The Austrian School of Economics and the Theories of the Firm: The Inseparable Trio of the Entrepreneur, the Firm, and the Market Process[1]

Turan Yay[2]

Received: 12 April 2025; Accepted: 18 May 2026.

ABSTRACT

Over the past 50 years, in the process frequently referred to as a "quiet revolution," various theories of the firm have emerged. In this context, the present inquiry examines the contributions of the Austrian School of Economics to the understanding of the theory of the firm integrated with entrepreneurship and market processes. Until the 1990s, debates within the Austrian School questioned the existence of a distinct theory of the firm. However, since 2000, previous research has led to the development of a unique Austrian theory of the entrepreneurial firm that integrates market-process analysis. While transaction-cost, resource-based, evolutionary, or behavioral theories are widely recognized, the Austrian entrepreneurial theory of firms offers a new perspective connecting market dynamics, entrepreneurship, firms, and competition. Furthermore, this Austrian perspective creates promising opportunities for interdisciplinary collaboration across economics, organizational theory, and strategic management, thereby enhancing our understanding of these crucial areas.

JEL Classification Codes : B53, D21, D23, L14, L22, L26
Keywords: Austrian Economics, theory of the firm, market process, entrepreneurship, competition, organization theory, strategic management.

Despite the centuries-old existence of economic organizations, the "theory of the firm" has only become a serious focus for mainstream economists over the past 50 years, evolving during what is now referred to as a "quiet revolution" (Demsetz 1997; Williamson 1985). The present inquiry is motivated by three interrelated observations. First, the 2008 Great Recession and the COVID-19 pandemic demonstrated that, beyond macroeconomic and financial shocks, the organizational structures and boundaries of firms—the "micro actors" of these crises—require a critical reexamination (Foss 2010; Arvanitis & Loukis 2024). Second, as emphasized by Hart (2011), the persistent real-world diversity of organizational forms (cooperatives,

[1] This study was first presented at the 8th Annual Madrid Conference on Austrian Economics, held on October 24-25 at Universidad Rey Juan Carlos, Madrid, Spain, where it received the best paper award. The author is grateful to anonymous reviewers and the editor for their valuable feedback in finalizing this article.
[2] Prof. Dr., Yeditepe University, Business School, Department of International Trade & Business, Istanbul, Turkey. ORCID: 000-0003-3729-9264. turan.yay@yeditepe.edu.tr

family firms, etc.) challenges the development of a unified framework, rendering the theory of the firm one of the least agreed-upon areas in economics. Historically, despite pioneering works by Knight (1921), Coase (1937), and Penrose (1959), a myopic specialization led to a "Great Divide" between economics and strategic management (Davis & DeWitt 2021). However, since the 1990s, an interdisciplinary convergence has started to bridge this gap (Kay 1991; Langlois 2001). Third, while the Austrian School (Mises, Hayek, Kirzner) has long offered a robust market-process theory emphasizing decentralized knowledge, dynamic competition, and entrepreneurship, these insights were historically overlooked in firm-level analysis, leading to the early consensus that "there is no Austrian theory of the firm" (O'Driscoll & Rizzo 1985). However, since the 1990s, as contemporary Austrian scholars and strategic management researchers started to actively collaborate to integrate these perspectives, a mutual interest has emerged (Bylund 2016).

In this context, the present inquiry examines the contemporary contributions of the Austrian School of Economics to the theory of the firm. It begins by analyzing the development of the mainstream "black box" approach and its internal critiques. Next, I examine heterodox theories of the firm, including knowledge-based, behavioral, and evolutionary theories. Finally, the focus shifts to whether a coherent Austrian alternative exists today. The conclusion emphasizes that any discussion overlooking the Austrian perspective will be incomplete, as this framework effectively integrates the concepts of the firm, entrepreneurship, and market processes. This integration provides a crucial foundation for interdisciplinary research across economics, organization theory, and strategic management.

1. The Mainstream Firm Theory Debate and Its Internal Development

Although firm and entrepreneurship are the most frequently used terms among economists in their daily discussions, these concepts did not appear in mainstream microeconomics until the 1970s. In the 1970s, a group of economists including Williamson (1975, 1979, 1985), Alchian and Demsetz (1972), Klein, Crawford, and Alchian (1978), Jensen and Meckling (1976), Hölmstrom (1979), Cheung (1983), Demsetz (1988), and Grosman and Hart (1986) pioneered a framework named *the mainstream theory of the firm*. Based on R. Coase's (1937) article, this theory not only defined a research field that consisted of three subject matters—namely, the reasons for the existence, boundaries, and internal structures of firms—but also triggered lively and fruitful discussions. While proponents of the theory extended the field step by step by introducing new concepts and criticizing existing ones, opponents contributed to the debate by suggesting alternative perspectives.

Economists, including Coase himself, found it interesting that Coase's 1937 paper remained *"the most cited but unused work"* for the next 40 years (Coase 1993c, p. 61). A second surprise was that the Austrian School neglected this area until the 1990s, even though it had all the elements necessary to analyze the firm and contribute to the ongoing debate. The source of these two confusing situations was identical: the dominance of the Walrasian general equilibrium framework over mainstream

economics. During this period, frequently referred to as the formalist revolution, the mathematical proof of the existence and uniqueness of equilibrium in the abstract general equilibrium model was paramount. Therefore, neither testing the model's predictions nor the truth of its assumptions was needed (Weintraub 2002; Blaug 2003). In this context, during the project aimed at bringing the neoclassical (Walrasian) general equilibrium framework to its mathematical zenith, mainstream economists had no time to address trivial issues, such as firm and entrepreneurial concerns, that could undermine their project. In addition, despite its mathematical elegance, the dominance of neoclassical mainstream economics (consisting of Walrasian general equilibrium microeconomics and Keynesian macroeconomics) during the stagflation crisis of the 1970s and 1980s has been questioned. In those years, the Austrian School was one of the schools that both criticized and engaged in paradigmatic competition with mainstream economics. Therefore, for Austrian mainstream economists, it was more vital to address critiques of the mainstream paradigm, from its methodological foundations to its unrealistic theoretical structure and failures in policy recommendations (for further discussion, see Boettke 1997).

1.1. Pioneers of the Mainstream Theory of the Firm

As stated above, the essential claim of *the mainstream theory of the firm* is to complete what neoclassical microeconomics lacked: an analysis of the firm. It was a research project whose primary objective was to examine the reasons for the existence, boundaries, and internal structures of organizations playing a leading role in economic life—namely, firms.

The hardcore of mainstream (neoclassical) price theory, whether the Marshallian partial equilibrium model or the Walrasian general equilibrium model, is an exchange model under perfect competition in which the price mechanism ensures economic equilibrium and efficiently allocates resources. Moreover, the perfect-competition model without information costs is unsuitable for understanding or explaining the firm: in this model, actors maximize their utility functions (wealth), disregarding others' decisions; all parameters are given or determined impersonally (by prices). All economic decisions are beyond the control of any actor or institution of the model (Demsetz 1988, pp. 142–144). The production process has just decreased to a production function (or an input-output relationship) (Fox 2014; Conner 1991, p. 123). Perhaps the best summary of the firm theory in neoclassical value theory was formulated by Edith Penrose (2009, pp. 9–10):

> The theory of the firm (...) is part of the wider theory of value, indeed one of its supporting pillars, and its vitality is derived almost exclusively from its connection with (...) the economic analysis of the problem of price determination and resource allocation. In this context, only those aspects of the behavior of firms are considered that are relevant to the problems that the wider theory is designed to solve. (...) the “equilibrium” of the “firm” is, in essence, the “equilibrium output” for a given product (or given group of

> products) from the viewpoint of the firm. Hence, if we become interested in other aspects of the firm, we ask questions that the “theory of the firm” is not designed to answer. (...) In that theory, the “growth” of a firm is nothing more than an increase in the output of given products, and the “optimum size” of the firm is the lowest point on the average cost curve for its given product (...) The model is not designed for the analysis of a “firm” free to vary the kind of products it produces as it grows.

