

## **ANOTHER LOOK AT THE FIRM IN DISEQUILIBRIUM: DO THE NEOCLASSICAL CONDITIONS STILL APPLY?**

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### **Abstract**

The business firm is an indispensable component of capitalism. This might seem paradoxical because firms employ a kind of central planning. Firms are islands of planning within a sea of market competition. A vast literature has explored this from many angles to resolve the tension. I offer an Austrian approach that claims such a resolution.

**Key words:** Austrian theory of the firm, central planning, competition.

### **Resumen**

La firma es un componente indispensable del capitalismo. Esto puede parecer paradójico porque las empresas emplean una especie de planificación centralizada. Las empresas son islas de planificación dentro de un mar de competencia en el mercado. Una vasta literatura ha explorado esto desde muchos ángulos para resolver la tensión. En este artículo ofrezco un enfoque austriaco para analizar esta cuestión.

**Palabras clave:** Teoría austriaca de la firma, planificación centralizada, competencia.

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## **Introduction: The Nature of Firms and their Boundaries**

From the mid-nineties I have contributed (together with coauthors) to the literature on the nature of the firm from the perspective of Austrian economics (for example, Lewin, 1998, 2008, Lewin & Phelan, 2000, Lewin & Baetjer, 2011, Lewin and Cachanosky, 2020a, 2020b, chapters 8 and 9). A constant theme of those contributions, and of that literature in general, is the observation that, unlike the neoclassical firm, real-world firms operate in a situation of disequilibrium. This means that, unlike the neoclassical firm, real-world firms face unavoidable uncertainty (not just probabilistic risk). Competition is not confined to price competition with known costs and technologies. Rather technological innovation is on-going and competition is multi-dimensional in the form of new products, better quality products, new types of business organization, new types of resources, etc. Innovation is key.<sup>2</sup> In such a world there is room for business strategy. Industry structures are continually changing and end-points are not pre-determined. It is a dynamic, open-ended universe.

The literature encompassing an Austrian view of the business firm has contributed to various strands of the management and economics literature, including strategic management approaches (the resource-based approach to the firm and the knowledge-based approach to the firm, for example) the new Institutional economics of Oliver Williamson and others (see Williamson, 1985 and Williamson & Winter, 1991) dealing with incentive problems (moral hazard and hold-up), principal-agent knowledge problems (Jenson and Meckling, 1992, using Hayekian insights) and so on. The articles referenced above contain extensive surveys of these contributions with references to the voluminous (and still growing) literature.

I will not attempt here to summarize this multifaceted literature and the Austrian contributions to it. It will suffice to emphasize that they involve the themes of knowledge, uncertainty, complementarity, specificity, and innovation. Instead, in this paper I want to extend the Austrian

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<sup>2</sup> “Economists are at long last emerging from the stage in which price competition was all they saw. In capitalist reality . . . it is not that kind of competition which counts but the competition from the new commodity, the new technology, the new source of supply, the new type of organization . . . competition which . . . strikes . . . existing firms . . . at their foundations and their very lives. This kind of competition is . . . much more effective than the other . . . and [is] . . . the powerful lever that in the long run expands output.” (Schumpeter, 1962 [1942], p. 84)

insights in two directions. First I want to examine what is left of neoclassical insights once we leave the static world of neoclassical price competition for the dynamic world of incessant change and innovation; and, secondly, I want to take account of recent work by Nicolas Cachanosky and me on the nature of capital and resource allocation within firms, seeing firms as frameworks for calculation and estimation that informs actions.

Williamson's contributions emanated from the seminal work of Ronald Coase (1937) which addressed the rationale for and boundaries of the firm. Well known discussions on the rationale and nature of the firm (drawing on that pioneering work of Coase 1937) suggest that firms derive their rationale from the fact that the organization of production matters for its results. The large and ever growing literature on the nature and evolution of the firm includes a discussion of the extent and meaning of the *transactions costs* that are at its core. The Austrian approach emphasizes that these transactions costs involve more than simply the costs of transacting through the market and are in essence information costs of various kinds that affect the costs of production. (See Langlois, 1992 and particularly Langlois 2012).

