WHY DO FIRMS GROW?

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Fabrizio Traù
Centro Studi Confindustria
Viale Astronomia 30
00144 Roma
Italy

Tel: 00 39 6 590 3536
Fax: 00 39 6 591 8348

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Abstract

This review article is aimed at discussing the theoretical foundations of firms' growth processes which lie beyond the assumptions of "standard" (neoclassical) theory, according to which "sizeless" firms are simply pushed - by the existence of a U-shaped long-run average cost curve and by the goal of maximum profit - to expand their size until they reach the scale corresponding to minimum average cost. The paper stresses the relevance of the analysis of the internal functioning of complex organisations in the development of a theory of "flesh and blood" firms' growth, in order to focus attention upon many important points which the "standard" approach to the analysis of firms' behaviour, by its very nature, *cannot* take into account. Given such a perspective the analysis tries to set within a common framework a wide range of theoretical approaches on this issue, which both deal with supply and demand issues, and involve the analysis of the role played by technological, financial and organisational determinants of growth, as well as that of the factors affecting motivation and the "degree of rationality" of agents. In this context the paper "naturally" refers to the main developments of non-neoclassical theories of the firm, but it also pays attention to some contributions which appear to have been neglected by more recent analysis, and which nonetheless may help in highlighting important questions related to the phenomenon of growth.

Acknowledgements

WHY DO FIRMS GROW?

1. Introduction

> *"If horses cannot fly, there is no way of finding out how* high *they could fly, if they could"* *(E. Chamberlin, 1948b, p. 245).*

From the point of view of "standard" (neoclassical) theory all the firms within an industry are pushed - by the existence of a U-shaped long-run average cost curve and by the goal of maximum profit - to expand their size until they reach (and do not exceed) the scale corresponding, given the technology, to the minimum "feasible" cost. The process of *growth* is exhausted as far as the process of *optimization* is completed.

In this world the firm is simply a production function which reacts to the stimuli coming from the market in a completely passive way: no theory of the *firm* is required to understand the direction and the magnitude of the changes involved. Whereas the variance of firm size levels in a given industry at any one time is expected to be merely due to "frictional" disequilibria (unless it is admitted that for *some* reasons each firm has to face a distinct cost curve)[1], nothing is known about firms' rates of growth: that is, if they are likely to persist over time, or to change, and why[2].

As far as the empirical evidence is concerned, as Ijiri and Simon point out, "the theory either predicts the facts incorrectly or it makes no predictions at all" (1977, p. 10): in fact, neither is it compatible with the highly skewed distributions of business firms observed in modern industrial economies, nor does it explain the major changes which have occurred in business concentration in most industrial countries in the last half century (namely the rise of concentration from the 2nd world war up to the end of the 1960s and the reversal of this pattern after the 1973 oil crisis)[3].

This paper is aimed at discussing the theoretical foundations of firms' growth processes which lie beyond the boundaries of a mere profit-maximizing mechanism facing the constraint of an upward-sloping cost curve. According to this view, it is organised in two main parts, discussing respectively the relationship between growth and returns to scale (Section 2), and between growth and the goals of firms (Section 3). By their very nature, the two parts can also be viewed as reflecting two broadly different types of questions: the analysis of returns mainly relates to technology and demand, whilst the definition of firms' goals necessarily involves

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organisational and financial issues as well. From this point of view, insofar as the latter set of problems typically characterises the decision-making processes of large companies, the partition adopted focuses attention on the growing complexity of the questions to be faced as firms become bigger.

Among the issues considered, the paper does not include the analysis of "external" growth as such (as it takes the form of mergers and acquisitions); albeit not exclusively[4], external growth can in fact be mainly regarded as *one of the ways* whereby firms pursue the objective of growth - that is, it is assumed to be related more with *how* firms grow, rather than *why*.

In the first three sub-sections (2.1 to 2.3) the paper deals with the "technological" as well as the "demand side" explanations of the nature of increasing and decreasing returns, viewed both in static and dynamic perspectives; section 2.3, in particular, also focusses attention upon the limits to firms' growth set by the appearance of "increasing risk" effects due to equity shortages. In section 2.4 the question of returns to scale is treated from the viewpoint of the need for flexibility stemming from market uncertainty (*sub specie* of demand fluctuations) and the inefficiency of the price mechanism.

Sections 3.1 to 3.3 then address the question of the *internal* organisation of firms, firstly discussing the implications of the separation between ownership and control on the growth policies of (large) joint-stock companies, and then extending the analysis to the role which managerial motivation and bounded rationality play in determining a non-optimising ("satisficing") behaviour of firms. In section 3.4 the hypothesis is considered that firms' growth may be the outcome of a mere random process, utterly independent of any wilful goal whatsoever.

2. Returns

> *"Indeed some of the sharpest minds of the 'twenties and 'thirties simply failed to appreciate what Marshall had done, and construed his caution as hesitancy and his subtlety as confusion. But Marshall was facing methodological difficulties which could not be solved, only lived with." (B. Loasby, 1971, p.870)*

2.1. From the representative firm to imperfect competition: a premise

In Marshall's analysis of the firm the acknowledged existence of large-scale economies (mainly of "skill" and "machinery") is counterbalanced - and beyond

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a given size (age) outweighted - by the decay of the entrepreneurs' "liking for energetic work" and by the fact that "the sales of each business are limited...to the particular market which [the firm] has *slowly* and *expensively* acquired; and though the production itself might be economically increased very fast, the sale could not" (1920, p. 287, emphasis added).

In this view, firms' efforts in pushing ahead the boundaries of their business will meet a "natural" limit in entrepreneurs' energies and in market imperfections[5]. Whether they are internal or external, technological advantages tied to firm's size (generally buttressed by the "full strength and freshness" of "a new man") are gradually but unavoidably upset by some extra-technological factors[6], so that at any one time the representative firm is "managed with normal ability, and has normal access to the economies" (p. 317). The size of the representative firm, given these (normal) requirements, would only be increased, "other things being equal, by the general expansion of the industry" (p. 460).

Marshall's view - as it is stylised in the metaphor of the "trees in the forest" - represents an attempt to set up a theory not merely of the absolute size of the firm, but of its relative size as well. Provided that "some boundary competition is to exist", and that market forces only affect the *average* size of firms, some mechanism on the supply side is required for the *variance* of size to be kept (nearly) constant - that is *no one* firm in the industry can steadily grow faster than the "general expansion" of the industry itself.

Whilst it describes the main features of an equilibrium situation for the industry (the size/age distribution), the Marshallian approach fails to provide an analysis of the convergence mechanism toward equilibrium itself (as it is determined by the growth process of individual firms)[7]; in this sense, the representative firm is purely an ex-post device (see Blaug, 1985).

When in the 1920s the perfect competition model and Marshall's theory of value came under attack in the context of a general re-definition of the theory of competitive equilibrium, the "market imperfection hypothesis" was retained as the focus of the new paradigm viewing each firm as a "local" monopolist, while the looseness of the Marshallian definition of decreasing returns was implacably pulled to pieces by Sraffa (1925, 1926 and 1930). In the new perspective, the alleged flatness of the cost curve was not yet the result of a balance between increasing and decreasing returns, but was simply due to "the absence of causes which tend to cause the cost either to increase or diminish" (Sraffa, 1926, p. 541).

The assumption of a downward sloping demand curve as being the only factor affecting long-run output growth implies that each firm is likely to expand its activity to the extent that "the group of buyers who constitute a firm's clientele [are willing] to pay ... something extra in order to obtain the goods from a particular firm rather than from any other" (Sraffa, 1926, p. 545). In this context the size distribution of firms in each industry is simply determined by the "degree of differentiation" of products (that is, by the variance of demand elasticities among firms themselves).

Although Sraffa's insights into the weakness of traditional cost theory were followed (as well as indeed preceded) by a well-known debate, mostly carried out in the Economic Journal[8], the criticisms to the hypothesis of decreasing returns were gradually blurred by the very success of the "imperfect competition" model itself.

Although the re-assessment of the theory of cost functions by Viner (1931) provided a sounder framework for the thesis that they do not rise in the long run (so that firms can expand indefinitely)[9], the focus of the analysis of firm's size gradually shifted toward the demand side. Owing to the rising attention paid to the market structure and the differentiation of products within the industry, in the context of the new theories of the firm demand could eventually become the only factor affecting firm's output even when the cost curve was again assumed as upward sloping beyond some "optimum" threshold[10].

As Wolfe (1954) and later Newman (1960) pointed out, in Marshall's view the equilibrium of the industry (that is of total output) did not require that *all* firms must be in equilibrium[11]; whatever the degree to which in this context "free" competition was "perfect" competition, it simply implied a dynamic view of the market economy ("a thing which could hardly concern the modern theorist with his assumption of static equilibrium" (Wolfe 1954, p. 345). On the whole, the perspective opened by Sraffa's critique undoubtedly favoured a displacement from the industry to the firm as the main object of the analysis, but at the same time the determination of the equilibrium of the firm itself, much more than the interpretation of its growth process, eventually became the major question to be answered.

In this sense, it could be significant that after the representative firm was definitely swept away, the idea that a firm's growth could be bounded by something else than the slope of its demand curve - if any - so often assumed the feature of a basically static constraint.

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2.2. Factor proportions, increasing returns and firm size

In the (Marshallian) short run the existence of variable returns to scale is crucially hinged on the "law of variable proportions". Given by definition that the availability of at least one factor (basically machinery) is limited, the existence of a *certain* degree of replaceability among all factors enables the firm (the plant) to offset some changes in demand levels by varying the proportions of production coefficients. Average costs - given input prices - will fall until the "full utilization level" of the non-variable input is reached, and will rise beyond; minimum average cost is defined in correspondence with the "optimal" combination of the inputs - that is at the output level which provides the best utilization of the "fixed" factor[12].

By virtue of the fact that in the long run *no constraints* on factors' availability are admitted, firms can vary both input levels and input proportions when expanding their output (so that the law of diminishing returns is no longer applicable); and the very meaning of the long-run average cost curve is just that, for each level of output, (rational) firms will set not only different input quantities, but also a different input combination, corresponding to that one which provides minimum average costs. In this perspective - and given factor prices - the existence of increasing returns in the long run can not be explained only as a mere function of size itself; as Chamberlin (1948b) stresses, "proportions and size may be legitimally 'separated' only in the sense that a relative optimum may be formally defined for each, the other being held constant". But "since ... they are both variable, the optimum (minimum) cost conditions for the firm can be found only by bringing them together" (p. 255).

The point is even more explicitly put by Gold (1981, p. 6), who argues that the very "looseness of the basic concept" of economies of scale depends upon the "unrealistic" assumption, "which has prevailed... in economic theory", of "increases in scale as involving increases in the size or capacity of production units, provided that there are no changes in factor proportions"[13]. Such an assumption may be actually considered quite odd, inasmuch as the whole classical tradition, as Gold himself points out, has generally stressed the relevance of shifts in factor proportions (i.e. labour and capital) in explaining long-run increasing returns; and Marshall himself, albeit not providing a formal analysis for the phenomenon, nevertheless explicitly recognized that in the long run "the [input] quantities cannot be taken out exactly, because changing methods of production call for machinery, and for unskilled and skilled labour of new kinds and in new proportions" (1920, p. 319).

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Were the existence of decreasing returns wholly independent of factor proportions, each "plant" would merely result in an enlarged duplicate of a smaller one; and it is hardly conceivable how any *technical* advantage, *sub specie* of economies of scale, could arise moving to the former from the latter. Such being the case, the only possible reduction in unit costs might derive from falling unit *prices* associated with larger purchases of at least some factors[14].

A further problem is often represented by the inclusion within the variables affecting the shape of the "scale curve" of sheer *size* economies, that is reductions in unit costs depending on some potential advantages which may be associated with increases in the size of firm, although *not functionally* related to it[15]. In such a perspective, as suggested by Robinson (1935, ch. 4 and 5), a major relevance is attributable to the "financial" economies which can arise, for larger firms, from a presumably easier and cheaper raising of money on the capital market (including borrowing); or from the advantages stemming from a wider market power as well, where a larger firm can achieve economies of "buying" or "selling"[16].

A most relevant point in the analysis of the relationship between the shape of returns to scale and the rhythm of change of firms' size is that a firm's (output) growth may not bring about *continuous* increases in productive efficiency, owing to the existence of input indivisibilities. Such a constraint would necessarily entail higher unit costs for *all* firms lying below the output level corresponding to the full utilization of the "indivisible" factor[17]; so that the typical feature of efficiency improvement will be discontinuity (production advantages being achievable only beyond given rates of increase in size).

Just as in the (short-run) "fixed factor" hypothesis (although in a quite different perspective), machinery again turns out as the crucial problem to be faced; and in the approaches of both Steindl (1945) and Sylos Labini (1961), more or less grounded on Kaldor's premises (1935), capital input indivisibilities appear as a major factor in determining a firm's size. In the first case, the existence of a technological asymmetry between large and small firms is not far more than a hypothesis: "If certain economies are available for a certain size of plant, then only those firms which are big enough to afford the capital investment required for this plant will be able to make use of these economies. (...) On the other hand, if there are economies open to small plants - and a technical development may sometimes favour small scale equipment - then *any* bigger firm may make use of them just as well as a small firm, because there is nothing to prevent it from investing in a number of smaller plants" (Steindl, 1945, p. 10, emphasis original).

Sylos Labini sets the question in more explicit terms, maintaining that in oligopolistic markets factor substitution *cannot* be continuous, because of the existence of strong technological "discontinuities"; so that "only large firms can apply certain methods, both technical and organizational, and only large firms can realize certain economies of scale. And the transition from small to large firms is not gradual; there are jumps and the jumps become broader as concentration proceeds" (Sylos Labini 1969, p. 35). As usual, even in such a context the rhythm of a firm's expansion will depend upon the balance between the (step-shaped) long-run cost curve stemming from technological discontinuities and a (more or less) downward sloping "monopolistic" demand curve - the former setting the potential, discrete "path" of firm's expansion, the latter acting as an usual "imperfect market" constraint. But the balance between the two forces will yield a size distribution of firms which will be far more (positively) skewed than the one turning out from a "perfect factor divisibility" world, since only a few firms enjoying a very large potential demand may be able to exploit cost economies brought about by a larger plant. In this view, the growth process again appears strongly affected by supply forces[18].

All in all, on empirical grounds the evidence about the shape of the long-run cost curve cannot be considered conclusive. The existence of some minimum efficient size (MES) is generally acknowledged to turn out to be relatively small; but about what happens beyond MES, no clear-cut evidence is as yet available as to whether that costs tend to flatten, or to rise[19].