In short, we have a miracle framework without a place for operation, organization, and entrepreneurship. Said differently, the neoclassical price theory provides us with neither a rationale for the presence of firms, their boundaries, their internal organization, nor the role of entrepreneurs in the market (Arrow 1971, pp. 68–69; Debreu 1959, p. 37; Walker 2017, p. 45). By the 1980s, there was no significant progress in the neoclassical framework; the same criticisms were valid (Hughes 1986, p. x):

> The problem of entrepreneurship for economists is that the best-developed and best-understood part of economic theory – neoclassical economics – is really mathematics. Business firms in that system are merely formulas, "production function[s]. There are no people, no institutions; it is a timeless paradigm of resources shifting back and forth according to relative prices and cost changes. This has meant that entrepreneurship, the most forceful, dramatic, and obvious phenomenon of economic life, has been ignored by theoretical economists in their story of how economic events happen.

As noted in the introduction, Frank H. Knight was one of two economists who inspired discussions on the theory of the firm that emerged in the 1970s. As Knight argued in his masterpiece *Risk, Uncertainty and Profit* (1921), he aimed to investigate “the problem of profit in distributive theory" (Knight 1964, p. 18). However, this does not mean that the role and functions of entrepreneurs in his study were of secondary importance. Indeed, the critical distinction in *Risk, Uncertainty, and Profit* between the theory of imperfect competition and the theory of perfect competition highlights a difference between the two analyses. The first of these two analyses emphasizes time, but does not assume any tendency towards equilibrium. The second analysis, the theory of perfect competition, refers to a timeless (static) equilibrium that can also move towards a long-term dynamic equilibrium. The implicit rejection of a tendency towards equilibrium indicates Knight's orientation towards a theory of organization, rather than a price theory (Gaffard 2022).

As argued by Knight (1964), his study's "specific technical contribution was to provide a more thorough examination of the role of the entrepreneur in the theory of free enterprise and the forces that determine their compensation" (p. x). In other words, profit, entrepreneurship, and enterprise are the aim and subject of the same economic activity: Entrepreneurs make profits by arranging productive services in advance at agreed-upon rates and then by selling the finished product in the market. Competition

for productive services relies on anticipations. Change causes uncertainty, which is why we have incomplete knowledge about features. Therefore, this challenge is crucial to comprehend both profit and entrepreneurship.

Yet business decisions are not made in a vacuum of complete ignorance or perfect information but rather are based on partial information. To fully grasp the functioning of the economic system, it is crucial to examine uncertainty and, more specifically, the nature and function of knowledge. This genuine uncertainty prevents the theoretically perfect functioning of competition, shaping enterprises and organizations, and accounting for the unique income of the entrepreneur (Knight 1964, p. 232).

In times of uncertainty, two significant aspects of economic organization come into play. First, producers produce goods for a market based on impersonal predictions of consumer needs. Second, a select group of producers, known as entrepreneurs, is tasked with making predictions and controlling the technological direction and production. In times of uncertainty, making decisions and organizing productive groups becomes even more crucial. This is where the concept of "cephalization," which refers to the centralization of decision-making and control within the organization, comes in. This concept is essential for effectively managing productive groups (Knight 1964, p. 269). In addition, when managerial functions involve judgment and the assumption of liability for decisions, the manager becomes an entrepreneur responsible for thoughtful decisions and routine tasks. An entrepreneur's success depends on sound judgments (based on trust in their anticipations) regarding external and internal factors that affect production, as well as on managerial capacity (Knight 1964, p. 281).

Knight's views have been interpreted in various ways and are widely regarded as the starting point for several essential theories of the firm. One belongs to Harold Demsetz (1988, p. 144; 2001, pp. 2–4): Knight's view of the firm is an efficient risk-sharing organization based on risk aversion and costly knowledge. The firm's revenue is shared between the entrepreneur, who specializes in risk-taking under uncertainty, and the employees. Employees receive a predetermined income, while entrepreneurs receive the firm's residual income. The second interpretation of Knight's view suggests that the firm results from the entrepreneur's decisions, based on their intuitive judgment about what to produce and how to produce it under uncertainty. The uncertainty for the entrepreneur arises from the fact that the price at the time of the production decision is unknown and depends on changes in consumers' preferences and competitors' reactions. Said differently, the Knightian firm facilitates entrepreneurial decision-making in a world of genuine uncertainty (Boudreaux & Holcombe 1989). According to each other's interpretations of entrepreneurial judgment, this economic function cannot be outsourced by contract and, therefore, requires some degree of effective control, design, and ownership of productive assets. Because of the necessity of judgment, a firm is a form of economic cooperation where some incomes are determined by contract, while others are acquired as a residual share of ownership (Langlois & Cosgel 1993; Langlois 1994; Langlois 2007; Foss & Klein 2009).

Sixteen years later, Ronald Coase (1937) drew economists' attention to the absence of a firm theory in neoclassical economics and established the economic

rationale for the existence of firms as a research program. If markets are sufficiently efficient at resource allocation, why do some transactions occur within the firm? Coase answered this question about the costs of transacting in a world of imperfect information. If transaction costs due to market use exceed the costs of managing, it would be more effective for firms to replace markets with internal arrangements. The reason for that is that the two most essential market transaction costs are (i) discovering what the market prices are and (ii) negotiating a contract for each exchange transaction. According to Coase, when bargaining replaces authority, these costs are avoided within the firm: employers tell their employees what to do, and employees obey. Thus, the hierarchical allocation of goods and services is more efficient than the exchange of property rights through the price mechanism. This explanation provides the economic rationale for firms' existence and the determination of their boundaries. Optimal transaction costs determine the boundaries of firms: the transaction cost of an additional transaction conducted via the market must equal the transaction cost of the firm that organizes the same trade (Coase 1937, 1993a-d).

Coase aimed to develop a realistic, manageable, and suitable theory of the firm for formal equilibrium analysis. To this end, he focused on Alfred Marshall's concepts of "margin" and "substitution." The firm's existence and expansion can be clarified by comparing the marginal costs of organizing within the firm with those of organizing in another firm and in the market. According to Coase (1937, p. 405), entrepreneurs' trial-and-error experiences over a significant period will lead to a static equilibrium analysis. More interestingly, in the final section of his article, Coase (1937, p. 403) added that the best understanding of a firm in the real world is its legal relationships.

The most cited economist in Coase's article is Frank H. Knight. Coase (1993b, p. 49) noted that Knight's book was well known at the LSE when he wrote the first version of his 1937 paper, but he had not yet read it. After reading it, he concluded that Knight's analysis of the firm was "irrelevant" to his problem. He considered Knight's view of the firm's distinctive feature is the mode of payment – the guarantee of fixed income to those engaged in production. Concurrently, the entrepreneur receives the remaining income as fluctuating income. However, this perspective does not explain why the price mechanism does not directly determine resource allocation (Knight 1936, p. 392).

The second critique of Coase against Knight was that having better judgment or information does not necessarily mean that someone can profit from actively participating in production. Instead, they can sell their advice or information. Businesses can purchase consulting services and establish a firm by acquiring all necessary advice and information. It is also possible to obtain more accurate information or judgment by contracting those directly involved in production. Much of the work is carried out under contract, under which the contractor is guaranteed a specified amount upon performing specified actions. However, this provides no direction. (Coase 1937, pp. 400–401; cf. Knight's and Coase's understanding on firm; see also Langlois & Cosgel 1993; Langlois 2007).

Coase also disagreed with Knight's theory that the firm's size can be explained by its monopoly power in the market. Coase argued that the firm's size can be

explained by the fact that the firm will eliminate some costs and reduce the cost of production: the decreasing returns of the entrepreneur's function, the decrease in factor prices, and the decreasing costs because of the reduced frequency of making mistakes and the developments in managerial techniques would increase the firm's scale. Transaction costs can also explain firms' combination and integration (Coase 1937, pp. 394–397).

From the 1970s, economists' growing interest in Coase's (1937) article and the theory of the firm's entry into the economists' agenda was due to studies by the mainstream firm theory economists mentioned above. These studies began with Coase's suggestion on the existence of two alternative coordinating mechanisms in an economic system: the price mechanism and managerial coordination. In short, the firm's existence is a choice problem among these coordination mechanisms, based on efficiency criteria (transaction-cost versus management-cost). Thereafter, they shifted their focus from coordinating to the internal organization of firms and developed various hypotheses about the role of incentives in shaping firm decisions and boundaries (Holmström & Roberts 1988). As a result, mainstream firm theory includes multiple models and hypotheses in this context (see Table 1).