As the economy changes, however, and the production structure changes along with it, the advantages of different types of organization also change (see for example Langlois & Robertson, 1995; Williamson & Winter 1991, Lewin 2011). Still, with all the far-reaching economic changes that have occurred, no less than in today's dynamic economy, the firm as a category (the modern business corporation) has remained a dominant form of economic organization. It is an institution that is unique to a market, that is, a capitalist, economy. In an important way the market economy owes its success to the business firm.

In his discussion on the feasibility of central planning under state Socialism, Ludwig von Mises pointed to the ability of private owners (investors) to calculate profitability as being the indispensable ingredient of a decentralized system, the absence of which accounted for the inevitable failure of a centrally planned one (Mises, 1920, 1966, 1981). This was part of the famous Socialist Calculation debate (Hayek, 1935a, Hoff, 1981, Lavoie, 1985a, Ramsey-Steele 1992, See also Horwitz, 1996). According to Mises, in a centrally planned economy (in which the means of production are collectively owned) the planners lack any basis on which to price the means of production. Without private ownership the inputs required to produce any collection of desired outputs would not have prices. Without this the value of their

alternative uses would not be discernible. The scope of the debate was considerably broadened by Hayek (in the 1930s) in his consideration of what information would be necessary for calculation of prospective profits by private owners, and the observation that much of this information was not available to be collected, but emerged from the market process itself. Abolishing private ownership abolished the source of this crucial information, much of it reflected in prices, necessary for basic economic calculation (Hayek, 1935, 210-11).

Horwitz (1996) and Lewin (1998) pointed to the connection between these insights and the role of money. In a market economy the existence of money, together with the institution of private property, facilitates the emergence of money prices which form the basis of the necessary economic calculation that drives the market process. How do these considerations fit in with transactions-contract based approach mentioned above?

According to the modern theories of the firm, the advantages of corporate organization derive from incentive, control, and information issues. By combining resources within the orbit of a single firm, it is sometimes possible to reduce the costs of monitoring and controlling production teams. This helps avoid the need to monitor and enforce the fulfillment of specific arms-length contracts between independent parties, acquiring knowledge about team member contributions and capabilities as they exist and change over time. Instead, the firm provides the necessary relative predictability and stability of long-term, open-ended contractual obligations with employees. The boundaries of the firm are balanced dynamically and experimentally by these advantages weighed against using specialists from the market. Juxtaposing this line of thinking with the Mises/Hayek rejection of the feasibility of socialist planning and production raises interesting questions:

1. On the one hand, if socialism is indeed irrational, in the sense of precluding the ability to perform the necessary calculations, how is it that the firm is not similarly encumbered? After all, is not a state socialist system simply one large firm? And are firms not islands of socialism in a market sea? If so, how does calculation proceed inside the firm?
2. On the other hand, if the market is necessary because it provides prices for productive calculation, why are firms necessary at all? Why not simply conduct all transactions through market spot and forward contracts?

The Coase argument, summarized above, is an answer to the second question. There are costs to using the market that are avoided by using the institution of the corporate firm. These transaction costs are related ultimately to the presence of certain types of irreducible uncertainty.

The answer to the first question is more interesting. It is a non-sequitur to conclude that if state socialism is impossible then anything resembling central planning, such as a firm, should also be impossible. In fact, they are not the same things. *Planning within firms proceeds against the necessary backdrop of the market.* Planning within firms can occur precisely because the market furnishes it with the necessary prices for the factor inputs that would be absent in a full-blown state ownership situation.<sup>3</sup> This paper explores in greater detail how calculation within the firm is possible.