Hitherto size and returns of business firms have been treated as if they varied together - whatever the factors' rate of substitution - according to a *given* relationship (i.e. each size corresponds to a given level of efficiency and *vice versa*). Insofar as cost advantages are tied to a larger scale (at least up to a given size), profit-maximizing firms are pushed to grow. In this context the relationship between size and efficiency runs from the former to the latter - following their (theoretical) scale curve, firms obtain cost advantages by increasing their size.

The relationship between scale and returns, however, can also be approached from a dynamic perspective, as suggested by Mrs. Penrose. In this view a firm is assumed to have access to *specific* internal economies, which "are derived from the unique collection of productive services available to it, and create for that firm a differential advantage over other firms"[20]. Such economies, which are "the result of the process ... by which unused productive services are continually created within the firm" (Penrose 1980, p. 99), are completely independent of the size of firm, that is they

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may be at work at all size levels, and are not related to increases in efficiency due to a larger scale of production. According to Mrs. Penrose, this latent and "essentially transient" set of peculiar advantages is exploited when a firm can develop a particular new activity better than another one, such as putting "additional output on the market at a lower average cost than any other firm, whether larger or smaller" (p.100); and this can happen even if the firm itself will not obtain any advantages from being larger - a firm's expansion is not linked in this context to the cost advantages that a larger scale may *steadily* afford, but just to the specific opportunity being exploited[21]. Thus, "economies of growth" turn out in an essentially *unbalanced* rate of growth of firms, entailed by the "occasional" appearance of some "unused" resources (see on this point also Slater, 1980).

On the other hand, the whole question may be viewed the other way round: that is, how do *efficiency* dynamics affect a firm's growth?

From this standpoint a theoretical framework is offered by Downie's approach (1958). The basic idea is that there is "a tendency for more efficient firms to grow (increase their output) at the expense of less efficient firms" (p. 60): insofar as efficiency is reflected in the rate of profit, and a firm's rates of profit affect in turn the amount of finance it can borrow[22], higher rates of profit will afford higher rates of growth; on the other hand, since beyond a given threshold further expansion (further attraction of demand) will require lower output prices, profits will be at the same time lowered by "excessive" growth. So, at any one time the firm is faced with a maximum sustainable rate of growth which is the outcome of a "transfer mechanism", and which will increase inasmuch as the firm itself can improve its efficiency.

In such a perspective efficiency differentials and efficiency improvements are not a matter of chance, nor do they reflect mere "frictional deviations" from firms' optimization paths; rather, they are closely linked to the fact that the "state of the arts" for technology is *not* freely accessible to all firms; as in Penrose's analysis (see section 2.3), each firm can develop some specific "state of technique" by its own experience, and it may even explicitly tend to become quite "secretive" about its "innovation mechanism"[23]. In this view a firm's capability of developing *internal* resources plays a crucial role in the process of growth, and the distribution of such a capability at any one time is by no means equally spread amongst firms. The perspective disclosed by this approach can be considered as one of the main ways whereby "large firm" theories began to develop in the early 1960s; and it constitutes the premise of many empirical studies about the relationship between

growth and profitability. In this context, it should anyway be remembered that a firm's ability to grow is not necessarily the same thing as its *willingness* to grow: as will be discussed in following sections, many reasons can explain on theoretical grounds why the relationship between growth and profitability may differ among firms.

2.3. "Fixed" factors and structural constraints in the analysis of decreasing returns

Once the world of the "trees in the forest" had been abandoned, the theoretical existence of decreasing returns could only be rescued by the extension to the long run of the (short-term) law of variable proportions - that is, by the assumption of a *structural* shortage in *some* factors' availability. But owing to the logical difficulties of identifying any "factor" characterized by such a limited supply in the long run, the task became to find some factors which could turn out, at the same time, as both unlimitedly available at the industry level, and "fixed" for the individual firm.

From this point of view, the "natural" basic reference is, again, Austin Robinson (1935), and notably his analysis of the problem of co-ordination. The crucial feature of Robinson's approach is precisely the assumption of a peculiar characteristic of the "managerial" factor with respect to all other factors, which can be expressed in the principle that increasing output requires *more* than proportionate increases in co-ordination activity. Thus, whereas technical forces simply define a *minimum* scale below which maximum efficiency cannot be reached, "the managerial optimum sets ... not only a lower but also an upper limit to the scale of operations" (Robinson, 1935, p. 48).

As Chamberlin (1948) points out, this hypothesis avoids the need for any factor restraint at the industry level, and at the same time offers an explanation for the long-run cost curve of the individual firm to show an upward slope over a given level of output[24]. Apart from some destructive criticisms (like those by Ross, 1951/52), the "principle" of managerial constraint has in fact remained the cornerstone of the whole literature on decreasing returns. However, the analysis developed by Robinson leaves quite undefined the question of the size distribution of business firms: for since nothing is said about the distribution of the "coordination ability" amongst firms, the analysis lacks a theory of the size distribution itself.

A major reference in this perspective can be considered the (rather neglected) analysis developed by Tuck (1954). Focusing attention on the problem of

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"assigning each individual ... an appropriate level of responsibility,...in such a way that the best possible use is made of the available human talent and experience" (p. 1), Tuck provides a (static) theory of firms' size ranking based on the aggregate availability of managerial resources. The starting point is that at any one time it is possible to observe in the economy a distribution of *individuals* according to their "organizational" rank - i.e. it is possible to rank individuals "engaged in productive work" according to the position that each of them has been able to achieve. The theory of the size distribution of firms is grounded on two fundamental hypotheses: the first is that the maximum number of immediate subordinates which a single individual can control determines the "effective" (the only feasible) distribution of ranks in a hierarchy; the second is that "it would be a rare coincidence" if such a distribution were precisely fitted by the "historical" outcome of the process of individual advancement. Since it is suggested that the actual number of individuals "at any particular rank is always considerably greater than can be effectively controlled by the number of individuals available at the rank next above" (p. 13), there will be a certain "surplus" of individuals in correspondence with each hierarchy level. All these individuals may become heads of independent firms of corresponding smaller size.

A (static) model of firms' size distribution based on the distribution of managerial "talent" - very close to that above outlined - is also provided by Lucas (1978); but the most fruitful perspective opened by the "coordination hypothesis" can be found in the debate about its "dynamic" implications which followed the first edition (in 1931) of Robinson's book[25].

According to Kaldor, the peculiarity of the firm production function assumed in Robinson's view *must* be closely dependent upon the existence of "adjustment" problems, for by its very nature "the function which lends uniqueness and determinateness to the firm - the ability to adjust, to co-ordinate - is an essentially dynamic function; it is only required so long as adjustments are required" (Kaldor 1934, p. 70). And since adjustments are required only as long as a transition from one size to a larger one is involved, out of a disequilibrium situation (that is in a "static" view) the long run cost curve will not rise at all, so that "there will be a continuous tendency for the size of the firm to grow" (p. 72).

Although rather tautological (the absence of a co-ordination constraint in a "static" situation depends on the specific definition of equilibrium adopted), Kaldor's view helps in focusing the central issue of the problem involved; that is, to what extent does management as such matter in a firm's *decision process*? As Robinson

pointed out in his reply, Kaldor's long run is more similar to Nirvana than to real world, for real firms have to face with some sort of change and adjustment even in a completely "static" perspective - and the point is that even if they do not grow at all, firms have constantly to cope with forces which tend to divert them from equilibrium, so that the existence of managerial constraints is likely to thwart a firm's optimization process quite independently of any movement along the long-run cost curve.

The important issue stressed by Robinson has been substantially neglected by following theorists, and it appears somewhat blurred even in Mrs. Penrose's analysis, which can be considered as the most exhaustive discussion of the subject. In Penrose's view the amount of managerial resources available at any one time is the result of a "learning" process which is inherently *internal* to the firm. This means that existing managers can provide services that could not be provided by people newly hired from outside the firm, for the experience gained from working *within* the firm and *together* gives them a peculiar ability in coping with *their own* firm's problems. Such a peculiar feature of managerial capacity is considered with specific reference to the growth of the firm: "it is impossible for a firm to expand *efficiently* beyond a certain point merely... proceeding to hire people to fill the various positions and carry out the functions laid down in detailed 'job descriptions'" (Penrose, 1980, p. 46, emphasis added). In such a view, at any given period of time the rate of an *efficient* firm's expansion will be bounded by the rate of development of (internally) available managerial resources - the shortage of co-ordinating ability affects the *speed* at which a firm can expand, whatever the long-run potential width of the expansion itself[26].

Following Richardson, this hypothesis can be expressed in the assumption that "there is a functional relationship between the 'organizational efficiency' of a firm and its rate of growth, and ... the former will decline, after a point, as the latter rises" (Richardson, 1964, p. 11)[27]. The specific issue involved in this assumption is that the widening of firms' size requires some *more* costs than those which are represented by the sheer long-run cost curve: such a curve in fact merely defines "the levels of unit cost... attainable by a firm *already endowed* with an organizational structure appropriate to the corresponding scales of output" (p. 13, emphasis added), whereas the very process of developing the appropriate organization to the extent required by the "new" size is inherently costly, and cannot be carried out without an increase in the managerial resources available to the firm[28]. The existence of "growth" costs entails a structural check on the pace of a firm's actual expansion. But the very meaning of the "coordination problem",

as O.Williamson (1967) points out, lies in the fact that the possibility of some "control loss" affects the whole range of decisions a firm needs to take, whether it is growing or not. For since firms cannot have any precise advance knowledge of the circumstances they must adapt to, they have constantly to provide quasi-static adjustments which are quite incompatible with a "deterministic" equilibrium[29].

Therefore coordination will be essential even in the absence of an expansion of operations: growth can be viewed as a factor requiring *additional* direction, i.e. enhancing the need for a mechanism of control to work, "but in no sense is growth a necessary condition for the coordinating function to exist" (p. 125)[30]. Williamson's analysis stems from the main findings of the theories of bureaucratic behaviour developed since the late 1950s. Following Downs' "law of decreasing control", a model of a structural trade-off between the size of an organization and the strength of managerial control is suggested: to the extent that every additional hierarchic level implies some further reduction in the *direct* knowledge of the "bottom" problems on the part of the top management, a larger size will *per se* reduce the degree of efficiency of the operation units. In this view, the existence of some "bounded" rationality of the decision process sets a limit to the size of the "efficient" firm without requiring any downward-sloping demand curves or upward-sloping cost ones.

The existence of an "upper" bound to the size of the firm can also be envisaged from a quite different perspective, following Kalecki's "growing risk" theory.

In Kalecki's analysis (1939, 1954) it is assumed that a profit-maximizing entrepreneur - given the amount of his *own* capital - will set the investment at a level at which the marginal rate of profit is equal to the sum of the (market) rate of interest and the rate of risk. If this sum is assumed to be constant the amount of the capital invested would be finite only if the marginal rate of profit falls beyond a given level of the investment itself; according to Kalecki, however, both of the factors "traditionally" invoked as (negatively) affecting the relationship between scale and returns - i.e. large-scale diseconomies and imperfect competition - do not "cover the ground fully" (1939, p. 98)[31], and the root of the problem should be sought elsewhere.

The crucial issue of the approach is that in fact firms have to deal with a rate of risk which is *not* independent of the size of investment, for "the greater the investment the greater is the reduction of the entrepreneur's income from his own capital when the average rate of profit falls short of the rate of interest" (1939 p.

98). Therefore, whilst the marginal profit curve is assumed not to be downward sloping (indeed it appears perfectly horizontal), it is the curve representing the sum of the rate of interest I and the rate of risk R which - being in fact growing - determines an upper limit to the size of investment. Since for a given amount of investment the smaller the entrepreneur's capital, the greater the risk of impairing the income it can provide, at any one investment level small entrepreneurs will be faced with a higher (I+R) curve. On such a basis it is possible to derive an explanation for a limit on the *absolute* size of a firm, as well as for the *relative* sizes of firms to differ - simply, the size of each firm is determined by the private capital of the entrepreneur[32].

It is interesting to notice that in his 1954 paper Kalecki strongly stresses the relevance of the role played in this context by current profitability: higher profits can directly finance new investments, and - raising internal savings - can increase a firm's capital and enable it to contract new loans. The emphasis on the level of profits - viewed either as an autonomous source of finance and as a determinant of the "borrowing capacity" of the firm - brings this approach very near to the "dynamic" theory of the relationship between profitability and growth suggested by Downie (see section 2.2). Unlike Downie's approach, however, in Kalecki's view a firm's profitability is quite independent of the "state of technique" developed *within* the firm - whereas it is supposed to implicitly affect the size of an entrepreneur's capital, "past history" does not play any role in determining a firm's technology. From this point of view, the "growing risk" theory - like the "coordination-lack" one - still rests on an "extra-technological" explanation of the limits to the size of business firms[33].

2.4. Uncertainty, market efficiency, and vertical integration

In a "non-neoclassical" world, firms' decisions are affected both by market uncertainty and the (relative) efficiency of the price mechanism in allocating output among firms.

The first issue can be approached starting from Stigler's well-known analysis of the relationship between market size and the division of labour. Explicitly referring to the "emphatic endorsement" of Smith's theorem by Allyn Young (1928), Stigler (1951) restates the argument providing at the same time an attempt at "incorporating the extent of the market into competitive price theory" (p. 187). The central assumption of the approach is that each firm's average cost function can be viewed as the sum of separate (independent) cost functions, corresponding to "a series of

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distinct operations", which can be either increasing, or decreasing, or even constant; the point is that firms do not expand functions characterized by increasing returns - so becoming a monopoly - just "because there are other functions subject to diminishing returns, ... so costly that the average cost of the final product does not diminish with output" (p. 188)[34]. The optimal solution - abandoning the functions subject to increasing returns to some *other* firms which can *specialise* in them, so wholly exploiting the cost advantages they can yield - requires the size of the market not to be too small: in any case an expansion of the market itself will affect positively the division of labour. More specifically, it will allow the "new" specialized firm to become a monopoly, but confronted by elastic demands, for "it cannot charge a price for the process higher than the average cost of the process to the firms which are abandoning it" (p. 188). So, a theory of changes in firms' size is suggested which relies both on supply (the shape of cost functions) and demand conditions (market size); in such a context, growing industries will typically be characterized by vertical disintegration, whilst vertical integration should appear to prevail in declining ones.