1.2 Cornerstones of the Mainstream Theory of the Firm

To ensure a clear discussion of the sub-models within mainstream, heterodox, and Austrian firm theories, it is helpful to establish a taxonomy outlining the scope of our analysis. This taxonomy is based on the following three key criteria: their understanding of rationality, the focal points of emphasis (whether they prioritize production or exchange), and the foundational basis (whether they are grounded in legal or economic principles) (Winter 1993, p. 187; Bylund 2016).

Tables 1–2 classify economic theories discussed as the mainstream and heterodox approaches of the firm. Three key points about these theories of the firm can be highlighted. First, except for the core of neoclassical economics, all theories have moved away from the assumption of unbounded rationality. Second, while mainstream theories of the firm usually focus on the exchange stage, heterodox theories highlight the production stage. Finally, mainstream theories, frequently called economic theories of the firm, see the firm as a legal entity at the end of their analysis. Therefore, creating a consistent pure economic theory of the firm is an important goal for economists.

The first sub-model of mainstream firm theory, known as *team production theory*, started with Coase's observation about the essential weakness of neoclassical economics. The firm's *raison d'être* depends on the efficiency criterion: the firm is established when management costs are lower than the market's transaction costs. Alchian and Demsetz (1972) argued that the dichotomy between the role of authority within the firm and that of consensual trade within the market is a weakness of Coase's theory. They disagreed with Coase's view that authority relationships characterize firms.

Alchian and Demsetz (1972) aimed to evaluate the contributions of each participant in *joint or team production*. To this end, the authors discussed two natural extensions of the team production: *monitoring* and *shirking*.

Table 1: A Taxonomy of Mainstream Theories of the Firm

Pioneers	Theories of the Firm			Rationality: (Bounded or Unbounded)	The Focal Point: (Production or Exchange)	Foundational Logic; (Legal-based or economics-based)	The firm is
Marshall (1890) Arrow & Debreu (1954)	**Neoclassical Microeconomics**			**Unbounded** Maximization with perfect foresight	**Production:** Black-box Just production function	**Market-based** Market equilibrium	**A "black box."**
Coase (1936)	**Firm as a Nexus of Contracts**	**Shifting the focus from financial aspects to a more nuanced managerial perspective, and to the owner (power)**	**Team Production Theory** Alchian and Demsetz (1972)	**Calculative Bounded Information Gap**	**Exchange/ Contract** for the production stage	**Legal-based** Ownership as a residual right	**A team production hub.**
			Principal-Agent Model of the Firm Jensen and Meckling (1976), Holmstrom and Roberts (1988)		**Exchange:** Incentive alignment	**Legal-based** nexus of contracts	**A nexus of contracts.**
			Property Rights Theory Grossman and Hart (1986) Hart (1989) Hart and Moore (1990) Rajan and Zingales (1998)		**Exchange:** Contractual Gap	**Legal-based** residual rights of control	**Ownership of physical assets**
Knight (1921)			**Management Theories** Demsetz (1988)	**Bounded Information Gap**	**Production:** Managing the firm	**Legal-based:** Ownership as a residual right	**An organization managed by skilled leaders to serve its stakeholders.**
Coase (1936)	**Transaction Cost Economics** Williamson (1979,1985)			**Bounded Cognitive Gap**	**Exchange:** Minimizing transaction costs	**Economics-based** governance efficiency	**A solution to market failure**

The table was prepared by the author.

In this sense, firms exist because certain tasks require a team, and it is difficult to measure exactly how much effort each person contributes. As an individual receives 100% of the benefit from shirking, but loses only a fraction of the total output, everyone has an incentive to "shirk". To solve this situation, the owner/manager of the

firm acts as a central monitor, with rights such as residual claimant status (i.e. keeping the profits left over after everyone else is paid), a partner in all contracts related to inputs, and the authority to change the membership of the team.

Demsetz (1988) expanded the rationale for why firms exist: the management theory of the *firm*. He proposed that firms do not exist to prevent shirking; rather, they exist to manage specialized knowledge. Said differently, the real costs include not only monitoring but also acquiring and managing knowledge amid information asymmetries. Since the primary challenge is the high cost of acquiring and managing knowledge, the firm needs to be managed by someone with specialized expertise. Viewed from this perspective, a firm exists because it is more efficient for a manager to guide stakeholders using their expertise within the company than to renegotiate every contract detail in the marketplace. The manager thus functions as a coordinator, leveraging their knowledge rather than simply overseeing operations. Demsetz (1988) argued that the defining feature of a firm is not authority or command, as Coase suggested, but instead a nexus of contracts designed to measure performance and allocate rewards. Therefore, unlike Alchian and Demsetz, Demsetz's management theory has shifted focus from "monitoring" to emphasizing "information and coordination."

Furthermore, according to Jensen and Mechling (1976), many problems associated with the inadequacy of the mainstream theory of the firm in the 1970s can be viewed as special cases of *the theory of agency relationships*. Their model is important from various angles: first, it addresses the same problems as the property rights approach and complements it. Second, it places Alchian and Demsetz's (1972) theory of the firm, which is based on the problem of shirking and production monitoring within a team, within a broader framework. Third, agency theory also extends the theory of the firm to include the financial market (by ownership structure). Fourth, treating the firm as "a nexus of contractual relationships" suggests that personalizing it—by asking questions such as "what should be the firm's objective?"—can be misleading. The firm is not an individual; rather, it is a legal construct (fiction) balancing the conflicting objectives of individuals within contractual frameworks. Therefore, the firm more closely resembles a market that arises from a complex equilibrium process. Finally, Jensen and Mechling (1976) addressed the incentives and factors affecting the equilibrium contractual arrangement between the firm's manager (the agent) and its external equity and debt holders (the principals).

Returning to the agency relationship, it is a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform a service on their behalf, thereby delegating decision-making authority to the agent. If both parties in the relationship are utility maximizers, there is a good reason to believe that the agent will not always act in the best interests of the principal. In the principal-agent relationship, while the principal would try to limit deviations from their interests, the agent would pursue their own; the system's equilibrium will be determined by the conditions of monitoring, bonding, and agency costs (residual loss), both pecuniary and non-pecuniary.

Holmström and Roberts (1988) expanded this framework into organizational economics by addressing the complexities of internal management and multitasking, rather than focusing only on simple financial misalignments. The authors argued that the primary challenge is not merely preventing an agent from slacking off, but ensuring they concentrate on the right tasks. The authors introduced *the incentive-intensity principle*, showing that when an agent handles multiple tasks—some easily measurable like sales, while others harder to quantify like long-term quality—high financial bonuses can backfire. While Jensen and Meckling (1976) examined profit distribution, Holmström and Roberts (1988) emphasized how information balance and task complexity shape a firm's boundaries and incentives, shifting the focus from financial aspects to a more nuanced managerial perspective.

While neoclassical economics readily internalized the principal-agent framework, another theory of the firm in this group, called *transaction cost economics,* came to the fore. Although economists accepted Coase's central idea that firms arise to economize on transaction costs, the exact nature of the transaction costs remained unclear. What was beyond the learning and haggling costs as a significant component of transactions? Williamson (1985, 1993) delved into the specifics of transaction costs to "operationalize" Coase's theory. (Coase (1993c, p. 63) also supported this effort: "I think it is largely correct"). He primarily examined situations where economic actors make investments specific to a particular individual or set of assets.

Next, *the economics of transaction cost* (or *the asset specificity approach*, as Williamson (1973) regards as the most distinguishing feature of the view) treats the transaction as the basic unit of analysis. It emphasizes that the organization's form does matter. Williamson sums up the components of his study in the following four items: it is more microanalytic, more transparent about the behavioral assumptions, emphasizes the economic importance of asset specificity, relies on more comparative institutional analysis, regards the business firm as a governance structure, rather than as a production function, and places a greater weight on the ex-post dimensions of the contact relationship (Williamson 1985, pp. 17–18). In addition, the economics of transaction costs moves from the contractual view, defining human nature in the real world by reference to *bounded rationality* and *opportunism*. The former refers to limits of cognitive competence; the latter states that self-interest seeking with guile rather than simple self-interest seeking (Williamson 1985; Chapter 2).