In the next section following I consider this in more detail, namely, the way in which the firm provides the necessary structure for planning through calculation. I then turn to the question of whether the traditional equi-marginal conditions that characterize the neoclassical firm retain their relevance in this alternative open-ended dynamic environment. The short answer is yes they do, though in a sense different from the neoclassical context. The penultimate section considers the way in which firm's use money to budget, focusing on the common arithmetic framework used to calculate profit over time. The introduction of time necessarily implies the use of the concept of capital-value. I explore how some recent work of mine and Nicolas Cachanosky is relevant for this. The final section concludes.

### **The Firm Provides the Necessary Structure for the Calculation of Profit**

Summarizing the argument above. If the market is necessary for the viability of the firm, the opposite appears to be equally as true. That is, the firm is necessary for the smooth operation of the market process. The market economy could not consist solely of a massive amount of simple spot transactions – for current or future delivery of goods and services. This assertion

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<sup>3</sup> Klein (1996) uses this type of reasoning in interpreting Murray Rothbard (who in turn was extending von Mises on the impossibility of Socialist calculation). "[N]o firm can become so large that it is both the unique producer and user of an intermediate product; for then no market based transfer prices will be available, and the firm will be unable to calculate divisional profit and loss and therefore unable to allocate resources correctly between divisions" (Klein, 1996, p. 15).

is based on noting the central importance of economic calculation in the market process and the way in which the firm provides for such calculation. We see this by examining the calculation of profits. The earning of profits is the *raison d'être* of the firm and the ability to calculate profit is crucial. In fact, the calculation of profits is both simple and indispensable for production decisions. It is simple in the sense that the arithmetic is simple, although the elements that constitute the evaluation include anticipations and, therefore, are *not simply measured* and instead may be highly speculative<sup>4</sup>. It is indispensable in that it provides the basis for discrimination between viable and nonviable production projects (cf. Hicks, 1973, Lewin, 1997a).

### ***1. Retrospective Profits.***

First consider profit retrospectively, accounting for what has happened after the fact. How do firms decide which projects have been profitable. Profit is revenue minus cost. Revenues are the proceeds from the sale of the relevant outputs, and are relatively easy to measure in a monetary economy. Costs, however, present formidable problems that affect the nature of team production, which is the essence of production in the firm. In a market economy, when inputs (the services of the factors of production) are purchased, their purchase-price serves as the accounting cost.

From an economic point of view, this price can be seen to represent the market value of opportunities foregone as a result of purchasing the input in question. But what about inputs *owned* by the firm? How does one determine the costs of using them? What we require, strictly speaking, is an estimate of the opportunities (revenues) foregone by using inputs in one combination rather than another (the next best alternative). This requires an estimate of the hypothetical relative contributions of inputs under alternative scenarios. However, in a world of genuine uncertainty (as opposed to probabilistic uncertainty) the nature of team production is such that it is impossible to objectively measure the precise contribution of any member of the team (physical or human) – the so-called problem of imputation. If one were required to determine completely ‘accurate’ contributions and to use these contributions as the basis of cost calculations, the problem would be insoluble, as with full-blown state ownership devoid of

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<sup>4</sup> It is important to remember that profit depends crucially on the presence of uncertainty. The absence of uncertainty would imply that sales revenue was known with certainty and all other earnings (wages, rents, and interest) could and would be contracted for and there would be no residual to be taken as profit.

monetary calculation where no clue at all is provided.

The basic question is: what is the relevant opportunity foregone? Should it be the value of the net revenue foregone by the firm by doing things one way rather than another, or is it alternatively the net revenue that would be added elsewhere in the *economy* by redeploying the input in question? This latter measure is an indication of what the input might fetch in the market if it were rented out, and is closer to what we usually understand by cost in the accounting sense. It is also the cost that is relevant for the actual or prospective investor in the firm, whose hypothetical alternatives involve moving between firms under the assumption that the firm takes care of the internal allocations. But from the point of view of efficient allocation as seen by the firm's decision-maker, the former measure, using the next best alternative wherever it occurs is the more relevant.