But what about an industry in which demand is neither steadily growing nor shrinking, but widely "fluctuating" and subject to *fast* changes ?

Whereas from an historical point of view there is no doubt that the division of labour has been one of the most peculiar features of the development of industrial markets, it is hardly negligible that the widespread process of vertical disintegration that most countries have experienced in recent years has occurred despite a "stabilization" of market boundaries and a sharp increase in the volatility of demand; from this standpoint, a theoretical explanation of firms' behaviour has to be concerned with uncertainty and the need for flexibility no less than with "the extent of markets". A recent attempt to provide a framework for the analysis of this kind of phenomenon explicitly grounded on "Stiglerian" premises about the structure of firms' costs is offered by Contini (1984). Stressing the peculiar "stickiness" of the cost functions - each of them corresponding to different "distinct operations" - of the firm, this view emphasizes the role played by (consequent) risks of under-utilization of capacity in phases of wide demand fluctuations. Because cost functions - following Oi (1962) - are assumed to be generally steeper on the left side of the MES than on the right one[35], firms will be pushed to "buy" rather than to "make" as market uncertainty rises: other things being equal, firms' average size is argued to show an inverse relationship with respect to uncertainty, whatever its relationship with market size may be.

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This conclusion appears very close to that proposed by A. Robinson, who, maintaining that smaller firms enjoy "a certain advantage where changes of product are frequently necessary" (1953, p. 86), argued that "the existence of risks and fluctuations leads in general to smaller units, and in particular to smaller technical units, than would be economical were production carried on continuously and evenly" (p. 102).

In a similar perspective can also be set the analysis by Mills and Schumann (1985), who propose a model in which a tradeoff between two different technologies ("static-efficient" and "flexible") is assumed. The model postulates that with stationary demand only static-efficient firms will survive, whilst if demand fluctuates it will possible for firms with higher average costs also to survive, provided they are "sufficiently flexible". The point is that the theory associates - almost arbitrarily - greater flexibility with smaller-sized firms and lower (minimum) average costs with larger ones; to put it another way, "small firms rely more on variable factors than the large firms, and the latter enjoy scale economies" (p. 759). The model is therefore expected to predict that the intertemporal variability of output will be inversely related to firms' size, for small firms are assumed to absorb a "disproportionate share" of demand fluctuations - in such a context, the existence at one and the same time of both of the groups of firms can be considered as a *structural* feature of each industry "capable" of successfully coping with demand fluctuations.

Also centered around the joint effects of technological factors and demand forces upon business size is the analysis by Davies and Lyons (1982), whose framework is however extended to encompass the role played by stochastic determinants of firms' growth[36]. The attention paid to the latter, in particular, allows the model to take in account both the "technical" relationship between MES, concentration and the number of firms in each industry, *and* some measures of "luck"; the upshot of the empirical investigation in fact casts light both on MES and a set of variables affecting the probability of entry (among which is the elasticity of demand) as the most relevant determinants of concentration.

Viewed from the standpoint of vertical integration, the extent of firms' boundaries (of firms' size) cannot be analysed without considering the inefficiency of the price mechanism in coordinating resource allocation; and in such perspective a major role is played by information costs.

The cornerstone of all approaches referring to the existence of market failures is of course Coase's famous article (1937), and its assumption that the organization

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of economic activity inside the firm simply reflects the supersession of the (relatively inefficient) price mechanism. In this perspective organizing production via market prices unavoidably implies some costs which *can be* higher than those resulting from internalizing production within an organisation and giving some director the authority to direct it. A firm can be considered as a system of relationships - directed by an entrepreneur - growing insofar as some transactions which could be coordinated through the market fall under the entrepreneur's control. According to Coase, this approach "would appear to offer...a scientific meaning to what is meant by saying that a firm gets larger or smaller" (p. 393): other things being equal, a firm's growth will be positively related to the "costs of organizing" and negatively related to the mistakes of the entrepreneur, and will favourably be affected by any decline in factor prices as size increases.

It is important to stress that the essential feature of Coase's analysis is "the fact of direction": the specific element which characterizes a firm's existence is the principle that authority replaces market prices in coordinating transactions[37].

This view represents the root of the developments of transaction costs analysis set forth in more recent years by Oliver Williamson (1975, 1981). Apart from Coase, Williamson's approach appears basically grounded on three main theoretical premises: the existence of an "economic value" of information (see for example the discussion in Arrow, 1984), bounded rationality (Simon, see in particular 1955a and 1979)[38], and the possibility of opportunistic behaviour of agents. In such a world, comparative costs of alternative governance structures have to be continuously evaluated by agents who differ from "economic man" in that "they are less competent in calculation and less trustworthy and reliable in action" (1981, p. 1545).

This framework implies some relevant differences with respect to "traditional" analyses of firms' behaviour. Firstly, uncertainty is not viewed as being a cause of market failure by virtue of its sheer existence - indeed, it is the *joint* effect of the factors above mentioned which turns out to thwart the working of price mechanism. Secondly, the central object of the analysis is to be found in transactions and internal *organization* and not in technology[39].

Organizations take the place of market transactions on the basis of an "efficiency principle" (firms do optimize): efficiency is rooted in the fact that authority (hierarchy) can eliminate any conflicts among the agents inside the organization, providing through vertical integration a way of economizing on market

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inefficiencies due to bounded rationality and opportunism. Firms' growth stems in this context from the failure of the price mechanism to provide efficient information owing to the (structural) absence of "efficient agents"; whenever transactions appear to be recurring and involving specific assets (so that parties would incur relevant capital losses by redeploying the assets themselves), growth will be enhanced.

The framework developed by the "transaction costs tradition" offers a plain explanation of why *some* resources are managed within a hierarchy rather than allocated through the market mechanism; yet, it envisages the whole question of the division of labour in terms of a very sharp dichotomy between firm and market, without providing any theoretical explanation about different ways of coordinating economic activities which can yet be observed in the "real world".

This problem is explicitly raised by Richardson, who argues that such a dichotomy may be strongly misleading, for it "ignores the institutional fact of inter-firm co-operation and assumes away the distinct method of co-ordination that this can provide" (1972, p. 895). According to Richardson "pure" market transactions are a very limiting case, for the relationship between buyer and seller is always characterized by some degree of cooperation. In fact, the ways of coordinating economic activity can be considered as ranging along a *continuum* from transactions in which the element of cooperation is minimal to more and more complex "clusters, groups and alliances" where cooperation becomes gradually stronger[10].

The crucial issue is that organizations will tend to specialize in activities in which they can enjoy some comparative advantages, so that dissimilar activities will in general be the responsibility of different firms; networks of cooperation will emerge as an answer to the need for coordinating dissimilar activities when they are also *complementary*[11].

This view, as explicitly suggested by Richardson himself, is "not inconsistent" with Coase's explanation of firm's boundaries in terms of the (relative) costs of market transactions; moreover, it provides an explanation of *which factors* do affect these costs, paying attention to the degree of similarity of activities[12] as a (broadly defined) "technological" determinant of the division of labour among firms.

In a more specific framework, the principle of cooperation can provide the basis for the analysis of "localised" inter-firm linkages, such as those which characterise

industrial "local systems" (districts). In this context, the Coasian "authority principle" is replaced by a peculiar mix of cooperation and competition among firms, which can take the form both of vertical and horizontal relationships. As recently pointed out by Wilkinson and You (1994), the very success of industrial districts reveals the fallacy of the "orthodox" assumption that competition at *all* stages of the production process is an "unmitigated virtue"; insofar as cooperative interdependence replaces sheer individualistic competition (this being in its turn closely dependent on the support of local institutions), asset specificity and information asymmetry can be counterbalanced: "the more effective... cooperation..., the greater the degree of certanty and the more long-term will be the decision making" (p. 276). Hence, the soundness itself of inter-firm relationships sets the premises for small firms *to remain small*: if the "system" works, then there may be no need at all for firms to grow.

A quite different way of approaching the problem of coordination, also departing from the "authority principle" (indeed, explicitly denying its existence) can be envisaged from the perspective of "property rights" theories; such a view, which all the same attaches great importance to technological factors (although conceiving them in a way which appears far different from Richardson's), stems from the crucial hypothesis that the firm has not any power superior to that available in the market, so that the essence of the organization *cannot* be the use of authority to coordinate resources. In the well-known words of Alchian and Demsetz: "Telling an employee to type this letter rather than to file that document is like my telling a grocer to sell me this brand of tuna rather than that brand of bread" (1972, p. [112]).

According to this extreme view, which excludes the notion that agents within an organization interact as superior and subordinate, the firm is nothing but a particular kind of market - indeed, it is conceived as a "nexus of contracts" in which transactions do not follow thoroughly different rules with respect to market ones. In this world the only specific character of the firm has to be found in its "team" use of inputs: more precisely, the theory assumes that if agents cooperate through an organization they "will make better use of their comparative advantages" (p. [112]), that is the output obtained will be larger than the sum of the outputs that could be obtained if inputs were used separately.

This assumption obviously implies that it will also be difficult - differently from a market situation - to identify the marginal productivities of the individual "members of the team", and even that individuals could be encouraged to shirk.

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But the peculiarly higher productivity of the "team option" will yield enough resources to reward a "specialist" who can monitor input owners, ensuring - by virtue of his power to revise the contract terms - that they will work efficiently. Upsetting the traditional relationship that runs from productivity to distribution, Alchian and Demsetz view the contractual structure of the firm as a means of enhancing the outcome of jointly used inputs: several input owners "work so hard" because one party common to all contracts knows the "correct" rewards they are entitled to. Organizations emerge and grow because of the higher relative efficiency of team production.

While apparently rejecting some features of the neoclassical theory of the firm (for example, excluding the coincidence of the firm with the entrepreneur or admitting some degree of market failure), this approach clearly requires a wholly neoclassical behaviour of agents within the organization. The very meaning of the "principal-agent hypothesis" lies indeed in its assumption that a firm's *internal* behaviour closely follows "market" rules: the fact that each member of the firm acts according to his self-interest unavoidably yields an "optimal" behaviour (maximum efficiency) on the part of the firm itself. At the same time, much emphasis is placed upon the assumption that each member of the "team" is an "owner" of some assets, but the role of the ownership of the *firm* appears quite irrelevant - to be sure, there is not any firm at all to be owned. This basic framework does not seems radically changed even in the more recent model by Hart and Moore (1990), who, on the other hand, do actually view the problem of ownership as most relevant in determining the degree of vertical integration of firms. In fact, even if in this model agents' actions - and peculiarly firm's investment - closely depend on *who* does own the different assets of the firm[43], its basic implications are by no means at variance with the view put forward by Alchian and Demsetz against Coase - who maintains that an employer *can* tell an employee what to do. Trying to reconcile the two positions, Hart and Moore suggest that in an employment relationship one agent will be likely to do what another agent wants simply because the latter owns some assets he has to work with - so that his "future livelihood" depends on those assets.

The point, however, is that authority and control can be exerted even in the absence of any "non-human" assets (despite the somewhat contrary assertion by Hart and Moore), for there actually is nothing which can prevent "a boss direct control over workers' human capital" (pp. 1150), even "in the absence of slavery"[44].

3. Goals

"There can no longer be any doubt that the micro assumptions of the[neoclassical] theory ... are contrary to fact. It is not a question of approximation; they do not even remotely describe the processes that human beings use for making decisions in complex situations" (H. Simon, 1979, p. 510).

3.1. From market allocation to organisational complexity - a premise

From a theoretical standpoint the hypothesis that firms do maximise profits - which plays a key role in neoclassical analysis of firms' growth - is rooted in three main postulates: 1) each firm acts as an individual agent, so that it is possible to identify the goal of the firm *as such*; 2) this particular kind of agent is perfectly rational - other than perfectly *informed* - and therefore aims to maximise its own welfare; 3) if firms did not choose profit as the "welfare function" to be maximised, then they would inexorably be driven to failure by the sheer strength of market competition.

Whatever its internal consistency may be[45], any theory grounded on such a set of hypotheses undoubtedly represents a tough challenge to factual evidence: were all firms owner-managed, all owner-managers wholly rational, and all markets quite competitive, profit maximisation would necessarily represent the only way to firm's success (survival), and neoclassical analysis would indeed provide a theoretical explanation for *real* firms' growth. But insofar as real firms *do not* actually behave as in neoclassical prescriptions, alternative *theoretical* explanations for the phenomenon have to be suggested[46].

With respect to a "Friedmanesque" view of the problem the point raises a key question. According to Friedman (1953) the alleged *implicit* weakness of profit maximisation theory - generally attributed to the lack of realism of its assumptions - simply cannot be demonstrated, since the realism of any theory can only be assessed testing its "predictive power": the degree of reliability of profit-maximization theory is anything but an *empirical* question, and it cannot be undermined by any unrealistic postulates.

As is well-known, Friedman's view has been severely criticized in several contributions[47]. From the point of view of the present paper, a crucial issue in this context is represented by the fact that testing a theory does not just mean providing a logical *explanation* for a phenomenon, for even if the theory itself yields "accurate

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predictions", it may all the same lack any explanatory power, if its assumptions are *false*[48]. It is one thing to say that "the relevant question...about the assumption of a theory is not whether they are descriptively 'realistic'..., but whether they are sufficiently good approximations for the purpose in hand"; it is rather more to assert that "this question can be answered only by seeing whether the theory...yields sufficiently accurate predictions" (Friedman 1953, p. 15). The point is that economic analysis also needs to know *why* a given behaviour (be it "accurately predicted" or not) is supposed to occur - i.e. it needs an explanation of *how* (complex) organisations *do behave*[49].

Abandoning at least one of the above mentioned postulates requires a shift from the analysis of a (sizeless) decision maker, engaged in optimizing the allocation of given resources among markets via the price system, to the analysis of the firms of the "real world" - in the words of Edith Penrose, "the innovating, multiproduct, 'flesh-and-blood' organizations that businessmen call firms" (1980, p. 13).

3.2. Ownership, control, and discretionary behaviour

Firms are organizations, and making decisions within an organization involves more than one agent. Understanding firm behaviour requires identification of the role each agent plays, according to his *own* goals.

Since Berle and Means' contribution (1932), organizational theories have given economics crucial insights on how to approach the analysis of firms' behaviour, stressing the relevance of *individual* preference functions in determining *firm* decision making processes[50]. Hinging on organizational analyses, the economics of the firm has gradually succeeded in "leaving the realm of unconscious cooperation via market system", developing a conceptual framework for the treatment of *intra*-firm problems (see in particular Papandreou, 1952, and Boulding, 1952).