According to Williamson, asset specificity arises when the opportunity cost of an asset is lower than its current use. Furthermore, the concept requires a high degree of complementarity among related assets, corresponding to Marshallian *quasi-rent,* or *opportunism.* In a two-sided monopolist condition characterized by asset specificity, opportunism, and bounded rationality, rent struggle determines the changing boundaries of firms. In other words, costly bargaining games determine the firm's existence and the limits of its activity. A typical example of Williamson's analysis is the siting of electrical power plants adjacent to coal mines. Although transactions required by "relationship-specific investment," which is the ideal case here, can be carried out through long-term contracts, it is not easy to sign such agreements because of the challenge of predicting the future (Williamson 1993).

All theories discussed above share the same weakness. While highlighting the nature of contractual failure, none of these theories convincingly explains how a connection between a transaction and the firm mitigates this failure. This failure was addressed by *the firm-as-a-nexus-of-contracts perspective* (Grosman & Hart 1986; Hart 1989; Hart & Moore 1990). Therefore, there is no significant difference in distinguishing between transactions within a firm and those between firms. Instead, both transaction categories reflect a continuum of contractual relations among firms and other organizations. Said differently, every business organization represents nothing more than a particular "standard form" contract. An example of this contract is a public corporation characterized by limited liability, indefinite life, and freely transferable shares and votes. Creating a contract with these characteristics would be possible whenever needed. Similarly, held corporations or partnerships show another proper "standard form." As specified by Hart (1989, p. 1765), this view highlights that contractual relationships with employees, suppliers, customers, creditors, and others are essential to the firm.

By moving beyond Williamson's transaction costs perspective and the firm-as-nexus-of-contracts view, the question arises: what determines a company's size? What are the economic effects of merging or splitting one company into two? Although mergers and breakups frequently happen in practice, with significant transaction costs, it seems unlikely that such changes have a major impact. While some real effects on incentives and opportunistic behavior may exist, these effects remain unclear. In addition, because authority replaces bargaining within a single firm, vertical integration will be more efficient than if firms conducted all transactions separately. In this case, how is authority used in such a company? (Holmstrom & Roberts 1998).

Property rights theory is a fundamental concept in mainstream firm theory. It is related to transaction costs and principal-agent theories through the aspect of contracts. However, property rights theory emphasizes ownership of physical (non-human) assets within contractual relationships. Since human capital cannot be bought or sold, both managers and workers retain ownership of their human capital before and after the contract (Hart 1989).

The problem with this theory is the incompleteness of contracts and the residual rights based on ownership of the firm's assets. Whereas the initial contract frequently fails to specify all necessary terms for decision making within the relationship (Grossman & Hart 1986), the residual rights determine how assets are used and how the resulting surplus is divided among the stakeholders in ex-post. In short, the boundaries of the firms depend on the decision of the non-human asset owners with residual rights. Since ownership provides bargaining power, if you own the asset, you can threaten to remove it from others, forcing them to exert more effort. Accordingly, property rights theory provides a theoretical framework for firm ownership: when parties encounter an unexpected situation not specified in the contract, they renegotiate. A practical result would emerge ex-post, since they possess asymmetric information about the problem. However, the division of surplus will be determined by the distribution of asset ownership (Hart 2011, p. 106).

Hart and Moore (1990) extended the Grossman and Hart (1986) model from two agents to a multi-agent setting. They looked at how different assets should be clustered. If two assets are "synergistic" (i.e., they work better together), they should be owned by the same person to prevent "hold-up" problems. This paper explains boundaries: it tells us why a car manufacturer should own the engine plant, but perhaps not the fast-food restaurant chains.

The distinctive features of property rights theories that distinguish them from the Coasean or Alchian-Demsetz traditions can be stated as follows: a) incomplete contracts: They all assume we are not smart enough (or it is too expensive) to write a perfect contract for every possibility. b) The "hold-up" problem: They focus on the fear that, after you invest in a project, your partner will renegotiate the deal to "squeeze" your profits. c) Investment incentives: The goal of ownership in these models is always the same: to encourage people to make "relationship-specific investments" (investments that only have value within that specific partnership).

In the development path, property rights theory shifted from focusing on purely physical assets to more abstract concepts. For example, Grossman and Hart (1986) considered only physical assets and defined the firm as a collection of such assets under common ownership. Hart and Moore (1990) focused on the concept of "*asset complementarity*," and the "*optimal clustering*" of assets to prevent holdups. Finally, drawing on the concepts of human capital and access, Rajan and Zingales (1998) defined the firm not only by legal ownership, but also by its access to critical resources.

Rajan and Zingales (1998) agreed with the answers of property rights theory to two main questions: what authority (power) is within a firm? What role does it play? However, the authors found that the answer to the third question is insufficient: where does it come from?

Rajan and Zingales (1998) argued that ownership of physical assets is not the only source of authority/power in a firm and may not be the most effective for encouraging specific investments. A company is more than just a collection of assets; instead, it also embodies a sense of belonging among employees who expect to share in the organization's future benefits. The previous view of property rights ignores this issue. The authors considered that employees are not part of the firm because they cannot be owned, and there is no difference from agents working at arm's length.

Rajan and Zingales (1998) suggested an alternative mechanism for allocating power within the property rights framework: *access,* understood here as the ability to engage with a critical resource. While it does not confer new residual control rights, it allows individuals to specialize their human capital and increase their value. Using and controlling critical resources are a source of power, frequently relying more on specific investments, rather than ownership. Consequently, access may provide better investment incentives than mere ownership.

In a later study, Rajan and Zingales (2001) applied their perspective to expand on Williamson's transaction-cost approach, focusing on factors influencing a company's size and on the economic impacts of mergers and splits. The authors argued that a firm is not just a hierarchy but a "dedicated hierarchy."

Rajan and Zingales (2001) suggested that the center of the organization is a unique source of value known as the critical resource. This resource is linked to three key mechanisms: access, specialization, and ownership. These mechanisms provide the organization with the power of fiat, setting it apart from standard market contracts. As Coase (1937) suggested, this distinction between organizations and markets supports the idea that Rajan and Zingales's (2001) model can be viewed as an economic definition of an organization.

The model also emphasizes the distinction between the legal and economic definitions of a firm. According to the legal definition, a firm's boundaries are determined by ownership. However, in organizations where human capital is more important than physical assets, these boundaries become less clear. For instance, this economic approach expands firm theory to address new and hybrid organizations such as “EcoNets” (alliances of internet companies) (Rajan & Zingales 2001, p. 843).

1.3. Internal Criticism of the Mainstream Firm Theory

Although early studies reviewed above laid the groundwork for the theory of the firm, some critiques in the 1990s argued that the available analytical framework was inadequate. Consequently, both supporters and critics of mainstream firm theory have proposed that a more comprehensive framework, including additional key concepts, functions, and relationships of the firm, is necessary. This has sparked meaningful discussions about developing a new theory of the firm and the rise of alternative approaches (Demsetz 1988, p. 141).

The first critique came from within, from Harold Demsetz (1988), one of the eminent names in mainstream firm theory. According to him, the incentive problem, with its various dimensions, has been sufficiently examined. Therefore, *"a complete theory of the firm must give greater weight to information cost than Coase's theory or theories based on shirking and opportunism"* (Ibid., p. x).

Demsetz (1988) based his view first on the difference in coordination mechanisms between the price system in extreme decentralization and the firm: the absence or existence of substantive managed coordination. He then combined Adam Smith’s specialization/division of labor and the knowledge issue. “Clearly, our understanding of firms can be improved by recognizing that management is a scarce resource employed in a world in which knowledge is incomplete and costly to obtain" (Ibid., p. 144).