Thus, labor inputs are paid according to an implicit or explicit monetary contract, and similarly with physical inputs (production goods) that are rented through the market using market prices. For the moment, we leave aside the determination of these rental values. From the perspective of the decision makers in the firm, they are given 'by the market'.

As I indicated, for capital (production) goods that are owned, the costs associated with their use, are more problematic. Rather than explicitly trying to measure the revenues from foregone opportunities, these costs are typically estimated according to certain *accounting conventions*. Opportunity cost principles are implicit in these conventions in that they suggest that an estimate of how much of value of the asset (productive resource) is 'used up' per period (its displaced marginal value product) or sacrificed in current production. This is an implicit estimate of how much value is foregone by pursuing this line of production as compared to the relevant alternative (how much revenue net of replacement could have been earned by this asset elsewhere in the relevant period). There is obviously no correct way to do this. We are faced with the problem of measuring the relative contributions of the inputs under different imaged scenarios, and this surely is an important aspect of the managerial problem. Being subjective, the cost measure relevant to one particular decision-maker will vary from another according to their perspectives, incentives and expectations. The reported profit number may differ from the subjective 'profit' perceived by the entrepreneur.

In sum then, where markets exist, the value of the joint *output* for any project as a whole, once

measured or estimated, is much easier to determine than in the absence of markets. In a sense, one half of the problem is solved, that of valuing an output measured. As for measuring the contribution to output, the inputs, as we have seen, there is no avoiding certain elements of convention. *What the institution of the firm does (together with the institutions of money and accounting) is to provide these conventions.* By distinguishing between contractual and owned inputs, one avoids the need to estimate the alternative marginal products of the former. The judgment involved in measuring the latter affects the profit calculation and lends to it an unavoidable element of arbitrariness. This means that profit, even measured retrospectively, necessarily contains elements of subjective judgment or convention.

Market prices provide some necessary objective ingredients for a profit calculation which must be supplemented by estimates of user costs for owned resources. And the profit calculations that emerge provide a widely accepted way of adjudicating between viable and nonviable projects. This is reinforced in the long term by *the presence or absence of cash flow*. If the short-term estimation of user cost (or capital maintenance requirements) is injudiciously made, the cash flow eventually becomes negative as the underestimation of capital-maintenance charges becomes apparent and cash is absorbed in the replacement or repair of capital assets. So, in this way, the firm and the market provide the indispensable basis for the calculation of profits.

We have asserted that market prices provide the cost signal for contractual inputs, while leaving aside how the market price is determined. So, what do market prices measure? Of course, in the final analysis, when a rental price of a durable asset (a physical capital asset or the price of labor services) is determined by contractual arrangement, the terms of the contract, most especially the price, must be determined with reference to exactly the same considerations that are relevant in the case of owned resources, namely the evaluation of alternative production opportunities. The market price is a short-hand reference to the results of decisions taken by 'everyone else'. What determines other people's decisions are the same things that determine this firm's decisions. Market prices can exhibit more or less variation. When assets are generic and have enough multiple uses in the market that people's judgments of their worth become embodied in the stock of information available to decision makers in general (e.g., the published set of prices for used cars, certain kinds of production equipment, or wages for certain labor services) they appear more 'objective' in nature. They reflect to some extent the trial and error experience of many decision makers. And as such this kind of information is not available without a market.

This, although necessarily subjective and involving elements of entrepreneurial judgment, calculations of profit are facilitated by the framework provided by at least three interacting institutions - the firm, money, and accounting practices - within the umbrella institution of private property. Indispensable elements of judgment involve the attribution of relative shares to the inputs, which is necessary to arrive at an estimate of what each input costs, that is, what sacrifice each input entails, and what each input thus contributes and is paid.

## ***2. Prospective Profits.***

The framework just discussed above for calculating retrospective profits, provides the basis for the *prospective* calculation of profits as entrepreneurs project, on the basis of past information and conjecture, the emergence of profits in the future. By comparison between prospective projections and retrospective calculations further decisions can then be made.

