of the firm that incorporates the wider institutional context in the analysis of firm behaviour and performance.

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