In his analysis, Demsetz focused on the production, maintenance, and use of knowledge within a firm. In this process, first, it is possible to obtain gains from specialization in the firm, a unique repository of specialized knowledge, and the specialized inputs required to put this knowledge to work. Second, similarly, in a firm, “there must be *a low-cost communication method* between specialists and a considerable number of persons, both experts and non-experts in other fields. In producing something with different people with different knowledge, the most efficient communication instrument, in this meaning, is to use giving or taking order directions” (Demsetz 1988, pp. 156-158). Drawing on Adam Smith's concept, Demsetz

underlined the importance of knowledge in the decision-making and production processes. Still, he discussed the problem within the framework of mainstream firm theory: the firm's management (by issuing orders) is its distinctive feature.

In the same year, Paul Milgrom and John Roberts (1988) argued that the incentive-based theory of transaction costs was sufficiently developed to explain organizations. The authors anticipated new competing and complementary theories based on limited rationality and emphasized the evolving nature of technology within organizations. This insight effectively predicted subsequent developments in the debate surrounding firms. In summary, Paul Milgrom and John Roberts' (1988) work highlighted essential and overlooked aspects of existing firm theories and contributed to the development of alternative theories, specifically evolutionary and institutional firm theories.

Third, Bengt Holmström and John Roberts (1988) highlighted the dialectical development of mainstream firm theory. Although the mainstream view of the firm emerged as a critique of neoclassical market analysis without a firm, over time, it has evolved into a body of firm theories largely disconnected from market analysis. Two examples should suffice to capture this swing of the pendulum from one extreme to the other:

> What parades as perfect competition is a model that has much to say about the price system but little to say about competition or the organization of firms. (Demsetz 1988)

> Williamson treats market trade as a default that is assumed superior within-organization trade unless levels of uncertainty, frequency, and asset specificity are high enough to pull the transaction out of the market. Because the market is the default, its benefits are not as clearly spelled out as its costs. *In transaction cost economics, the functioning market is as much a black box as the firm in neoclassical microeconomic theory.* (Holmström & Roberts, 1998, p. 77; emphasis added)

Another criticism of the established firm theory approach was that firm and entrepreneurship were treated as separate, unconnected fields. Since there cannot be a non-entrepreneurial firm, the need for an entrepreneurial theory of the firm has frequently been overtly emphasized. Below is yet another example from a prominent economist on this issue:

> Entrepreneurship is a missing component of several leading theories of the firm. Entrepreneurship is key to the growth and survival of firms in a volatile environment because entrepreneurial judgment is necessary for success in making complex decisions under uncertainty. The addition of entrepreneurship is not a minor refinement of the theory of the firm but represents a radical change. (Casson 2004)

Finally, recent critical studies of the incomplete contracts and property rights approach indicate that, in today's changing business environment, ownership alone does not suffice to define a firm's boundaries. The evolution of mainstream theories of the firm has shifted the focus from viewing the firm merely as a "legal fiction" to examining the economic and sociological dynamics, especially information and power dynamics, all of which affects control over assets (see Aghion & Tirole, 1998; Rajan & Zingales 1998, 2001).

2. Heterodox Theories of the Firm

The debate on theories of the firm is a highly productive and well-scoped field. Leaving aside the details of the Austrian firm theory for later, it is useful to review the other four pivotal heterodox theories of the firm—namely, resource-based, evolutionary, knowledge-based, and behavioral approaches (see Table 2). The first three theories pertain to what can be called the *knowledge-based view of the firm*. These three theories share a common view that firms are not about contracts or costs, but about all kinds of knowledge and learning abilities. Accordingly, one cannot "contract" for a team's collective intuition.

2.1 Knowledge-Based Views of the Firm

In this group, the resource-based view is the predominant perspective, especially in strategic management (Alvarez & Busenitz 2001; Sautet 2000, pp. 5–6; Barney 2001; Pitelis 2009, p. x; Davis & DeWitt 2021).

Although not explicitly stated (but see Wernerfelt, 1984), Edith Penrose's *Theory of the Growth of the Firm* (1959) must be considered the most influential work in this perspective: it offers a comprehensive framework integrating resources, entrepreneurs, competencies, and knowledge within firms.

Similar to Coase's study, Penrose's theory has not received much attention or practical application in organizational economics, strategic management, or economics for quite some time, aside from several examples from evolutionary and dynamic capabilities approaches (Pitelis 2009). However, Penrose's analysis highlighted the important role of firms in coordinating internal resources to produce and sell goods and services, ultimately generating profit within certain limits. Driven by communication and authoritative coordination, this function distinguishes them from markets where transactions do not occur within organizational boundaries. Resources, including human and managerial ones, provide services that collectively shape the firm's unique identity. Managerial resources are crucial for growth and require careful planning. These firm-specific resources, which cannot be obtained through the market, are essential for effective planning. As a unified entity, the firm creates knowledge that can be either objective (easily transferable) or experiential (more difficult to apply). Therefore, experience affects the services that management offers. Knowledge, seen as experience, is not only tacit and difficult to share, but also cannot be fully known in advance because of uncertainty (Penrose 2009). As a result, firms emerge from the actions of purposeful economic actors in an evolutionary process. A key feature of Penrose's theory is its non-Coasean character (Langlois 2013, p. 256).

Another key point is that resources, not products, define firms (Penrose 2009, pp. 21–23). Therefore, "diversification," where firms grow by acquiring new resources and capabilities, is common in firm expansion. The external environment can be seen as an "image" in the entrepreneur's mind. While firms' activities are heavily influenced by their productive opportunities, innovation happens when resources are effectively combined. This involves a dynamic interaction between the internal and external environments and encompasses all productive possibilities that entrepreneurs can recognize and use.

Table 2: A Taxonomy of Heterodox Theories of the Firm

Pioneers	**Theories of the Firm**		**Rationality: Bounded or Unbounded**	**The Focal Point: Production or Exchange**	**Foundational Logic Legal or Economics-Based**	**The firm is**
Simon (1945) March and Simon (1958) Cyert and March (1963)	**Behavioral Theory of the Firm** Ocasio (1997), Gavetti (2012), Gavetti et al. (2012)		**Bounded** Gap originated in psychology and conflict	**Production:** A decision-making action	**Economics-based** Managerial	**A political coalition of individuals**
Schumpeter (1934) Williamson (1985) Cyert and March (1963) Penrose (1959) Nelson and Winter (1982**)** Rumelt (1984)	**Knowledge-based view**	**Resource-Based View** Wernersfelt (1984) Barney (1991)	**Bounded** Competence Gap (Social-Cognitive)	**Production:** Knowledge Integration	**Economics-based** Combinative capabilities and learning process	**A repository of wisdom**
		Dynamic Capabilities Teece (2009)				
Schumpeter *(*1934)		**Evolutionary Theory**	**Bounded** Adaptive Procedural	**Production:** Transforming inputs via routines	**Economics-based** Survival of the fittest; routine	**A bundle of routines**
Knight (1921)	**Austrian Theory of the Firm**	**Foss and Klein (2012)**	**Bounded Subjective/ Process Rationality:** A "process-oriented" rationality	**Production:** Exercising judgment	**Legal-Based** Property rights as a shield for judgment	**An instrument for entrepreneurial vision**
Mises (1949) Hayek (1948) Kirzner (1997) Rothbard (1962) Lachmann (1977)		**Sautet (2000)**	**Dynamic Rationality** Alert to things others have not noticed yet in genuine uncertainty	**Production:** Market process	**Economics-based** Identifying new "alertness" opportunities for the entrepreneur and team	**A discovery hub**
		Bylund (2016)	**Structural Rationality** Logical coordination of stages	**Production:** Deeper specialization	**Economics-based** Division of labor complexity	**An island of non-market coordination**

The table was prepared by the author.

Over time, a firm's ability to stay profitable, grow, and survive depends on building strong foundations for adapting and expanding in the uncertain, constantly changing, and competitive world.

The primary aspect of *the resource-based view*, distinct from Penrose's, is the examination of the firm's resources and control capabilities. These resources and capabilities can be categorized into the following four main areas: financial, physical, human, and organizational. According to Barney (1991), this view rests on two key assumptions: first, resources and capabilities can significantly vary among firms (firm heterogeneity); second, these differences are long-lasting (resource immobility). In addition, the distribution of resources and capabilities can fluctuate over time. It can persist due to the intrinsic qualities of some of a firm's resources and capabilities, rather than just because of entry barriers (Wernerfelt, 1984; Barney & Hesterly, 2006; Conner, 1991; Mahoney & Pandian, 1992).