### **What becomes of the neoclassical optimality (equi-marginal) conditions?**

It is important to emphasize that there is nothing in this account to suggest that the decisions taken with regard to profitability are in a global sense optimal. Successful projects are viable, not optimal. There is no way to decide, in this open-ended framework, whether any outcome is or is not Pareto optimal in a global or partial sense.

Given that in the real world firms operate in disequilibrium suboptimal conditions (relative to some ideal theoretical optimum) what becomes of the familiar neoclassical microeconomic efficiency conditions? For example, is it still true that the condition  $MR = MC$  is both necessary for the maximization of profit and a description of what the entrepreneur actually does? My answer to this question is an emphatic 'yes' This occurs in a context that is preferable to the standard neoclassical context. Furthermore this is true of all the equi-marginal conditions, including the equaling of any factor rental price to its (estimated) marginal revenue product,  $P_f = MRP_f$ .

Consider the prices of contractually purchased factor inputs. Are they made equal to their marginal revenue products? As team production does not admit to any simple solution to the imputation problem, it is difficult to see how this could happen in any straightforward way. To be sure, in a market environment of negative feedback when certain key aspects of the

environment, like the available set of techniques of production, consumer tastes, and so forth are unchanging, or changing very slowly, sufficient variations in adopted techniques could result in the gravitation toward valuations of market-traded inputs that represent the values of their marginal products (along unchanging marginal product curves). Under the postulated conditions, the market provides for continuous variations in input and resultant variations, *ceteris paribus*, in output. But this is by no means assured, and in the absence of such static stable processes, the prices of the factors must be seen to represent the market's assessment of their worth. That is, these prices are what people, given their best guesses and estimates, have been willing to pay. As time passes the prices change as the projects in which the inputs are employed succeed or fail and to the extent that they are specific to those projects. The market prices for inputs are not equilibrium prices but they do furnish an important and indispensable basis for the calculation of profits. Without market prices firms could not plan as they do.

But, significantly more can be said. In the Austrian version of the marginalist revolution, that is, the insight that valuations made on the margin are the basis for decisions, there is no supposition of any systemic equilibrium. The equi-marginal principle should be understood not as a description of observable values, but rather as a description of the necessary (conscious or instinctive) mental process required by any decision-maker in the process of choosing the best alternative course of action.

Consider the decision about whether to hire an additional worker in a manufacturing concern. Imagine that the market wage and the wage asked by a prospective worker is \$10 an hour. Under what circumstances will the decision-making employer hire the worker? Clearly and trivially, the worker will be hired (all else constant) as long as the employer believes (expects) that the worker will add, by his production, more than \$10 to the revenue of the firm. This logic is inescapable<sup>5</sup>. Workers will be hired right up to the point, or as close as possible, where the expected marginal revenue product is marginally above (equal to) the increase in total cost, marginal cost, in this case the market wage. The validity and relevance of the equi-marginal principle holds when understood as a description of the necessary economic logic that must attach to the hiring decision in a competitive economy. It is not valid and relevant when understood as a description of what does or will necessarily prevail retrospectively, that is, as a description of actually recorded

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<sup>5</sup> Is this an example of what Mises would call 'apodictic certainty'?

(marginal) revenues and costs – even assuming it were possible to accurately measure the marginal product of a particular category of worker. For this to be true, the expectations of the hiring entrepreneur must turn out to be correct. And, in a dynamic world where entrepreneurial expectations differ, most will, to some extent, be incorrect. The more correct will be more successful and in that way, and in that sense only, marginal revenues will tend to equal marginal costs.

What is true for the hiring decision is, by the same logic, true for the production decision, the labor supply decision, the consumption decision and so on. The general principle, act where the additional benefits exceed the additional costs (including foregone benefits of choosing the next best alternative) is trivially valid and applies universally, and certainly not only in equilibrium. The economy is a dynamic process propelled by thoughts and actions not a state of affairs characterized by equalities at the margin. But the same logic applies to both. And the equi-marginal principles, correctly understood, apply as much to the Austrian firm as to the neoclassical firm.