From the point of view of growth theory, the basic issue stemming from such a background can be found in the recognition of the separation of control from ownership, brought about by the diffusion of joint stock companies. First claimed in Berle and Means' book[51] and thereafter widely debated in "managerial" literature, the existence of an *autonomous* role of the business leader with respect to a firm's owners lies at the very heart of the modern analysis of growth "strategies": in non-owner-managed firms rationality can be consistent with maximisation of other things as well as profits[52].

Chronologically, the first attempt to develop a theory of firm growth based upon the hypothesis that firms do maximize something else than profits is that of Baumol (1959). According to his approach, businessmen (driven by "personal self-interest") may show special concern about the magnitude of their sales, up to the point that they may even become an end in themselves. The best key to appraise the point is perhaps in Baumol's own words: "...it is common experience that, when one asks an executive, 'How's business?', he will answer that his *sales* have been increasing (or decreasing), and talk about his profit only as an afterthought, if at all" (p. 47, emphasis original).

In this perspective profits simply become a means whereby managers can ensure a sounder ground to sales maximization: "so long as profits are high enough to keep stockholders satisfied and contribute adequately to the financing of company growth, management will bend its efforts to the augmentation of sales" (p. 50).

The basic assumption of Baumol's model is that the output level which maximises firm's sales (i.e. the level at which marginal revenue is equal to zero) may differ from that required to satisfy the usual conditions of competitive equilibrium (i.e. the level at which marginal *profit* is equal to zero); since the former will generally be higher than the latter[53], the firm choosing to maximise its revenues will at the same time earn a lower profit than the maximum it can get. The crucial issue in this context is to define *how low* profit can be. According to Baumol, a firm's profits cannot fall below the level which *for some reasons* is the minimum consistent with the firm's financing and "stockholders' satisfaction"; the model however does not provide any criterion to define the amount of both of these requirements, so that the level of the profitability constraint is left undetermined. Correspondingly, the amount of a firm's sales will also be undetermined, and nothing can be known about the firm's (output) size[54]. So, one major shortcoming of the model can be found in its disregarding the analysis of the ways owners and executives relate to each other, which constitutes the very basis of "managerial" theories.

Indeed, the very existence inside the firm of two separate groups characterized by different *functions*, other than different goals, suggests the need for an analysis of the *institutional* relationship between them. From this point of view, the analysis of managers' and stockholders' behaviour cannot neglect the *financial* linkages whereby the former turn out to be subject to the control of the latter.

It is Marris' model (1964) which first drew attention to the financial mechanisms tying the two main drives "modern enterprises" are subject to[55], arguing for a

theory of the *growth* of the firm which crucially hinges on a theory of stock market valuation.

The need for an analysis of the influence of the stock market on firms' behaviour is set within the very premises of "managerial approaches": insofar as the joint stock company replaces the "entrepreneurial" owner-managed firm, management policies affect share prices, for "they are bought and sold in an organised market" (1964, p. 18); fluctuations in share prices, in turn, are argued to entail relevant consequences for management behaviour.

The model is built on the basis of a perfectly autonomous, non-neoclassical theory of demand, a formal re-statement of some relevant issues in the theory of organizations, and an original approach to the theory of corporate finance. Although widely drawing on previous theoretical research (most notably, apart from Baumol himself, the contributions of Downie, Penrose, and the main findings of the "Carnegie School" research programme developed in the works of Cyert, March, Simon[56]), Marris provides a wholly original, integrated theory of firm behaviour, as peculiarly characterized by a structural tendency toward *physical* growth[57].

In a few words, the "core" of the model lies in the assumption of a trade-off between the (maximum) percentage of total profits which can be retained to finance the growth of a firm's assets[58] and the (minimum) level of share prices which avoids possible takeovers by other companies (such a level depending in its turn on how *relatively* attractive a firm's shares are, given current dividends). It should be stressed that managers are assumed to set the pace of a firm's growth according to the "take-over constraint" (i.e. they adopt a "safe" dividend policy) because they are concerned for *their own* security - for possible take-over is deemed to imply a change in management itself. That is, no one claim on the part of the firm's *present* shareholders is assumed to limit executives' preference for faster growth, the only constraint being represented by the (new) *potential* shareholders who can get the control via takeover.

The rate of expansion of firm size, on the other hand, is not independent of any restraints on the demand side; specifically, it has to face the fact that "many products do fail", so that the growth process consists "in the successive marketing of new products,...some of which...explode to eventually saturate while the remainder...are withdrawn" (1964, pp.184-85); so, promoting demand will require growing diversification (products are *not* homogeneous), that is growing expenses for promotional activities. Managing a growing demand will at the same time involve

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falling levels of efficiency, for a "Penrose" managerial constraint is assumed to work[59]. On the whole, an inverse relationship between growth and profitability will be observed.

As acknowledged by Marris himself (see Marris, 1971), the model is built upon the assumption of a steady-state pattern of growth of the firm: if external conditions (and therefore executives' strategies) do not change over time, the "managerial firm" - unlike the Penrose one - will grow at a constant pace[60]. Such a feature, however, hardly appears consistent with the refusal of a passive ("neuronial") role of the firm in the competitive process. Firms are assumed to behave as *active* agents constantly (and often successfully) endeavoring to *modify* their environment, most notably on the demand side (they *must* innovate to get larger, i.e. to satisfy the goals of their "leaders"): their very behaviour yields in its turn *structural* changes in the external conditions they are dependent on. Marris' attempt to reconcile both the issues by suggesting the idea of a "super-environment" not immediately influenced by firms' strategies (as opposed to the "closer" environment which firms can and actually do change by virtue of their "normal" activity) cannot be considered wholly satisfactory. The super-environment itself, in fact, is conceived as an exogenous set of factors which each firm cannot control other than in the long run; whereas this *escamotage* gives the model some more consistency (it sets some narrower boundaries to firm action), it nonetheless does not account for the fact that the super-environment itself may depend upon what *other* firms do; and this is indeed very likely to happen in the presence of oligopolistic interdependence, which can ultimately characterize the super-environment as endogenous.

An attempt to overcome such shortcomings has been provided in more recent times by Mueller (1972), who discusses the problem of growth in the context of a "life-cycle" hypothesis of companies' behaviour. Following Marris, the model assumes that the primary goal of executives is to expand - or at least maintain - the size of the company. The peculiar feature of the model, however, is that a non-steady state pattern of growth is supposed to operate, so that the conflict between managers and stockholders will *not* be a *permanent* characteristic of firm's life. Specifically, it is hypothesized that the process of growth is a distinctive feature of "young"[61] firms involved in a process of rapid development associated with high profitability. Whilst in this phase no conflict will arise between owners and executives, as investment opportunities decline some "visible change" in dividend policy will take place, and a (more or less gradual) shift to growth maximisation will be pursued. Since it is supposed that "the stockholder is generally powerless to prevent this" (p. 209), managerial interests will prevail.

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Developing his analysis virtually in the same years as Marris - and indeed revealing a broadly common background with his view - Williamson (1964) provides a theory of managerial discretionary behaviour which is far more oriented than Baumol's to the analysis of a firm's decision-making processes, and at the same time extends (beyond Marris himself) towards the hypothesis of non-optimizing behaviour.

Also referring to the "managerial" contributions ripened within the "Carnegie School" environment (but also declaring his debt with respect to Smith, Marshall and Keynes himself, apart from Berle and Means), Williamson discusses in depth the main motivational foundations of the "managerial discretion" hypothesis[62]. The starting point of the analysis is the assumption that profit is not identical with utility, and individuals can derive satisfaction in *more* than one way; therefore, "in the absence of acceptable *a priori* arguments for establishing profit maximization as the appropriate behavioral assumption, recourse to a different line of investigation is required" (p.27). Since agents are assumed to be rational, and firms to be governed by managers, managerial motivation plays a central role in the matter; from this point of view Williamson draws attention to the existence of an "expense preference" of the executives, which is in contrast to the conventional habit of economic theory to treat all costs symmetrically: that is, in his model managers are explicitly assumed to be characterised by "positive tastes" toward *some types* of expenses (particularly, those regarding the expansion of staff and the emoluments)[63]. While managers rationally try to maximise these kinds of expenses (i.e. they *do not* seek to minimize *all* costs), the stockholders, who in Williamson's view "are not totally ignorant, fractionated, or entirely passive" (p.36), require some minimum level of profit (which will depend upon the relative performance of rivals, the past performance of the firm itself and so on)[64]. The higher the profit of the firm in absolute terms, the wider the "discretionary profit" (defined as the amount by which earnings exceed the minimum constraint) that managers can devolve to their goals. The actual amount of the latter will be a function of the effective degree of market competition[65], and under conditions of pure competition the "discretionary" model will converge to the same results as those of a model based upon profit maximising assumptions[66].

From the point of view of the theory of the firm, the most relevant issue in Williamson's approach lies perhaps in its highlighting the possibility that the very nature of a firm's internal running can (and normally does) involve a *systematic* drive toward non-optimizing behaviour: managers do not usually pursue the maximisation of any *firm* performance measure whatsoever, whether it is

represented by profit or by sales; and albeit the "expense preference" enhances the possibility for the "managerial" firm to expand its size (staff) faster than the profit-maximizing one, to the extent that "emoluments" expenses are also admitted not even assets' growth will be pursued in *every* circumstance.

The developing in the mid-1960s of a "managerialist" view of firm growth processes is furtherly buttressed by the contribution of Kenneth Galbraith (1967). Significantly, Galbraith refers to the corporations as the "modern industrial society" itself[67]. For since such firms are typically controlled by their management (the heart of the "technostructure"), and salaries are assumed to vary with scale - not with profits -, in the most relevant part of the economy returns maximization does not occur. More precisely, once safety is ensured by a secure minimum of earnings, the main goal of the corporation becomes "to achieve the greatest possible rate of corporate growth as measured in sales" (p. 171), for the expansion of the firm (of the technostructure itself) brings about more promotion and compensation. But above all growth is pursued because it is "the best protection against contraction", that is it helps in "taking the organization together". Sometimes stated in rather apodictic terms, but nonetheless always supported by continuous references to the realm of "real" firms, Galbraith's theoretical approach has relevant implications about the role that large corporations play inside modern industrial societies; and it pushes the "managerial view" towards an even more radical perspective - the corporation is conceived as "an instrument of planning that trascends the market", up to the point that "the goals of the society will tend to be those of the corporation". Yet, the very attention paid to the growing autonomy of managers and the gradual diminution, in theoretical terms, of the stockholders' role[68] - which in Galbraith's contribution receives so strong an emphasis - eventually tend to afford an oversimplified representation of companies' internal structure. In particular, they blur the possible *complexity* - often related to firms size itself - of the relationships between owners and executives.

In the course of the 1970s and the 1980s, a growing body of empirical literature attempted to confirm (as well as to deny) the existence of "managerial" behaviour of firms by measuring their performance. From this point of view, the main problem is perhaps represented by the looseness of the definition of control mechanisms. As Cubbin and Leech (1983) point out, theoretical categories of control type cannot simply be based on a sheer dichotomy between managerial-controlled versus owner-controlled firms; they must take in account the fact that control ranges along a *continuum*. The line to be drawn to distinguish between a firm which is controlled by its shareholders and one which is controlled by its executives depends

on how many shares are necessary to get the majority of votes: equity ownership does not necessarily equate with control[69]. The point is that the degree of control must "embody the concept of winning votes" (p. 356), and every attempt to define a critical value for control in empirical analyses - even if based on merely intuitive grounds, as it usually is - necessarily *implies* the existence of a voting mechanism. Indeed, as far as the implications for the theory of growth are concerned, the need for a more precise statement of the boundaries between ownership and control had already been put forward by McEachern (1978): arguing that owner-managed firms may show a similar pattern of growth as managerial ones, for they are both driven by personal self-interest, McEachern suggests that only "externally controlled" firms (i.e. those where owners are not actively involved in management) may be characterised by a lower tendency toward growth[70].

In a wider perspective, it can be said that inasmuch as operating decisions do affect the *overall* financial structure of the firm (equity and debt structures being closely interrelated), the classification of control types ought to take in account *the whole range* of agents who may have some interest in monitoring executives' behaviour. As has been recently stressed[71], from this point of view the role played by financial institutions, both in terms of debtholders and in terms of controllers of stock, in particular cannot be neglected. As far as the behaviour of such institutions with regard to companies' performance is concerned, however, the evidence hardly appears straightforward: in particular, it is far from being clear whether their growing importance may involve a strengthening of "the forces making for greater profits" (as maintained by Nyman and Silberston, 1978), or not (as suggested, at least hypothetically, by Cosh and Hughes, 1987)[72].

On the other hand, the whole question of testing the impact of ownership and control structures on companies' behaviour appears somewhat affected by a global lack of a *general* formulation of the "managerial view" itself: even if some "separation" of executives' interests were anyway acknowledged, no univocal inferences about firm's behaviour could be automatically drawn from it, for *in theoretical terms* managerial theories are characterised by a basic disagreement over what the utility function of managers (and its related constraints) should contain[73].

Nonetheless, albeit sometimes appearing a rather moot point, evidence on whether management-controlled firms do show a fairly different performance cannot be does exist: and the lack, at the empirical level, of a clear-cut pattern of performance according to firms' control structures can hardly testify to a failure of the "managerial challenge" to neoclassical theory[74].

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The overall difficulty in rejecting the basic postulates of the managerial view (first of all, the existence of an executive-specific motivation) has eventually shifted the focus of contention from the analysis of business motivation to the search for some "external" factors. For while it can not be (definitely) said that executives *aim* to maximise profits, it is claimed that if they *did* not the market price of (their own) company shares would decline, fostering external take-over and the (consequent) replacement of management itself[75]. Hence, Manne's (1965) hypothesis of a "market for corporate control" has been given new emphasis, and as Singh observes (1991, p. 5), "the analysis of the market for corporate control...has become the final line of defence of traditional theory".

But to what extent does such a market exist? As Singh himself argues, both theoretical and empirical reasons suggest that we should not rely too much upon the idea that the stock market can work efficiently; in particular (and most relevant with respect to the theory of growth of firms) one of the basic imperfections in the market for corporate control[76] depends on the point that - as empirical evidence suggests - "a relatively inefficient large company has a lower chance of being acquired than a relatively much more efficient smaller company" (p. 10), so that there exists an important asymmetry in the way firms can "threaten" each other. Hence, the takeover mechanism itself can involve a "perverse" result, *sub specie* of an increase in the size of *inefficient* firms, instead of an improvement in firms' profitability.