The second branch of this approach, known as *the dynamic capabilities approach*, builds upon the theoretical foundations established by Schumpeter (1934), Williamson (1975, 1985), Cyert and March (1963), Rumelt (1984), Nelson and Winter (1982), Teece (1982), and Teece and Pisano (Teece 2009, p. 118).

Teece (2009, pp. 113–135) argued that this theory depends on two interconnected yet contrasting dynamics, known as the Penrose effects. The first effect concerns the development of productive resources, such as managerial knowledge, organizational experience, established routines, and problem-solving skills, all of which promote firm growth and generate new opportunities. The second effect highlights the limitations of managers' cognitive capacity and coordination abilities, which can hinder internalization and integration of new technological or market changes, thus ultimately limiting a firm's growth potential. Considering these two effects, a firm must continue growing without exceeding its capacity limits while also improving its learning processes. In this context, dynamic capabilities are the unique skills of firms to adjust their resources to evolving technologies and markets. This adaptability allows them to cultivate expertise and proactively respond to changes in their environment. Furthermore, Penrose's two effects offer insight into why a firm's growth is "path-dependent," "firm-specific," and reliant on "dynamic capabilities" (Teece et al., 1997; Teece 2009, pp. 113–135).

Although the resource-based view initially excluded entrepreneurs from management, Alvares and Busenitz (2001) developed a version incorporating entrepreneurship. Considering strategic management without including entrepreneurship is like creating Romeo and Juliet with only one character. Therefore, when viewed from an entrepreneurial perspective, the resource-based view expands and becomes more comprehensive. It also includes resources such as entrepreneurial alertness, insight, knowledge, and the ability to coordinate resources. Moreover, Alvarez and Busenitz (2001) challenged the distinctions among the resource-based view, the knowledge-based theory of the firm, and the dynamic capabilities theory. These distinctions are artificial, and knowledge and dynamic capabilities extend the boundaries of the resource-based view.

Another theory within the heterodox group is *the evolutionary capabilities approach*, which draws on the work of economists such as Schumpeter, Simon, March, Williamson, Hayek, and Kirzner (Nelson & Winter 1982, pp. 34–45 and p. 97). This theory emphasizes that a firm's knowledge base consists of its capabilities, which are sets of tacit and social routines used by teams to achieve specific strategic goals. These routines are viewed as organizational skills, developed through tacit knowledge gained through learning-by-doing and unique cases (Nelson & Winter 1982; Nelson 1991; Winter 2006; Dosi et al., 2000). This implicit knowledge results in specialization, routine, predictability, and "inflexibility" within firms. A firm's knowledge base is shaped by its history and particular learning processes, making it path dependent. The key questions here are: How can firms effectively use their capabilities? How have they accomplished this in the past? How can they develop new abilities?

As noted previously, the common denominator of these approaches is their reliance on the ideas of economists such as Joseph A. Schumpeter, Edith Penrose, James G. March, Herbert A. Simon, and Oliver Williamson. These ideas have been further developed by scholars in strategic management or organizational studies (Alvarez & Busenitz 2001; Metcalfe & James 2000; Foss 1994, 1997, 1998; Nelson & Winter 1982; Langlois 1994, 1998; Douma & Schreuder, 2017). Their main premise is that firms are limited by what they have, know, and can do. In this context, firms are considered to be unique organizations created by individuals who combine their resources, knowledge, or capabilities. Firms exist because they acquire specialized and unique resources, regardless of contractual considerations. Within this group, we observe productive (albeit slow) collaboration between economists and scholars of strategic management and organizational studies.

Another heterodox view is *the behavioral theory of the firm.* This theory can be traced back to works of three key founders at Carnegie School during the 1950s and 1960s. Their objective was to examine organizations from an interdisciplinary perspective, with a particular focus on decision-making processes. The first among them, Herbert A. Simon (1947), examined the relationship between organizations and individuals, introducing concepts such as bounded rationality and limited information. Second, in collaboration with Simon, James G. March characterized organizations as social institutions and developed the satisficing model (March & Simon 1958). Furthermore, Richard M. Cyert and James G. March (1963) formulated a specific theory aligned with this school of thought, known as *the behavioral theory of the firm*: a firm's behavior can be better understood by focusing on its decision-making processes and the standard procedures and expectations within those processes. Accordingly, the research shifted its focus from neoclassical economic models—centered on market outcomes, perfect rationality, and profit-maximization assumptions—to a more process-oriented, psychologically based understanding of organizational decision-making.

In essence, to explain how firms make decisions under uncertainty, the behavioral theory of the firm is based on four behavioral fundamentals: bounded rationality, satisficing, problematic search, and the influence of rules, routines, and the status quo. In order to make organizational behavior more realistic, four further

relational concepts are included: coalitions for conflict resolution, short-term decisions to avoid uncertainty, a problematic search for performance improvement, and, finally, organizational learning through feedback. As a critique of the neoclassical firm theory, the behavioral theory of the firm initially drew on organizational theory, strategy, politics, and sociology, and has gradually become a key part of these fields, including economics (Argote & Greve 2007).

The development of the behavioral theory of the firm has primarily evolved through two main paths: evolutionary economics and firm theory, on the one hand, and learning theory, on the other hand. Additionally, this theory's impact has spread to various fields through concepts such as organizational change, innovation, opportunity search, expansion, acquisition, network decisions, and corporate fraud (Argote & Greve 2007; Hagen et al., 2023).

Yet a group dissatisfied with the current direction of behavioral firm theory, known as *the Neo-Carnegie perspective*, argued that the theory has strayed from the core principles of the original Carnegie School. They advocated for a return to these foundational concepts, particularly those related to the depth of “decision making” as outlined by Simon, March, and Cyert. Their goal was to reintegrate these ideas into modern strategy and organizational frameworks. The Neo-Carnegie Approach offers the following suggestions for rebuilding theory: a) Cognitive Hierarchy and "Deliberate" decision making: an emphasis on intentional decision making over routine; b) Reintegration of strategy and organization: linking strategy with organizational capacity, viewing it as "attention management"; c) Attention-based theory: an emphasis on the idea that decision quality depends on the information that captures managers' attention; d) Connection with institutional logics: organizational processes are believed to be affected by both efficiency and social/institutional logics, broadening the understanding of rationality (Gavetti et al., 2007).

2.2 Austrian Theory of the Firm

The Austrian School's main contention is that mainstream firm theory is incomplete and constrained because it primarily relies on the equilibrium framework and overlooks the role of the entrepreneur: as the market cannot exist without a firm, the firm cannot exist without an entrepreneur.

Since the mid-1980s, some Austrian economists have approached Coase's transaction-cost theory positively and argued for its reinforcement by the ideas of the Austrian School (O’Driscol & Rizzo 1985, p. 123). Only in the mid-1990s did the school members begin to treat firm theory as a distinct entity. The corresponding research split into two groups: first, studies that questioned the shortcomings of mainstream firm theory and sought to enrich it by integrating Austrian concepts; second, studies that were entirely Austrian-based, with an alternative entrepreneurial firm theory grounded in the market process theory (Foss 1997; Ioannides 1999; Witt 1999; Sautet 2000; Foss & Klein 2009, 2012; Bylund 2016). In what follows, one example from the first group and two from the second group will be evaluated (see Table 3).

2.2.1 Nicolai J. Foss and Peter G. Klein's Austrian Perspective

Economists Foss and Klein (2009) suggested that the Austrian School's ideas about private property, entrepreneurship, economic calculation, tacit knowledge, and the temporal structure of capital have essential implications for the theory of economic organization. They contended that Austrian thinkers possessed many essential components for a theory of the firm. However, these concepts were frequently applied within the wider discussions of the 20th century, such as comparative economic systems (the Great Calculation Debate) (see Lavoie 1985; Vaughn 1994), and the crisis of capitalism and economics (the Keynes versus Hayek Controversy; see Butos 1994; Garrison 2001; Shenoy 2009). As a result, for a significant period, the focus on the existence, boundaries, and internal organization of firms was dominated by Ronald Coase and his followers.