The ability to calculate profit, both expected and past, is essential to the working of the market process as we know it. It cannot be duplicated by a central planning system. It is a trial and error process in which the variables are not only the varied and often spontaneously emerging techniques of production, but also the various incentive information alignments that come with combinations of firm shapes and sizes and contractual obligations that characterize the market. In addition, the prices for the factor inputs, although not equilibrium prices, bear a crucial connection to the prices of the outputs they help to produce and, therefore, to the preferences of the consumers who buy them. Producers take their signals from prospective revenues and impute values to inputs when they exercise judgment in the formation of capital combinations (Lachmann, 1978, Lewin, 1997b).

### **Money and Calculation: The Ability to Budget**

Mises claims that the inability to calculate the economic significance of capital projects is what dooms central planning with public ownership of the means of production. Horwitz argues that Mises bases this claim on his understanding of the fundamental properties of money and the

emergence of money prices for the heterogeneous means of production. We have discussed the more precise context of these money prices. For Mises they are "aids to the human mind" in performing the calculations on which actions are based. The crucial point here is that the institution of money and money accounting allows decision makers to *budget*. Without the ability to budget, production could not occur, it could not be organized. Budgeting implies an intertemporal framework, the tracking of value over time. It provides the individual planner with meaningful orientation points against which to measure action. The meaningfulness derives from the fact that money prices within the framework of money accounting are *socially* meaningful, they are understood by all market participants, part of a shared language or orientation. When money is functioning normally (when there is no inflation), money prices represent a shared sense of what things are worth in the market. Meaningful money prices in the absence of private property is a contradiction. It is private property that allows for the orderly development of production activities. By "orderly" we mean widely understood and accepted; peaceful.

We can understand this in terms of the simple present value arithmetic that decision makers use when appraising capital projects. The *prospective* capital-value of any project is thought of as the discounted present value of all of the useful outputs that it is expected to yield over its life. The *retrospective* capital value of the same project is the accumulated value of the investments actually made. Any difference between the two is a capital gain or loss (see Hicks, 1973, Lewin, 1997a, Lewin and Cachanosky, 2020). As a result of the occurrence of capital gains and losses, changes in the capital-value of the business venture, producers alter the capital structure. Successful ventures displace unsuccessful ones. The whole process proceeds peacefully, although not painlessly, as the economy engages in a form of implicit experimentation whose results are calibrated in the form of money.

In a single firm's accounting statement itemizing the total costs of a project and comparing this total to the revenues received is contained a wealth of scarcity information that neither the accountant nor any other agent in the system could ever gather. Each price of purchased, rented, and hired factors reflects a complex tension among diverse plans that have tried to pull the relevant factor into alternative uses. The profit and loss calculus itself then determines whether the particular combination of inputs under consideration yields an output that is expected to pay its way in the market. The fact that all this scarcity information is expressed in quantitative form permits each decision-maker to test extremely complex combinations of factors for their

profitability while simultaneously relying on similar tests being conducted by rival decision makers (Lavoie, 1985b, p. 71).

In recent work Lewin and Cachanosky have developed a formal framework to illustrate the logic of present value accounting and how it helps the entrepreneur make decisions along the three dimensions of capital-value, time, quantity, and value (Lewin and Cachanosky, 2019, 2020).