In a quite different perspective, the analysis of the relationship (and the conflicts) between owners and managers has been addressed through the language of institutional economics (particularly that of agency theory). From this point of view, it is argued that managers' discretion is generally allowed by imperfect (asymmetrical) information and incomplete contracts, and that shareholders (principals) can limit managers' (agents') discretion and reduce the divergence of goals by adequate incentive contracts[77]. As noted by Simon (1991), the fundamental feature of this approach is that it rigidly sets the analysis of company behaviour within the boundaries of market theory; and at the same time it by no means provides any more empirical evidence than "managerial" theories to support the analysis of agents' behaviour[78].

An even more different line of reasoning - in particular as it concerns the role of managers - characterises the contribution by Aoki (1984), who sets his analysis within the framework of game-theoretical approaches. According to Aoki, one of the main limits of the dispute between neoclassical and managerial theories lies in

the fact that both of them (even in the "institutionalist" version) identify the goal of the firm with that of a *single* type of agent: "the other actors enter into the theories...only as passive conditions to which the firm must adjust in finding the solution that is optimal to it" (p. 56). Hence, Aoki suggests approaching the question assuming that - unlike in the neoclassical view - the distribution of rewards inside the firm is not uniquely determined by the external market, so that the firm itself can be viewed as "a field of bargaining". In this perspective a model is developed which assumes that the peculiar function of managers is to *mediate* between shareholders and employees; that is, to provide a cooperative-game solution to the (potential) conflict which may arise between the two parties about the desirable pattern, over time, of the "organizational rent stream".

In this view, managers are assumed to behave in a wholly neutral fashion, up to the point that they "may be thought of as a mere personification of intrafirm equilibrating process like the Walrasian auctioneer" (p. 62)[79].

Basically, the model describes the process by which managers mediate internal distributional claims in terms of an *implicit* bargaining (i.e. no production takes place until an equilibrium is reached). The organizational equilibrium is obtained by formulating managerial policies which lead to a state in which no one of the game players can raise its utility without risking a higher expected loss of utility owing to the possible withdrawal of co-operation by the other player. In a dynamic perspective, employees - as in Marris' view - are thought not to be indifferent to the rate of growth of the firm, owing to the expectations of promotional gains; however, assuming that it is unlikely that only benefits from growth will accrue to them[80], it is showed that the rate of growth will be an inverse function of the strength of employees' bargaining power.

3.3. The "non-optimizing firm": adaptive behaviour, selection, and organisational change

Moving from the market into the firm brings us face with the ways organisations behave. Following Simon, it implies a need to substitute the analysis of the conditions of (long-run) equilibrium of optimizing agents with the analysis of the ways whereby an adapting organism copes with the complexity and the rapidity of environmental change[81]. In this perspective, one of the most relevant contributions to the analysis of "real" firms' behaviour which has been provided by organisation theories is the highlighting of a specific limit of the "traditional" theory of the firm: namely, the assumption that all the agents other than the

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entreneur merely represent some *passive* conditions in the optimization process. As suggested by Simon himself, from the point of view of organisation analysis the various "participants" are generally viewed "in a more symmetrical fashion"; and such a different view is closely related to the fact that this approach "has generally been concerned not so much with optimality as with the conditions necessary for organisational survival, that is, the conditions under which the participants will continue to participate" (Simon 1952-53, p. 42)[82].

The point is: is the sequence of actions (the decision process) leading to survival the same as that leading to optimality? That is, what kind of behaviour characterises organisations whose goal is "simply" to survive?

The answer provided by the "Carnegie School" research programme - which represents by far the strongest effort to set up a theory of the firm on behavioural bases[83] - is grounded upon the principle that there is no reason at all to assume that a long-run equilibrium will *ever* be attained. Empirical observation is evoked to show that firms' behaviour is "significantly constrained by limitations of information and calculation", which make "explicit and timely calculations of optimality...costly or impossible"[84]. Hence, firms will "set targets and look for alternatives that satisfy those targets, rather than try to find the best imaginable solution" (Cyert and March, 1992, p. 214). In the short run, their "bounded" rationality leads to a *sequential* ("myopic") search for "local" goals (basically carried out following rules of thumb); in the long run, the "inefficiencies of history" involve some sort of "mismatching" with the environmental setting (the organisational adaption may evolve very slowly). Eventually, firms' efforts will result in "satisficing" behaviour - as far as the actual policies allow the firm to achieve the (specific) goal it is pursuing, no search for alternatives will be followed (search intensity being directly related to failures)[85].

With respect to the theory of growth, the conclusion that bounded rationality does not allow firms to maximise any goal at all - whether it is profits, sales, assets or anything else - raises some crucial questions. Firstly, it emphasises that the process of development of firms responds to a whole set of generally *unpredictable* ("continually moving") targets. Secondly, insofar as *all* goals must be satisfied, it makes it practically impossible to identify any single goal which can prevail in the long run - indeeed, it makes it difficult even to establish a rank.

By the way, it is indeed very impressive to notice how close this view is to the (almost completely neglected) model developed in the same years, but on a wholly

different theoretical basis, by A. Mackintosh (1963). Emphasizing that firms may have *several* goals - each of which may *not* represent a *final* purpose - and drawing a fundamental (and explicitly acknowledged) lesson from Timbergen's approach to the theory of economic policy, Mackintosh argues that "the courses of action which a firm may adopt in order to achieve its goal are called instruments", so that an instrument "can be thought as a sequence of choices" (p. 23)[86]. The main point is that at any one time a set of "boundary conditions" applies to the alternative choices the firm has to cope with: different firms will be characterised by different patterns (and the pattern of each firm will change over time). In this view the process of development of the firm is bounded by some restrictions in the choice of instruments, so that it turns out as the outcome of a continuous adaptation to actual or anticipated changes in external circumstances.

Whilst Mackintosh's approach has been largely ignored by subsequent scholars[87], the hypothesis of adapting behaviour stemming from the "Carnegie School" studies has proved to be especially fruitful, becoming a most relevant root for further developments in the theory of the firm (see below).

This framework raises the question of *what* makes actual economic systems appear to be much more a sum of *organisations* than a sum of market relationships - in behavioural terms, what pushes individuals to "submit [their] personal aims to the established organization objectives" (Simon, 1976, p. 110)[88].

In Simon's view[89], the point can be best understood focussing upon the forces affecting "real people" *motivation* in business organisations. The fundamental mechanisms whereby individuals become involved in organisations are maintained to be i) the acceptance of (a peculiar form of) the "authority" relationship, according to which employees are motivated to take initiatives which lead to the achievement of goals to a much greater degree than could be extracted by their "minimum" effort)[90]; ii) the level of rewards; iii) a "loyalty" principle (leading to identification with organisational goals); iv) coordination (which replaces the market mechanism). All these mechanisms, which are maintained to be ignored by "new institutionalist" approaches, enforce organisational efficiency, and therefore set the premises for economic activity to be carried out *inside* the firm. They are at the root of the fact that *large* organisations "dominate the terrain of our economic systems" (1991, p.43).

A further contribution in the outlined perspective, which despite its relevance has been almost systematically disregarded by subsequent literature, has been provided

by Reder (1947). The basic assumption of Reder's approach is that the profit maximisation hypothesis may indeed be a "reasonably accurate explanation" of the way firms actually behave, but at the same time there are *alternative* hypotheses which are plausible *a priori* and which may prove to be appropriate. The task to decide which theory is relevant is assumed to be left to *empirical* research.

In general, the strength with which profit maximisation is pursued is a function of the degree of effective competition in the market for products[91]. But there is a much more specific way whereby deviations from the goal of maximum profit may occur: namely, the possibility that an entrepreneur's behaviour is constrained by the perceived danger of losing control of the firm, which may arise from an excessively fast growth. Reder shows that if the *rate* of growth of the firm exceeds a given amount the share of the *firm's* equity owned by the entrepreneur may fall quickly, so that the desired rate of growth may be lower than that corresponding to maximum profit - in any one period the firm's output may be less than if there were no "control" constraints[92]. The point is that "the entrepreneur often maximizes *his* equity and not the present value of the firm's net worth" (p. 455, emphasis original). Therefore, two identical entrepreneurs, with the same knowledge, facing the same cost functions and making the same forecasts may acquire *different* amounts of inputs - at given prices - just because one chooses to maximise profits, i.e. the present value of the *firm's* assets, while the other aims to maximise the present value of *his own* assets.

A major feature of this approach is that it treats the possible deviation from profit maximising behaviour without recourse to any assumptions about the "separation" of the control sphere from that of ownership. The model does not imply any trade-off between profits and growth (indeed, the higher the rate of growth, the higher the amount of *firm's* profits). Simply, it is assumes that the firm's objectives are not the same as the entrepreneur's[93].

Also starting from the relationship between "market pressure" and cost minimisation - but curiously enough not referring either to Scitowsky or to Reder - H. Leibenstein develops his X-efficiency theory, which extends the analysis of non-optimising behaviour even beyond the boundaries of "monopolistic" situations[94]. The theory argues that individuals *select* degrees of rationality, i.e they strike a compromise between the way they would like to behave and some "pressure" they feel because of their "sense of obligation". Since the extent of the compromise normally differs for different individuals, the relation between inputs and outputs will *not* be a determinate one - that is, "identical purchasable inputs at

identical prices and equal access to knowledge of the state of the art will normally lead to a wide variety of outputs under different organizational circumstances" (1975, p. 580)[95].

Albeit not explicitly envisaged by Leibenstein, the implications of such a theory for the growth of firms are by no means irrelevant: size becomes no more closely dependent upon the optimisation process. Specifically, firms may become (physically) *larger* than they were if they "optimised", i.e. than it were required by the sheer level of their output flow. The long run average cost curve loses any significance as a "guideline" for the growth path of the firm.

The above mentioned approaches attach a key importance to motivation in determining the magnitude of agents' strives towards optimisation. This point is on the contrary completely ignored by the "natural selection" view, according to which motivated behaviour may simply play an apparent role in determining firm "success" (fitness), for - whatever the strategy chosen by the firm to adapt to its environment - it is the environment itself which "decides" which firms to *adopt*. As formulated in the famous article by Alchian (1950), the theory states that the very question of whether motivation may induce firms to deviate from maximum profit is itself meaningless, because firms *cannot* know in advance whether the outcome of their actions will be the "maximum" one or not - they cannot know what is the (only one) action which will bring about maximum profit. Firms are faced only with a *distribution* of potential outcomes, as determined by the existence of uncertainty[96].

In a "growth" perspective, a major objection to Alchian's view can be found in the critique to the alleged "genetic nature" of firms' behaviour set forth by E. Penrose (1952 and 1953). She argues that the absence in the firm of any "inherited genes" makes the "biological analogy" misleading, for, while "we have no reason whatsoever for thinking that the growth pattern of a biological organism is *willed* by the organism itself" (1952, p. 808), the pattern of growth of firms depends upon "the conscious willed decisions of human beings", as much as on the strength of environmental constraints[97]. From this point of view, nothing like a random behaviour hypothesis can be set at the very basis of the selection mechanism; and if the achieved state of economic adaptation must be explained - and the assumption of "intense" competition maintained - the profit maximising hypothesis has to be (re)introduced.

A different perspective is perhaps provided by the criticism by Winter (1964)[98], who stresses the point that if firms act randomly, as the "viability approach" admits,

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then there is no reason at all to suppose that they will *systematically* behave in the same way (a firm can maximise today, and not maximise tomorrow): "hence, there is no obvious reason to believe that there will be any *cumulative* tendency for the firms which are maximizing profits [in Alchian's view, which get positive profits] at any given time to grow relative to firms which are not maximizing" (p. 240, emphasis original). Viewed *ex post*, the path of growth of "non-disappearing" firms may have not been characterised by any *constant* search for maximisation (be it relative or absolute). On the other hand, the environment itself undergoes continuous (often quite dramatic) changes as a consequence of the competitive process, so that the "rules of fitness" are likely to be constantly (and even abruptly) modified[99]. And above all, as stressed both by Penrose (1953) and Chiappori (1984), the environment, from an economic point of view, consists of entry barriers, non-decreasing returns, market imperfections, and all those features which make the perfect competition model - i.e. the premise for the "natural selection" mechanism to work - a pure abstraction.

In a broader perspective, it can be argued that even assuming some "genetic" feature as a basis for firms' behaviour no unique pattern of growth should be expected, because of the basic complexity of behaviour itself. As suggested by Matthews (1984), the overall behaviour of an economic agent is composed of a large range of specific modes of behaviour, so that there is no logical reason for presuming that all the modes an agent (a firm) practises should be equally efficient ("a firm that had good engineering practises may be bad at industrial relations, or a firm that is well located weak in design or marketing", p. 103). Hence, it is possible to show that if there is no systematic correlation between the different modes of behaviour, the pace of competitive selection may not be fast enough to eliminate all the relatively unfit modes existing at a given time - either it can eliminate some specific modes which are mostly unfit in one specific environment, or some which are to some degree unfit in all environments[100].

The most relevant restatement of the whole question is anyway provided by Nelson and Winter's book (1982), which represents the outcome of a wide research programme on the determinants of firm's survival, growth and change. Drawing the building blocks of their theory from an astonishingly wide range of "allies and antecedents"[101], Nelson and Winter develop a formal "evolutionary" model, approaching the problem from a "distinctively organisational" perspective and focussing their attention primarily upon the analysis of economic *change* - which makes it particularly suitable for the analysis of growth processes.

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Their approach differs from the "orthodox" view in rejecting the principle of maximising *choice* of agents (businessmen), insofar as this involves some "connotations of deliberation": firm behaviour is maintained to be basically characterised by automaticity. More precisely, "behavioral options are selected, but they are not deliberately chosen" (p. 94). The basis for firms' behaviour is defined by *routines*. Routines, which reflect the skills of the individuals constituting the firm, can be defined as the storage of the organisation's specific operational knowledge ("organizations remember by doing"); as far as they represent the persistent features of the firm, determining its *potential* behaviour, they correspond to the "genes" of biological evolutionary theory. Routines are assumed to be heritable (the ways firms develop hinge on their present routines) and selectable (firms which do better than others will grow in relative terms). They include all the *predictable* components of firm behaviour, i.e. they determine which behavioural options the firm will attempt to select, setting at any given time the probability distribution of the firm's conditions in the following period.