Some studies pointed to historical reasons why the Austrian School paid little attention to firm theory: the first was that, in the early 20th century, German universities treated firms more within the business discipline than within the economics discipline (Witt 1999). The second reason was that, although critical Austrian studies from the same period integrated firm theory and entrepreneurship and anticipated the content of modern firm theories, they were not translated into English (Möller & McCaffrey 2023).

As mentioned above, Austrian economists O'Driscoll and Rizzo (1985) initially suggested that the Coasean approach to understanding the problem was helpful in its static form. However, on their view, an evolutionary framework had to complement it to understand how firms adapt to changes.

In addition, Foss (1993, 1994, 1997), one of the most productive economists in the economics of organization, distinguished between two Coasean perspectives. First, the theoretical perspective of the moral-hazard or agency view examined the design of ex-ante mechanisms to limit shirking when monitoring costs were high. Here, the emphasis was on monitoring and incentives in an (exogenously determined) principal-agent relationship within a neoclassical framework (Alchain & Demsetz 1972). The second, led by Oliver Williamson (1985, 1993), was the governance or asset specificity perspective, which adopted a more heterodox framework. This approach addressed the subject by drawing on the following three concepts: non-maximizing human behavior (bounded rationality), structural uncertainty or surprise (i.e., because complete contracts are not possible, ex-post contingencies cannot be contracted upon ex-ante), and the concept of process or adaptation over time. Foss and Klein (2009) sought to connect Williamson's transaction-cost approach with the Austrian views of decision-making and entrepreneurship under uncertainty.

Foss and Klein advanced their project of integrating Austrian perspectives with Coasean transaction-cost theory in their later work, *Organizing Entrepreneurial Judgment: A New Approach to the Firm (2012).* This effort made a significant contribution to the theory of the firm. The authors emphasize the disconnection between entrepreneurship and the firm in both economics and management.

Historically, mainstream economists have not incorporated entrepreneurship and firm dynamics into their core theories, while management scholars have treated entrepreneurship and organization as separate fields. By drawing on entrepreneurial firm theory, Foss and Klein (2012) aimed to bridge the gap between these two disciplines and promote more effective communication and understanding between economists and management scientists.

In their 2012 work, Foss and Klein discuss entrepreneurial firms by incorporating several key concepts. They reference Knight's view of entrepreneurship as a form of judgment, Mises's notion of capital-structure heterogeneity, and the reality of making decisions under extreme uncertainty. Knight emphasizes that entrepreneurship involves judgments that "cannot be insured, capitalized, or salaried" (Knight 1921, p. 311). This means there is no market for entrepreneurs' judgment; therefore, entrepreneurs must create firms to implement their ideas.

Entrepreneurship also requires experimenting with capital assets to uncover new and valuable qualities. This experimentation can take place through ownership, mergers with other firms, or the formation of new combinations of assets under the entrepreneur's control. The success of an entrepreneur largely hinges on their ability to predict future prices, assess market conditions, manage both internal and external transaction costs, control the involved assets, and achieve the expected returns on their activities (Foss 1993).

By combining these key factors of economic organization with Austrian theories of capital diversity and entrepreneurship, Foss and Klein suggested that a new theory of the firm extending beyond the traditional focus on transaction costs could be developed.

Foss and Klein (2012) also pointed out a significant limitation in the fields of economics and management: they distinguished between identifying or conceptualizing opportunities and actively realizing or exploiting them. Previously, the allocation of resources to seize these opportunities was primarily associated with strategy, organizational behavior, and organizational economics, rather than with entrepreneurship itself. However, Foss and Klein argued that entrepreneurial profit opportunities can only be created, discovered, and evaluated after action is taken, rather than being inherently available. Factors such as prices, market conditions, and internal and external transaction costs—including asset control and achieving expected returns—were assumed to play crucial roles (Foss, 1993). By integrating these essential determinants of economic organization with Austrian theories of capital diversity and entrepreneurship, Foss and Klein proposed a new theory of the firm that is not solely based on transaction costs.

The Austrian theory of capital supports an entrepreneurial theory of economic organization, which is distinct from neoclassical production theory. The latter treats capital as a permanent, homogeneous fund of value, rather than as a separate, heterogeneous stock of capital goods (Lachmann 1977, p. 33; Lewin & Cachanosky 2019). While transaction-cost, property-rights, and resource-based approaches to firms incorporate concepts of heterogeneous assets, they do so in a somewhat ad hoc manner—for instance, considering asset specificity in transaction-cost economics and

tacit knowledge in capability theories. By contrast, the Austrian Approach—which includes Menger's ideas on higher- and lower-order goods, Böhm-Bawerk's concept of roundaboutness, Lachmann's theory of multiple specificities, and Kirzner's description of capital structure alongside subjective entrepreneurial plans—provides a robust foundation for a judgment-based theory of entrepreneurial action.

Table 3: Austrian Entrepreneurial Theories of the Firm

Author	Role of the Entrepreneur	Key Analytic Concepts	Reason for the Existence of the Firm	Is there an Austrian Entrepreneurial Theory of the Firm?
Foss and Klein (2009)	An entrepreneur's central role is to exercise judgment in managing the human resources that drive the firm's success.	• Williamson's Governance and Asset Specific Perspective • Austrian Conceptual Framework	Firms exist to minimize transaction costs and allow entrepreneurs to experiment with different combinations of capital goods.	There may be valuable connections between economic organization theory and Austrian theories of capital heterogeneity and entrepreneurship.
Foss and Klein (2011)	The entrepreneur exercises judgment under uncertainty and assembles capabilities.	• Austrian theories on capital diversity • Knight's and Mises's decision-making under uncertainty	Firms arise when entrepreneurs need control over resources to implement their vision.	The Austrian theory of the firm differs from transaction cost theory, yet they are not mutually exclusive.
Sautet (2000)	The entrepreneur is the ultimate coordinator and, in the absence of transaction costs, they engage in intertemporal arbitrage within production, often without awareness.	• Market Theory Problem • Hayekian Knowledge Problem • Lachmann Problem	The entrepreneur-promoter must contract with input owners to seize opportunities and implement production, making the establishment of a firm essential.	The Austrian firm theory can be developed without transaction costs, but should be regarded as complementary rather than alternative.
Bylund (2011, 2016)	An entrepreneur can "imagine" the opportunities based on their judgment and economic calculations of predicted prices.	• Kirznerian and Schumpeterian entrepreneurs • Adam Smith's specialization economy/deadlock • Austrian capital-production structure	The firm is a "specialized island" enabling entrepreneurs to coordinate a specific and integrated capital structure, creating new, productive value that the market has yet to discover.	In addition to transaction cost, resource-based, dynamic capabilities, and evolutionary theories, there is a distinct Austrian theory of the firm.

The table was prepared by the author.

Foss and Klein (2012) emphasized two primary approaches to integrating entrepreneurship into theories of the firm: a more positive one and a more critical one. The Coasean contractual approach to the firm, grounded in the neoclassical concept of static efficiency, can still incorporate entrepreneurial ideas. This integration can provide fresh and alternative insights into the nature and structure of firms.

Conversely, resource-based views of the firm suggest that entrepreneurship can be better understood through the capabilities perspective. On this view,

entrepreneurship can be seen as a firm's ability to capitalize on opportunities to generate profits in constantly changing environments (dynamic capabilities) (Teece et al., 1997; Teece, 2009). It can also be understood as a firm's set of opportunities—not externally given but created through team dynamics and other organizational attributes (a productive opportunity set).

Foss and Klein argued that criticisms from heterodox organizational economists were valid in highlighting the limitations of the formal, static, and restrictive contractual theory, which left little room for entrepreneurship. However, they also pointed out that the heterodox approach overlooks the fact that entrepreneurs may have different mental models, may focus more on risk than on Knightian uncertainty, and may define opportunity discovery solely in terms of past learning and experience.