In conventional microeconomics, the profit ( $\pi$ ) of the firm is represented as total revenue minus total costs. There is no time consideration, therefore there is no need to discount the economic profit of different periods to its present value. It is also usual to divide total costs into two components, labor ( $L$ ) and capital (with the usual  $K$ ). Labor is measured in time units (i.e. hours of work) and multiplied by its wage per unit ( $w$ ). Capital shows up differently. Capital is already a nominal value that is multiplied by the interest rate ( $r$ ), which is interpreted to be its price. This is shown in the familiar equation 1 (where  $\mathbf{p}$  and  $\mathbf{q}$  are the price and quantity vectors respectively).

$$\pi = \mathbf{p}\mathbf{q} - wL - rK \quad 1$$

The prices of  $L$  and  $K$  are supposedly equal to the value of their marginal productivities. I have explained above why this approach is misleading. We make two changes to the neoclassical formulation, one notational, and one conceptual, and we introduce the consideration of time. Following Irving Fisher, we consider all productive resources to be capital assets, divided between human capital (labor) and physical capital. The firm can either rent or own physical capital assets and use their services, but can only rent human capital and pay a wage to purchase its services. We designate the set of inputs as  $i_j = i_1 \dots i_n$  for  $n$  input types. Secondly, following Mises (and Menger) we insist that capital must refer to the *value* of the business venture (or production project) as a whole and not to the quantity any class of physical inputs (see Braun, Lewin and Cachanosky, 2016). Accordingly, the variable  $K$ , is to be understood as the capital value of the firm – evaluated by whoever is the relevant decision-maker. Thus we will replace equation 1 with

$$\pi = \mathbf{p}_i \mathbf{o}_i - \mathbf{p}_j \mathbf{i}_j \quad 2$$

$\mathbf{p}_j$  and  $\mathbf{p}_i$  and the price vectors for the  $m$  outputs ( $\mathbf{o}_i$ ) and  $n$  inputs ( $\mathbf{i}_j$ ) respectively.  $\pi$  is thus the profit, or net cash flow, for the current period. Introducing the *time dimension* there are  $T$  total periods. At any point of the time the capital-value of the firm or project is

$$K_t = \sum_{t=1}^T f^t \pi_t \quad 3$$

where  $f^t = \frac{1}{(1+r)^t}$  is the discount factor at time  $t$ , and the discount rate is  $r$ .

We can easily see the relation of  $\pi$  to the familiar rate of return on invested capital (*ROIC*) by dividing by  $K$  as follows;  $\frac{\pi}{K}$  is equivalent to *ROIC*. It could be argued that the microeconomic analysis of the Austrian firm profits uses this type of reasoning. Equation 4 measures the *ROIC* against  $r$ , the alternative market rate of return, or, alternatively, the marginal cost of capital.

$$\frac{\pi}{K_t} = \frac{\mathbf{p}_i \mathbf{o}_i - \mathbf{p}_j \mathbf{i}_j}{K_t} - r \quad 4$$

Note, the prices now refer to either market prices or the entrepreneur's estimate of the cost of using owned assets (the cost of their service to the firm) in the manner discussed earlier. These are not equilibrium prices. And yet, as explained, the marginal conditions still apply, though in a very different way.

Using familiar current concepts from the literature and practice of financial management, this framework can be extended to break out estimated intra-firm divisional rates of return and how changes in relative prices (however caused) will likely affect the allocation of resources within firms in a way familiar from neoclassical economics, but without the heroic equilibrium assumptions.<sup>6</sup> To be sure, the theoretical constructs refer to financial accounting estimates and are subjective evaluations by the relevant decision-makers, not observable by outside analysts. They are not less real and are descriptive of what happens in the real world.

## **Conclusion**

I have tried to make a case for a different way of conceptualizing the firm, one that builds on Austrian ideas and combines them with familiar financial concepts and practice. The possibility of theoretically conceiving of a the neoclassical (price only) competitive system in which all calculation is miraculously done to achieve some ideal system wide equilibrium, should not blind us to the reality that in real-world business organizations it is the ability to calibrate plans and results in the form of money that allows businesses to function smoothly. Money provides the report card for business.

The corporate structure facilitates calculation in providing a cognitive framework, a set of rules, routines (some of them tacit), and conventions for the attribution of input costs and for governing individual behavior of firm members that serve to guide decision makers' expectations.

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<sup>6</sup> For details see Lewin and Cachanosky (2020) chapters 8 and 9.

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