On the other hand, the outcome of such selection (i.e. *actual* behaviour) is also dependent upon the environment (including the behaviour of other firms in the same industry); and the environment may force the firm to change (or even to replace) its routines, if they no longer allow the firm to meet "market" requirements. Normally (following "satisficing" rules), it is assumed that as firms are "sufficiently profitable" they do not aim to consider alternatives. But as soon as some sort of adversity (such as a fall in profits below some target level) begins to emerge, firms will engage in "search". Whether it is pursued in terms of innovation or imitation, the (successful) change brings about a process of adaptation: for the theory affirms the path-independence of firms behaviour, with the pattern of change (variation) following a Markov process. Such a structure of the model implies that no static equilibrium will necessarily be achieved at the firm level (the rate of growth can constantly vary); moreover, the path of growth of different firms can diverge even in the presence of identical decisions (while for a given firm the same decision at different times may determine different growth rates).

This said, the attention paid to the behaviour of the individual firm simply represents, from the authors' viewpoint, "primarily a step toward analyzing the behavior of industries" (p.18). So, the core concern of evolutionary theory lies in the analysis of the characteristics of industry equilibrium and the ways whereby industries react to changing market conditions[102].

In a wider perspective, the power of "biological analogies" can help in approaching the analysis of individual firms behaviour by analysing something else than the

working of the selection mechanism; from this point of view a peculiar way of intepreting the logic of organisational growth in terms of a biological model is provided by the analysis developed as early as the 1950s by Haire. Drawing his main source of reflection from organisation theories - other than empirical observation - Haire (1959) focusses his attention upon the importance of the conflict between individuals inside the organisation ("each with his own goal and each tending to fly off from the path of the whole") in activating and developing "the organisational necessity" of resisting centrifugal forces. In this framework, the major insight stemming from the observation of biological organisms is found in the long-run relationship between size and "shape". Provided that a given amount of organisational resources is needed simply to "keep the organisation together", increases in size will involve a growing "pressure" upon the "skeletal" structure of the firm; as in living organisms, such pressures in their turn will generally involve some changes in internal organisation, for the firm is thought to become stronger where the forces tending to thwart its functioning are greater[103]. Developing his analysis through empirical investigation, Haire shows that as size increases[104], a very rapid growth of the *proportion* of people allocated to administration (specifically, to control and coordination) emerges; that is, the "organisational function" is characterised by a faster rate of growth - it absorbs a "disproportionate amount" of resources - than line functions within the firm. In Haire's view, this implies that the kind of internal changes associated with growth highlights coordination and control as the main areas where "disruptive forces" are focussed[105].

Further issues emerge when the relationship between growth and organisational change is viewed from the point of view of firms' "strategic" behaviour. Such a perspective of analysis, the historical background of which has been provided by Chandler (1966), has been set within the boundaries of economic theory by Williamson (1970 and 1971)[106].

Drawing on the main findings of his own previous research (see in particular 1964 and 1967), Williamson hinges his analysis upon the principle of the "finiteness" of spans of control in hierarchical structures; in particular, he assumes that as enterprises expand such a limitation forces them to abandon "unitary" functional organisation ("the natural way to decompose simple tasks"), to move towards a more complex organisational form (the "multidivisional" one). Albeit historically enhanced by market difficulties (as stressed by Chandler), the gradual inadequacy of the unitary form is maintained to emerge by virtue of the sheer radial amplification in size: the only way to manage the expansion of a unitary-form firm is to add hierarchical levels, which involves both a loss of control and

a shift away from the goals of chief executives - and therefore growing subgoal pursuit according to functional divisions' interests. The "passage" to M-form represents the attempt to give "natural" decision units an independent standing: insofar as this process leads to an organisational structure articulated in "quasi-firms" depending upon a central ("strategic") office, M-form ensures both a "compression in communication needs" and a clearer definition of decisional responsibilities; most important, it allows the firm strongly to reduce the "confounding of strategic and operating decisions". Such features induce Williamson to stress the point that M-form "favors...least cost behavior more nearly associated with the neoclassical profits-maximization hypothesis than does the U-form organizational alternative" (1971, p. 367)[107]. More generally, it is argued that the problems arising from the separation between ownership and control closely relate to the very inadequacies of the U-form structure; and even if the passage to M-form is typically motivated by the search for control restoring, it at the same time contributes to reducing "goal divergence" as well.

Yet, the overall efficiency gains brought about by M-form organizational structures also establish the basis for further expansion[108]. And although almost reluctant explicitly to include "additional objectives" in his framework[109], Williamson himself acknowledges that "if the M-form hypothesis were to be extended to include multiple goals, a growth goal would be a most natural first extension" (1971, p. 380). In this perspective, as in Haire's, the main force driving towards a reshaping of the internal organisation of (growing) firms is represented by coordination and control requirements: firms *must* change their organisational structure if they wish to (efficiently) grow further.

3.4. Random walks, growth and concentration

The simplest explanation of firms growth behaviour is represented by the principle that growth depends merely upon chance, whatever a firm's goals may be. In fact, a wide range of highly skewed theoretical distributions - which can reasonably describe the (almost regular) J-shaped pattern of the empirical size distributions of business firms in modern industrial economies - can be generated by a stochastic process: that is, the degree of concentration of a given population of firms can be interpreted as the outcome of individual random growth paths.

As stated in the basic treatment by Gibrat (1931)[110], this hypothesis can be expressed in terms of a very restricted set of postulates: i) the causes of size change are numerous; ii) none of them exerts a major influence on the phenomenon; iii) their

effect is independent of the size of firms. These "three simple assumptions" ensure that a firm's rate of growth is a random walk, following what Gibrat himself called a "law of proportional effect": the probability of a given *relative* variation in size is the same for all firms, whatever the size level they have reached[111]. That is, the *proportionate* change which any firm's size undergoes within a given time interval (i.e. the absolute change of the logarithm of its size) is the result of the addition of a series of independent effects, reflecting the action of several (random) variables having identical distributions. Since it can be easily shown that the logarithm of "final" size will be normally distributed[112], the process is maintained to lead to a log-normal distribution of *absolute* size levels.

As first noted by Kalecki (1945), however, *in a given population of firms* this principle entails an *endless* growth in the variance of the firm size distribution, which tends to become infinite. From this point of view Gibrat's assumptions conflict with empirical evidence: observed firm size distributions are undoubtedly positively skewed, but their variance is by no means indefinitely growing. Therefore, it must be "fully or partly constrained" - that is, size changes cannot be completely independent of *economic* forces, and some "stability condition" offsetting the tendency to diffusion has to be introduced.

The answer provided by Kalecki himself is that a boundary to the phenomenon is set by some *dependence* of the growth process upon firm size. Starting from the assumption that in a given population of firms the variance of size is *constant* before and after any increment has taken place, a negative correlation between size and growth is derived to work; hypothesizing that such a relationship is linear, Kalecki shows that a Gibrat type size distribution can all the same be obtained by a random growth process.

Yet, not even Kalecki's model accounts for the very important fact that "real world" firm size distributions are *not* made up of a constant population, but that in any given industry, the population of firms undergoes continuous changes reflecting both "deaths" of existing firms and "births" of new ones. Following Steindl (1965), the question can be treated, with some adaptations, on the basis of the analysis proposed in Simon (1955b), which allows the development of a model of (random) growth which, accounting for the phenomenon at issue, leads to the steady state equilibrium of a highly skewed size distribution (Yule) similar to Gibrat's one[113]. And Simon himself, in a series of subsequent contributions, has drawn attention to the need for relaxing further assumptions of Gibrat's law, trying to cope in particular with the existence of serial correlation in growth rates and the phenomenon of mergers[114].

In the context of the search for empirical support for stochastic-type theories of firm growth[115], the basic problem can be found in the fact that Gibrat-type distributions can be generated by almost *any* dispersion in the growth rates of firms. On the one hand, the family of stochastic processes leading to positively skewed size distributions is wide enough to encompass several different "laws" of growth; on the other hand such distributions are similar enough to make it very difficult to find statistical tests distinguishing amongst them. Nor can such problems be overcome by cross-section analyses, insofar as they involve sampling biases due to the (almost general) absence of information about very small firms, and to the related problem of measuring birth and death rates[116]. All in all, empirical results rather show a general tendency for growth rates to be negatively correlated with size, whilst their variance appears to decrease as size increases. But the major point within this framework is represented by the very difficulty of distinguishing the long-run effects of the law (if any) from the consequences of "local" determinants of firms' behaviour, given the relative shortness of generally available time series. In the medium term, deviations from the "law" may be quite large: "random" growth can only show up in an infinite time horizon.

4. Conclusions

> "*One may conclude, then, that there is great need to integrate the general theory of organization into the body of economic analysis, and that such integration will immensely improve economics as a technique for analyzing the actual behavior of firms*" (K. Boulding, 1952, p. 44).

This paper has tried to set within a common framework a rather scattered body of theoretical literature mainly (albeit not exclusively) concerned with the analysis of firms' growth processes. The discussion has been extended to encompass a variety of different perspectives - not necessarily mutually exclusive - on the matter, which deal both with supply and demand issues, and involve the analysis of the role played by technological, financial and organisational determinants of growth, as well as that of the factors affecting motivation and the "degree of rationality" of agents.

Even in the face of such a wide range of questions at issue, the aim of the paper is by no means to provide an exhaustive inventory of themes; rather, it is to cast attention upon many important points which the "standard" approach to the analysis of firms' behaviour, by its very nature, *cannot* take into account. In this context the paper "naturally" refers to the main developments of non-neoclassical theories

of the firm, but it also pays attention to some contributions which appear to have been largely neglected by more recent analysis, and which nonetheless may help in highlighting important questions related to the phenomenon of growth.

A major issue emerging from the analysis is that growth cannot be represented as a continuous process. Firstly, it is affected on technological grounds by the existence of technical discontinuities and the stickiness of factor prices - which both hinder the possibility for firms to expand their size at *any one* size level. Moreover, it may be bounded by the rhythm of expansion of market size itself, when this is characterised by unevenness and when demand fluctuates on a structural basis. This being the case, growth may even give way, via inter-firm cooperation, to vertical dis-integration. But above all the "discreteness" of the growth process closely depends upon the rate of accumulation of *internal* "ability to grow", *sub specie* of the managerial resources which are necessary to cope with a wider scale of firm's activities and the organisational change involved by the expansion itself: growth hinges upon the *specific* resources which have been "slowly and expensively" ripening *inside* the firm, and which cannot be made "readily" available by simply applying to the market. From this point of view it must be stressed, in particular, that "current" managerial resources are absorbed by simply "taking the firm together", for a firm's survival *as such* requires a constant effort even in the absence of any increases in size - the forces tending to divert firms from equilibrium being *constantly* at work. The point here is simply that it is only an *excess* of managerial ability which can push the firm to move towards a larger size, for this involves a (costly) change in its internal organisation as well.

Viewed the other way round, insofar as it requires *more* resources than are merely needed to manage the (larger) size achieved, any structural (organisational) adjustment brought about by growth involves some efficiency losses. That is, growth - as far as it is not associated with any increases in managerial ability - negatively affects firm efficiency (and the upsurge of such a trade-off may be enhanced by the need for lowering prices in order to make "looser" market boundaries).

The very important point in this perspective is that firms may all the same choose to grow further, that is they may *deliberately* exceed the threshold corresponding to the (technical) "optimum" size: the discretionary character of firms' decision-making implies that people in charge of their administration may not set the pace of the enlargement of size merely according to the "requirements" of the

optimisation process, for efficiency (profit) may not be their main goal - nor must it necessarily be a key condition for the survival of the firm, if markets are not *so* competitive. Even more, firms' behaviour may reflect the very limits to rational behaviour of decision makers, whose "myopic search" leads to a sort of "automatic" selection (which neither follows entirely random behaviour nor is the result of *deliberate* choice, and entails that firms may not *be able* to maximise any goal whatsoever); and the outcome of a firm's activity also depends upon the "degree of effort" *rationally* selected by employees in their work, which may range within very wide boundaries even in the absence of "monopolistic" slacks (and may be independent of the ownership of any assets as well).

In a wider perspective, a whole set of further questions arises as far as the "financial side" of the growth process is taken in account - in particular, as it concerns the ways whereby the financing of growth is connected to a firm's control structure. From this point of view, a first line of problems relates to the possibility that *entrepreneurs'* equity shortages (if any) may set a limit to firm expansion - unless the current stream of profits can offset such a constraint - via either "growing risk" effects, or simply the fear of losing control of the firm itself. On the one hand, entrepreneurs are likely to be interested in *their own* returns much more than in the firm's ones; on the other they may be strongly reluctant to share control. But the divergence between the goals of the entrepreneur and the goals of the firm as such may lead to even more complex divergences (and growth constraints) in a large-firm world, for in particular this may be characterised both by control sharing (i.e. more than one owner), and by possible conflicts between owners and executives. In the latter case the relationship between growth financing and control also depends on whether profits are high enough to enable executives to finance the firm's expansion *and* to pay "sufficient" dividends (so as to avoid a fall in share prices to a level which may foster takeovers).

Whatever their specific relevance in different contexts may be, the points hitherto summarised can be viewed as the "minimum set of questions" to be answered if a theory of "flesh and blood" firms' growth is to be developed (and they lie indeed at the very heart of the most relevant theoretical analyses of "flesh and blood" firms' behaviour). On the whole, they suggest an approach to the analysis of the growth process which conceives it as an event which *radically alters* the internal structure of firms, and may even involve the upheaval of the type of control.

As has been emphasised by a profound connoisseur of the problems at issue, "the differences in the administrative structure of the very small and the very large

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firms are so great that in many ways it is hard to see that the two species are of the same genus" (Penrose, 1980, p. 19); whether in the (many) steps leading from the former to the latter any kind of "equilibrium" will *ever* be achieved or not, the key question in this context is to explore the mechanisms whereby, in the course of their life, firms do change.

Notes

1. See Ijiri and Simon (1977, Introduction).

2. From a cross-sectional perspective, however, it may be argued (see Singh and Whittington, 1975) that the rate of growth of firms should at least show a negative relationship with respect to their size: provided that the (U-shaped) cost curve is the same for every firm in the industry, firms should be characterized by a zero rate of growth if they were at the optimum size; positive if they were below; possibly negative if they were beyond.

3. See for example Sengenberger et al. (1990).

4. As it is stressed by Kumar (1984, ch. 4), as being "quicker and safer" than a new investment (insofar as it immediately brings about new productive capacity *and* a new market for products, sharply reducing uncertainty), external growth may be considered in a sense more than a mere "alternative method of growth". On the other hand, as it has been recalled by Keynes himself in the General Theory (see in particular ch. 12), "buying a firm" may even be simply *cheaper* than financing a new investment.

5. On the attention paid by Marshall to the role of market imperfections see also Steindl (1945), Whitaker (1989).

6. "While the part which nature plays in production shows a tendency to diminishing return, the part which man plays shows a tendency to increasing return" (p. 318). From this point of view, it is interesting to recall the very effective findings stemming from empirical research carried out in 1956 by Lydall, according to which "firms headed by younger men are more likely to expand than those whose managing directors are in their sixties and seventies" (Lydall 1956, p. 110).

7. On this point, Newman (1960, pp.599-60) observes that Marshall "saw the process as what nowadays would be called a stochastic process, although he was unable to produce a coherent model".

8. See for example the synthesis provided by White (1936).

9. Indeed, in Viner's analysis the long-run average cost curve appears *downward* sloping.

10. In the words of Chamberlin: "Altough imperfect competition appears ... to have derived *historically* from increasing returns, ... both Mrs. Robinson and myself have clearly defined the problem ... with reference to factors affecting the shape of the *demand* curve, and without reference to cost conditions". And further: "The cost curve for the firm has the same U-shape, whether under pure or monopolistic competition (...). It is the shape of the demand curve which marks the contrast between monopolistic and pure competition" (1948a, pp. 193-94, emphasis added). A very similar conclusion is reached - although moving from the almost opposite perspective of "full cost" theory - by Andrews, whose analysis, assuming that average costs are constantly declining, emphasises that "what [the firm] *actually* sells will depend upon the response in the market, and its rate of growth will be determined...by the demand which it meets" (1949, pp. 267-268, emphasis original).

11. Rather it entailed that a distribution of size levels of firms does exist even in the long run (see on this point also Newman and Wolfe, 1962, Reid, 1987, ch. 5). In a more general perspective the question is also discussed by Archibald (1987). The question of the existence of an "optimal size *distribution* of firms" - as assumed to be more relevant than that of the "optimal size" as such - is also stressed by Jewkes (1963).

12. As Stigler (1939) argues, however, the definition of Marshall is somehow unsatisfactory, for "there are in general an infinity of different short runs, in each of which there is a different amount of fixed costs" (p.306). In particular, "short-run marginal costs [may] be constant within certain ranges of output" (p.307).

13. For a discussion of the problem see also Whitin and Peston (1954).

14. Alternatively long run average costs in the industry could increase - even if each firm is operating under increasing or constant returns to scale - if a supply shortage in some factors raises their price.

15. Silberston (1972) uses for such kinds of advantages the expression "economies of overall size"; in a similar view, Scherer and Ross (1990) suggest the expression "pecuniary economies" for all the circumstances in which size economies do not reflect actual savings in resources, but only a redistribution of income between agents (such as "bulk" economies arising from a lower unit price when a larger amount of inputs is purchased).

16. More generally, it could be said that this kind of economies has something to do with business functions other than production (see McGee, 1974).

17. In the perspective outlined above, factor indivisibility should be intended in the sense that, for a given industry, as output grows only a limited number of input-output coefficients are admitted, which may or may not imply constant proportionality among factors (input "admissible" proportions being determined by the "degree of indivisibility" itself).

18. On the other hand, as suggested by Richardson (1960, ch. 5), were expected demand insufficient to allow the full exploitation of the economies of scale of an additional plant, the firm could all the same bypass the shortcomings of sub-optimal policies (i.e. temporary losses due to the installation of minimum-cost equipment; "market" losses due to the postponement of the investment; relative inefficiency entailed by sub-optimal equipment), simply by entering "into agreement with other firms so as to bring the competitive investment under planned coordination" (p. 93). See on this point also section 2.4.

19. As stressed by Pratten (1988), nonetheless, the relationship cannot be discussed but at a dis-aggregate (sectoral) level, insofar as many industries are characterised by an almost exclusive presence of large-scale firms (the size of which may not be a "simple" consequence of market power). Empirical research about economies of scale in business firms (or plants) has been carried out according to various techniques, ranging from statistical analyses of cost functions (starting from the work of Walters, 1963) to engineering estimates (see especially Bain, 1954; Pratten, 1971 and 1988) and "survivorship" (ex-post) tests of the "optimum" size, suggested for the first time by Stigler in 1958. See Scherer and Ross (1990) for recent assessment and references on the whole matter.

20. Needless to say, the existence of such economies is clearly inconsistent with the neoclassical assumption of a given technology, perfectly known and freely accessible to all firms.

21. It is worthwhile to notice the differences between this notion of dynamic efficiency and the one referring to "learning by doing" effects, which simply consist of reductions in unit costs, at any one output level, due to accumulated experience: on the one hand, learning effects are quite unrelated to any change in output level; at the same time, for they are reflected in proportional (downward) shifts of each "plant" curve, their absolute width is not independent of output scale.

22. "The potential lender will be guided in his judgement of the probable success of the expansion ... by the evidence of the firm's past success" (Downie 1958, p. 66). This view is clearly close to Kalecki's "growing risk" hypothesis (see section 2.3).

23. This point raises in its turn the question of how deeply the "innovative" behaviour of the firm is influenced by R & D activity (and thereby, of how R & D may affect a firm's growth). From this point of view, it can be said that if R & D activity is undoubtedly closely (and positively) related to the size of firms, its productivity may not be; and this seems indeed to be the rule according to some recent empirical estimates (see for an overall appraisal Acs and Audretsch, 1991).

24. But "It is important to avoid identifying the emergence of the problems of coordination arising from increasing complexity with the minimum point on the cost curve", since "in general they will begin to appear for quite small outputs", even if "in the early stages they are submerged by the overwhelming gains from further specialization and more efficient techniques". The point is that "the diseconomies must *sooner* or *later* outweigh the economies, and beyond that point predominate" (Chamberlin, 1948b, p. 249, emphasis original).

25. See in particular Kaldor (1934), the answer by Robinson (1934) and the reply to Robinson by Sargant Florence (1934). In Florence's own words (1934, p. 726): "Many English business men, who may be perfectly competent, did not desire to extend their operations, being quite content to enjoy a *given* salary or profit per year: they were not out to maximise incomes, but, as reasonable persons, to maximise their own happiness, which would include enjoyment of independence". So, "operations would be on a much larger scale if those in control were more willing to enlarge and better selected for the purpose" (emphasis original). It is worthwhile noting how Sargant Florence's view about "managerial limitation" to the growth of the firm seems close to that of Scitowsky (see section 3.1), and to the analysis of "X-(in)efficiency" developed in the 1960s by H. Leibenstein (section 3.3).

26. See on this point also the empirical findings of Barna, according to whom in British industry during the early 1950s "the growth of the firm [was] made possible by a recurrent emergence of excess managerial capacity" (1962, p. 38).

27. In a very similar view, a theoretical analysis of the (short-run) dynamic trade-off between size and efficiency has been provided by Crivellini (1983).

28. Consistently with such premises, the framework suggested by Richardson to explain the role of the "managerial effect" explicitly avoids referring to the usual apparatus of demand and cost curves.

29. "Customers come and go, manufacturing operations break down, distribution systems malfunction, labor and material procurements are subject to the usual vagaries, all with stochastic regularity, not to mention minor shifts in demand and similar disturbing influences of a transitory nature" (Williamson, 1967, p. 125).

30. On this point Williamson explicitly acknowledges the relevance of Robinson's insights.

31. The first argument "could apply only to industrial giants far above the average size of existing enterprises", and the second one "operates to limit the portion of [the capital] invested in any particular field, but not to limit the total amount" (p.98).

32. Kalecki explicitly extended the analysis to the case of a joint-stock company, maintaining that it cannot anyway provide a solution to the shortage of owned capital.

33. Introducing in the "growing-risk" model the hypothesis of increasing returns to scale - and hence assuming a positive relationship between investment and profitability - Steindl (1945) shows that technology can in fact influence in some degree firms' size: if the bigger entrepreneur "has the same proportion of indebtedness as a small one, his risk is the same, but his profits, owing to the economies of large scale, are greater. If he ... uses his advantage in order to reduce his ... indebtedness ... his immediate chances of profit may be equal or even smaller than that of the smaller entrepreneur, but his risk will be reduced" (p. 44).

34. To be sure, Stigler's average cost curves are U-shaped.

35. The steeper the cost curve, the less "flexible" the firm. See on this point also Wellisz (1957).

36. The point is more widely discussed below (see section 3.4).

37. "Bringing a decision within a firm implie[s], by definition, a rejection of the market mechanism" (Loasby, 1971, p. 881). See on this point also McGuinness (1987).

38. See section 2.3.

39. This point is well illustrated by Williamson's criticism of Stigler's (1951) approach: according to Stigler the expansion of the market will favour vertical disintegration because of the "latent" existence of a new firm, which will carry out decreasing cost activities as soon as the growth of demand allows it to exploit them. The question raised by Williamson is that in such a world resort to a specialized firm does not exhaust the possibilities, for it could be possible for one of the existing firms to exploit the available economies simply by producing the requirement for the whole group. From this viewpoint transaction costs analysis attempts to explain the alleged absence of "monopolistic" outcomes in terms of opportunistic behaviour: in fact, "the risk here is that the specialist firm will disclose information to its rivals in an incomplete and distorted manner", so that "the exchange fails to go through" (Williamson 1975, p. 16).

40. Among the (rather few) contributions which have tried to develop Richardson's insights see Mariti and Smiley (1983), who in particular suggest a taxonomy of different types of cooperative agreements according to their motivation.

41. "Coordination cannot be left entirely to direction within firms because the activities are dissimilar, and cannot be left to market forces in that it requires...the matching of individual enterprise plans" (Richardson 1972, p. 892, emphasis added).

42. On the other hand, complementarity is claimed to explain the difference between inter-firm cooperation (quite absent in Coase's analysis) and market transactions.

43. More specifically, Hart and Moore argue that investment would be higher when assets were owned by agents who are "indispensable", and when complementary assets were owned together.

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44. Following Putterman (1986), it can be remembered in this context the point stressed by the Marxian representation of the contractual relationship between employer and employee, which assumes that the subordination of the latter to the former does not depend on the contract itself - to which both parts subscribe voluntarily and as equals - but on the very nature of the specific employment relation as it turns out "inside the factory". It can nonetheless be interesting to recall on the point also the words of D. Robertson, according to which, even if "it is not always easy to say...where the factory system begins and ends..., from...the point of view of the organization its distinctive mark must be taken to be...the sharpness of the cleavage between the few who command and the many who obey" (1928, p. 12).

45. Indeed, apart from a certain operational ambiguity of the concept itself, which relates to the definition of which kind of profit measure firms have to maximize (maximizing the difference between revenues and costs might indeed yield different outcomes according to different profit measures and time periods), at least one relevant theoretical question appears rather unsettled; namely, the difficulty of defining a utility function which includes a measure of agents' "need for leisure". As pointed out by Scitowski (but as noticed above - see section 2.3 - the point is also raised by Sargant Florence, 1934), "in order...that maximum profit should maximise his satisfaction, the entrepreneur must have a special type of psychology", for "the man who aims at raising his standard of living tends to relax his efforts when they meet with success"; and only an entrepreneur "who wants success for its own sake...is likely to keep working unabated even after his income has risen" (Scitowski 1943, p. 59).

46. The hypothesis that firms aim to maximise profits is crucially dependent on the assumption that markets are competitive in the sense that firms must optimise because their behaviour is merely defined in residual terms with respect to the (perfectly competitive) environment they live in: according to the rules of that environment non-optimising firms are forced to close down. From this point of view, the profit maximisation hypothesis is not simply an *a priori* assumption - rather, it is the only assumption which can allow the perfect competition model to work. The point is especially relevant, for it entails that firms' efforts to minimize costs may be a function of the "competitive pressure" they are subject to. That is, under given circumstances firms may not "optimise" at all, because optimising may not be a key condition to survive.

47. See in particular the session on "Problems of Methodology" in the American Economic Review 1963, Papers & Proceedings, May, pp. 204-236.

48. As suggested by Rotwein (1959, p. 555), it can be said that in Friedman's view "confidence in the theory...is not at all a function of the 'realism' of the model..., but only of the frequency of the verification of its predictions". On the other hand (see on the matter also Blaug, 1992, ch. 4), insofar as it is not able to explain why the prediction works, as the prediction fails the theory must be completely discarded, for it lacks an "underlying structure of assumptions".

49. In a "falsificationist" perspective, it can be argued that the weakness of the "prediction-without-explanation approach" lies in the sheer principle according to which theories can only be rejected on the basis of empirical testing: a prediction test cannot be an acceptance test. In the words of Leibenstein (1976, p. 13): "the power to predict is subsidiary to the power to explain".

50. Following Winter (1964, p. 229), it can be noted that the point recalls the question of getting a "welfare function" when more than one person is involved in the decision process as it has been posited by Arrow (1951). In this perspective, the problem of formulating something like a "firm welfare function" entails decision procedures which may not display the (requested) properties of "completeness and transitivity" of preferences.

51. Indeed, it must be noticed that it is again Marshall himself who suggests that it is not valid to rely entirely on the competitive model to analyze firms' behaviour in every situation, and particularly in the analysis of joint stock companies: "The distinctive conditions of joint stock administration come into view ... when the ownership of capital is effectively divorced from its control: so that those, who are in control, have not nearly the same pecuniary interest in its economic and efficient working as they would have, if they owned the business themselves" (Marshall 1919, p. 317).

52. The core of the analysis developed by Berle and Means is represented by the attempt to demonstrate that in modern business enterprises "capitalist" risk and "managerial" effort are mostly performed by two different groups of people. Hence, a "new" problem with respect to the realm of competitive markets (where profits act as a return for both of the functions) arises: firms

will have to confront the conflict between the "traditional logic of property" (according to which the whole profit should belong to stockholders) and "economic" logic (which would require profit to be divided between stockholders and executives). In Berle and Means' view, the solution of the conflict lies in the "new set of relationships" created by corporate development, by virtue of which "the men in control of a corporation can operate it in their own interest..., since the security holders have agreed in advance to any losses which they may suffer by reason of such use" (1932, pp. 354-55).

As Gordon stresses it, "the fact that businessmen...must adapt themselves to changing market conditions led the classical economists (...) to look upon the business leader as a purely colorless medium (...). But all the conditions surrounding the exercise of the leadership function become additional variables which must be included in an analysis of the operations of the economic system" (1966, pp. 7-9).

For a very sharp criticism of Berle and Means' findings - both at the theoretical and the empirical level - see in particular Stigler and Friedland (1983).

53. Provided marginal costs are assumed to be always positive, an increase in output beyond the point of maximum profit (where marginal revenue must be equal to marginal cost, so that it will be positive as well) will increase total sales.

54. To be sure, there are no mechanisms at all to determine how much of the profits which exceed the "minimum constraint" will be forgone in favour of sales.

55. "Surprisingly, textbook 'theories of the firm' have largely ignored this link between the institution and its vicarious owners" (Marris, 1971, p. 3).

56. See section 3.2. Indeed, the analysis also owes a lot to empirical research (see in particular Gordon, 1966, and Sargant Florence, 1961).

57. The rationale for such a tendency can be summarized in the remark that "if...for all organisations persons occupying given levels...are everywhere paid the same salaries ...large firms provide better 'opportunities' for personal advancement" (1964, p.101). On the other hand, high-level executives' mobility is maintained to be typically inhibited, so that in practice the most

effective means whereby executives' satisfaction can be maximized is given by the growth of their own firm. Hence, managers' motivation turns out as "inescapably dynamic", that is, it is assumed to be a function of firm changes in size. At the same time, insofar as the personal advancement of managers is in fact dependent on their superiors much more than on shareholders' committees, the firm is more likely to be pushed toward organisational growth rather than "maximum" profit.

58. No substantial arrangement of the model is required when external financing (both in terms of borrowing and equity issues) is admitted.

59. Although constant returns to scale are assumed, costs "may be adversely affected by high rates of change in output" (Marris 1971, p. 6). In a similar way, the alleged existence of (no more specified) diseconomies of large-scale investment is assumed to hinder firm growth in the Marris-type model proposed by Odagiri (1992).

60. In a broader sense, it will experience an endless growth, which in its turn will entail (unless the whole economy is assumed to grow) a rising concentration: "Once it is accepted that demand may be continuously created, it is difficult to postulate any finite planning horizon" (Marris 1971, p. 11).

61. The term "young" in this context indicates a low age of the firm with respect to some specific event which has significantly altered its previous state (e.g. some technological breakthrough).

62. Indeed, it may appear rather curious that Williamson does not refer anywhere to Edith Penrose's book (first published in 1959).

63. Expansion of operations may imply benefits for managers (if firms did not grow at all promotional opportunities would obviously be limited); emoluments (defined as "rewards which, if removed, would not cause the management to seek other employment") measure the economic "rent" - utterly independent of entrepreneurial capacity - resulting from the strategic role of managers as such.

64. As in Baumol's model, the definition itself of "minimum" profit constraint makes it very difficult to develop a formal analysis incorporating profit in the model as an endogenous factor.

65. "Managerial discretion models... are intended to apply...where competitive conditions are not typically severe" (p. 39).

66. If the actual rate of growth ultimately depends upon the strength of "market forces", and such forces are assumed to become weaker as firms get larger, a positive correlation between a firm's size and growth is also to be expected.

67. "To understand the rest of the economy...is to understand very little" (p. 9).

68. Indeed, from a managerialist view point even the existence of any conflicts between ownership and control tends to disappear: minimum earnings are retained firstly because they ensure the survival of executives (of the "technostructure") as such. A very strong critique of such a "blurring" of the capacity of the stockholders to (successfully) fight for the control of the firm is put forth by Pitelis and Sugden (1986).

69. In Berle and Means' terms, this implies that managerial control may extend beyond the limits of the "managerial group".

70. On empirical grounds, McEachern finds that owner-managed firms grow faster than managerial ones, and that "externally controlled" firms actually appear as the "slowest".

71. See in particular Short (1994), who also provides a wide survey about the matter.

72. From this point of view, the problem consists of establishing whether an executive's behaviour is evaluated on a long-term perspective or not - in the short term, there is not much more to do than trying to increase firm's profits.

73. An attempt to move towards a more general formulation of the managerial view is provided by Yarrow (1976).

74. Although it appears practically impossible to keep under control the flow of empirical studies upon the subject (see anyway the very recent survey by Short, 1994), it may be worthwhile to recall the studies by Monsen et al.(1968), Radice (1971), and Meeks and Whittington (1975) for evidence (of various kinds) in favour of managerial approaches, whilst Lewellen and Huntsman (1970), Kania and McKean (1976), and Demsetz and Lehn (1985) provide

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evidence against any significant specificity of "managerial" firms' behaviour. More problematic views are expressed by Larner (1970), Smyth et al. (1975), Nyman and Silberston (1978), and Cosh and Hughes (1987). For an explicit attempt to combine elements of different managerial theories to define a set of "differential" performance characteristics see Holl (1975). A (positive) test for detecting whether empirical estimates are affected by the specific definition of managerial control adopted, or differ with respect to firms' size, is suggested by Lawriwsky (1984). For a very recent attempt to explore the possibility of a non-linear relationship between firm performance and the "degree of ownership" of directors see Keasey et al. (1994).

75. In terms of Marris' approach (1964), this means that the capital market constraint is so tight that it does not allow any significant diversion from profit-maximisation.

76. Further problems relate to transaction costs (takeovers are not costless), the "efficient" valuation of share prices, and the lack of information.

77. See for a recent appraisal Stiglitz (1991), and for a general overview Sappington (1991).

78. "Although the new institutional economics is wholly compatible with and conservative of neoclassical theory, it does greatly multiply the number of auxiliary exogenous assumptions that are needed for the theory to work" (1991, p.27). The question is also discussed in Simon (1986). About the empirical weakness of the foundations of principal-agency theory see also Mueller (1992).

79. Yet, despite their impersonal role, managers have to perform much more complicated tasks than their "neoclassical" or "managerial" counterparts (the first ones being "a mere agent of the shareholders", the second ones being concerned only with their own utility).

80. Expenditures for sustaining the process of growth (advertising, new equipment, research and development, training etc.) represent a "claim" for the current organizational rent.

81. "Suppose we were pouring some viscous liquid - molasses - into a bowl of very irregular shape. What would we need in order to make a theory of the

form the molasses would take in the bowl? (...) If we wanted only to predict behavior in equilibrium, we would have to know little, indeed, about molasses. [But] if we wanted to know about the behavior before equilibrium was reached, prediction would require much more information...about the properties of molasses: its viscosity, the rapidity with which it...moved towards its 'goal' of lowering its center of gravity" (1959, p.255, emphasis added).

82. In passing, it is worth noting the influence exerted by this view upon Aoki's model (1984, infra).

83. Even if it hardly does justice to the width of the programme itself, a brief set of references might include the contributions by Simon (in particular 1945, 1959, 1979, 1983), Cyert and March (1992, 1st ed. 1963), and March and Simon (1993, 1st ed. 1958).

84. The whole matter is on the other hand thickened by the fact that in this context the sequence of goals is not stated by any single "organisational mind", since it stems - according to organisational approaches - from the (quasi-resolved) conflict among the various members of the "coalition". The conflict entails in its turn a certain degree of inefficiency ("organisational slack" as in the model by Cyert and March), which - likewise in Williamson's (1964) view - will be as great as the "competitive pressure" will allow.

85. "There is no goal, only a process of searching and ameliorating. Searching is the end" (Simon, 1983, p.70).

86. From the point of view of a possible conflict between the various "members" of the firm, this means that different goals may entail a different evaluation of each instrument as an "intermediate" or a "final" one.

87. It is worth noting that Marris' review of Mackintosh's book exclusively focused on its empirical findings (see Marris, 1965).

88. Viewed from the window of transaction cost analysis, the same question may be formulated as why activities are carried out "within the skin" of firms rather than through the market.

89. See in particular 1991, which basically restates the bulk of the ideas already put forward in the 1945 book.

90. The point implies that organisations work insofar as employees do more than obey their managers. This is just the opposite kind of behaviour which is supposed to characterise employees in Leibenstein's X-efficiency theory (see below).

91. "It is when operating profits turn to losses that management discovers how much inefficiency it has been tolerating and strives to eliminate it" (p. 453). It can be noted that this point closely resembles the "organisational slack" theory suggested by Cyert and March (1992).

92. The threshold-value for the equity share to ensure the control of the firm will depend on the degree of leverage, the distribution of equity among stockholders, the present level of profitability and so on.

93. To be sure, Reder's approach evokes much more closely the "growing risk" approach by Kalecki (see section 2.3).

94. Leibenstein's approach has been developing since the mid-sixties in a wide series of contributions; see in particular 1975 and 1976.

95. It is worthwhile noting that Leibenstein himself draws attention to the differences between his approach and the "behavioural" point of view. With respect to the concept of "slack", as developed by Cyert and March, the overlap is maintained to be only partial because X-(in)efficiency is assumed not to be uniquely related to the "payments of a coalition" (see 1975, p. 582); as far as the concept of "satisficing behaviour" is concerned, Leibenstein argues that "there is no reason to...presume that people always choose either satisficing, or maximizing, or that they are limited exclusively to these two alternatives" (1976, p.74).

96. In such a context, "the mark of success and viability" can only be found "in the criterion according to which successful and surviving firms are selected" (p. 213), that is the realization of positive profits, whether they are the outcome of careful calculation or the sheer result of fortuitous circumstances: "As in a race, the award goes to the relatively fastest, even if all the competitors loaf" (p. 213).

97. Simply, firms do not have in common with biological organisms the very factor that determines the life cycle of the latter.

98. Indeed, Winter's critique is much more directed at the treatment of the "selection" hypothesis developed by Friedman 1953 (infra, section 5), so that the terms of the contention often appear rather confused. For a very recent restatement of the whole matter see also Hodgson (1994).

99. See on this point also Gowdy (1985).

100. For a more general (and almost radical) critique of the "natural selection" argument - carried out on the more proper ground of biological sciences - see the very illuminating article by Gould and Lewontin (1979).

101. Explicit references include Managerialism and Behavioralism, "Analysts of firm organisation and strategy" (Penrose, Chandler, Williamson), "Activist Firm" approaches (Galbraith), Knight and Modern Austrians, Evolutionary theories (among which Alchian himself), Classical economists, Marx, Marshall and Schumpeter.

102. From this point of view, the influence of Marshall's thought appears peculiarly strong.

103. "A deer cannot grow as big as an elephant and still look like a deer; it has to look (something) like an elephant to support the elephant mass" (p. 274). In structural terms, the "direction" itself of the modifications which are associated with growth can help in identifying the very nature of the forces against which the firm needs to fight, in the same way as "the appropriate support for a physical structure is a perfect diagram of the forces tending to destroy it" (p. 276). In a very similar way, Mrs. Penrose refers to the "fundamental changes" which organisation structures must undergo in the growth process by noting that "we cannot define a caterpillar and then use the same definition for a butterfly" (1980, p. 19).

104. According to the "empirical histories" gathered by Haire, firm growth processes seem broadly to approximate a logistic equation, where the upper limit to size is set by some "environmental pressure" sub specie of market boundaries.

105. This view appears very similar to Robinson's (see section 2.3).

106. A survey of the story, also attempting to take in account organisation theories, is provided by Caves (1980).

107. On the basis of such a judgement Adelman (1972) observes that "if Williamson came to fulfill the promise of anti-marginal or 'managerialist' economics, he remained to destroy it" (p. 495). As concerns the empirical evidence about the alleged superior efficiency of M-form organisation, however, no clear tendency seems to emerge in recent literature (see for a brief survey Reid, 1987).

108. Indeed, both in Chandler's and Williamson's view the passage from "U-form" to "M-form" broadly defines the boundaries between large and "giant" enterprises.

109. Such reluctancy reflects the underlying implications of the model, that is Williamson's specific view of discretionary (managerial) behaviour (with respect, for instance, to Baumol's and Marris' ones): "despite the expansionary consequences of changes in organization form..., the control loss phenomena is not eliminated or even shrunk to insignificance; although M-form has the effect of increasing feasible firm size,...it is still subject to firm size limitation" (1970, pp. 160-161).

110. See in particular section 2.3.

111. Since it does not admit any temporal serial correlation of growth rates, Gibrat's law can be also interpreted as a (first order) Markov process.

112. According to the Central Limit Theorem the sum of many (small) independent variables identically distributed is normally distributed; on the other hand in the long run the contribution of the original size becomes negligible. It is worthwhile noting that in such a process the (logarithm of the) variation in size is also normally (lognormally) distributed.

113. As pointed out in Simon and Bonini (1958, p. 610), "What distinguishes the Yule distribution from the log-normal is...the assumption of a constant 'birth rate' for new firms". The above mentioned theory assumes that new entries are proportionate to the size of the population, and the probability of dropping out is equal for firms of all size classes (in particular, this approach treats the sum of the values of the variate for the individual firms - e.g. sales or employees - as a constant: that is, as if it were continuously redistributed among firms). On the basic incompatibility between the log-normal distribution and the existence of "births" and "deaths" see also the discussion in Champernowne (1956).

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114. As far as the first issue is concerned, Ijiri and Simon (1964) demonstrate that even incorporating in a stochastic process "the empirical observation that the growth of firms...exhibits strong serial correlation" (p. 89), i.e. assuming that growth rates are proportional to the (time discounted) sums of previous increments in size, equilibrium distributions "that closely resemble the Yule distribution" can be obtained. From the point of view of mergers, the question of the paradox represented by recurrent "epidemic" waves of mergers and the apparent stability of the degree of concentration is explained simply by assuming that the merger process is independent of firm size; no change in the concentration ratio is shown to occur "if the survival probability is the same for all firms...and...if each surviving firm increases its size...by a constant percentage of its preallocation size" (Ijiri and Simon, 1971, pp. 317-318).

115. Empirical testing of the stochastic view has mainly followed two approaches: a first line of reasoning, which parallels the works by Simon et al., has been developed comparing actual size distributions with those predicted by theoretical models (see among others Hart and Prais, 1956; Quandt, 1966; and Engwall, 1973). From another point of view, the alleged absence of a causal link between size and growth has been directly tested through cross-section estimates. In such a perspective "Gibrat's law" requires that average rates of growth and their variance are equal for firms of different size classes (rather than independent of previous size). The list of contributors is very wide; "historical" references include Mansfield (1962), Hymer and Pashigian (1962), Hart (1962), and Singh and Whittington (1968 and 1975); for more recent studies (also attempting to account for the relationship between growth and age of the firm) see for instance Evans (1987), and Dunne and Hughes (1994).

116. When samples only refer to quoted companies, as often happens, "births" merely reflect the obtaining of requisites for quotation (see for example Samuels and Chesher, 1972).

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