Foss and Klein (2012, p. 61) argued that the contractual approach has a significant potential for integrating theories of the firm and entrepreneurship: "Understanding the boundaries of the firm requires a kind of contractual explanation in its own right." They also stated that their analysis was relevant to all contemporary theories, including resource-based, agency-theoretic, transaction-cost, and property-rights approaches (Ibid., p. 248).

2.2.2 Frederic E. Sautet's Austrian Firm Theory Perspective

Frederic E. Sautet's (2000) study builds on the ideas of prominent figures from the Austrian School of Economics, including Mises, Hayek, Lachmann, and Kirzner. Sautet argued that the theory of the firm can be developed without considering transaction costs. His work is notable because it represents the first attempt to create a theory of the firm that would intentionally exclude transaction costs. In addition, Sautet critically analyzed existing theories of firms and proposed an entrepreneurial firm theory as an alternative and complementary approach. According to this theory, a market cannot function without entrepreneurs, and entrepreneurs cannot exist without firms. These elements are essential for a vibrant and thriving market economy.

Sautet (2000) addressed a critical deficiency in Austrian economics by integrating firm-level analysis into market-process theory. He critiqued existing theories, such as transaction cost and resource-based views stemming from neoclassical equilibrium. These theories addressed only some issues in firm theory and failed to fully explain firm behavior. Their issue was their focus on fitting into the framework of equilibrium analysis, rather than on explaining the real-world reasons for the existence and growth of firms.

Sautet's (2000) starting point was a fundamental Austrian proposition: economics explains phenomena arising from human action in a market economy. Some human actions occur directly in the market, while others occur within organizations (firms). This observation raises an important question for economists: Why do the firms we observe in the real world exist?

During the rise of formalist economics, two methodological views on equilibrium emerged: while one approach posited that adjustment processes do not exist, and the economy is always in equilibrium, the other approach, called the ideal-

equilibrium approach, was used to compare the real world, which is out of equilibrium, and to justify intervention (market failure) (Boettke 1997). In summary, equilibrium analysis created a closed universe where human economic behavior stemmed from rational choices within specific constraints. However, Suatet employed *the argumentum a contrario method* to argue that markets cannot exist without firms and provided a causal-genetic explanation of the firm (see Mises 1998, p. 251; Cowan 1994 for further detail on this concept). In this model, three key concepts from Austrian market-process theory emerge as essential building blocks.

First, the *Market Theory Problem* (MTP) expresses the inconsistency when answering questions that cannot exist in a world of continuous equilibrium. In this context, a theory with some or all the following characteristics attempting to solve their consequences is said to have an MTP: (a) it uses equilibrium as a tool, a description of reality, or a standard and, therefore, does not analyze disequilibrium; (b) it lacks actual adjustment processes; (c) it treats information as a commodity; (d) it does not account for genuine uncertainty (and thus does not consider genuine ignorance); (e) it does not require the discovery of knowledge; (f) it does not include entrepreneurship (Sautet 2000, pp. 7–15).

Second, *the Hayekian Knowledge Problem* (HKP) stems from Knightian uncertainty and sheer ignorance. For example, the transaction cost theory ignores HKP, is rooted in a narrow view of knowledge, and neglects the core issue of adjustment. This is so because it assumes adjustments are instantaneous or unattainable without government intervention. This approach treats information as a commodity. However, as argued by Hayek (1945) ″the economic problem of society is how to use best the knowledge known to any member of society for purposes whose relative importance only these individuals know. It is about using knowledge not entirely known to anyone (an authority).”

Sautet addressed *the Hayekian Knowledge Problem* and contrasted it with the neoclassical general equilibrium model, which assumes perfect information. In the latter model, the economy is in equilibrium, but individuals face incomplete information due to transaction costs (Sautet 2000, pp. 13–14, 98–100). In Sautet's model, the economy is assumed to be out of equilibrium due to incomplete information, transaction costs, and the production of human capital. While Coase and advocates of transaction cost economics argued that information costs and cost-benefit analysis explain the existence of firms, Sautet argued that this view is debatable.

Third, *the Lachmann Problem* suggested that the world is constantly changing and that the market process is not deterministic. Said differently, we cannot know whether individuals' actions will bring the market into equilibrium or create disequilibrium, as the market is a continuous interplay of opposing forces (Satiety 2000 pp. 67–69).

An entrepreneur recognizes a discrepancy between current input prices and future product prices, making it essential to secure inputs at current rates due to the potential for rapid fluctuations in availability. Entrepreneurs purchase services from input owners. On the other hand, resource owners face the risk of losses when selling their assets, which complicates entrepreneurs' ability to seize opportunities without

long-term contracts. This challenge is known as the "unexploitability thesis." While retaining employees is crucial for production, entrepreneurs' inability to make long-term plans underscores the need for firms to be in place.

In short, the firm is an entity providing non-price, planned coordination over time among complementary inputs, without the market errors caused by others' knowledge gaps. It coordinates various parts of the production by a standard decision-making system. As an island of planning, the firm centers on exploiting discovered profits by leveraging entrepreneurial alertness, coordinating the knowledge held by input owners, and facilitating simultaneous discoveries.

Sautet's criticism of transaction cost theory was that its fundamental thesis is proper but incomplete. The emergence of the firm entails the discovery and evaluation of previously unrecognized opportunities. Thus, the transaction cost approach helps explain the emergence of firms in a stable (equilibrium) world solely due to external influences. However, the theory cannot explain the endogenous emergence of firms within the market process.

Similarly, Sautet criticized Edith Penrose's resource-based view. This theory holds that firm growth cannot be attributed solely to changes in price, costs, or market coverage. A focus on a firm's internal resources, such as management, experience, and entrepreneurial capabilities, is essential to the development of a meaningful theory of firm growth. However, Sautet disagreed with conceptualizing entrepreneurship as a resource to be used, as in Lionel Robbins' profit-maximization framework. In addition, he pointed out that the resource-based view overlooks the entrepreneurial discovery process, the primary driver of talent growth, and fails to account for the challenges associated with knowledge discovery. What is crucial in a firm is not the processing and integration of knowledge, but the production of new knowledge. Therefore, a firm's growth is more about the division of labor and knowledge discovery, than about knowledge processing and integration.

2.2.3 Per L. Bylund's Austrian Firm Theory

Per L. Bylund (2016), firm theory aims to address shortcomings in both mainstream microeconomics and the Austrian theory of market processes. While beginning by addressing economic rationales such as the optimization of transaction costs, shirking, and principal-agent relationships (from the "black box" model to imperfect contracts and asset ownership models), mainstream firm theories were ultimately completed by emphasizing (and naming) their legal foundations. While in the early 1970s, there was a mainstream market analysis without firms, by the late 1990s, a distinct conceptualization of firms emerged, which was defined by its legal characteristics at the end, and there was no connection to market analysis (for further detail, see Holmström & Roberts 1998, p. 77). As a result, they failed to establish a coherent economic framework that links markets, firms, and entrepreneurship. Bylund (2016) contended that, in order to comprehend the firm truly, we should prioritize production over merely viewing contracts as representations of exchange relationships.

To return to the history of the Austrian School, the various concepts introduced by its founding members, such as methodological individualism, marginalism, opportunity cost, and the time structure of production and consumption, were significantly integrated into neoclassical economics before the Second World War (Mises 1969; Machlup 1982, pp. 38–43). The foundational works of economists like Mises (1949) and Hayek (1948), as well as later studies by Kirzner (1973, 1997, 2000), Rothbard (1962), and Lachmann (1977), have contributed to the development of an alternative theory to mainstream market theory: the Austrian (entrepreneurial) market process theory. However, a comprehensive and consistent theory of the firm within the Austrian framework, along with its integration into the theory of the entrepreneurial market process, was not fully established until the 2000s. Although there were some attempts to reconcile it with mainstream theories of the firm, these efforts remained controversial until more recent developments. Bylund's (2016) theory of the firm was particularly attractive in this context, as it is based solely on economic reasoning and within an Austrian framework. Moreover, through his theory, Bylund both argued and demonstrated that the belief or prejudice that a theory of the firm cannot be developed without considering Coasean transaction costs is falsifiable. In addition, Bylund's theory is a powerful output of the growing interactions between Austrian economists and strategic management scholars (Bylund 2016, pp. 11–12).

In his theory, Bylund adopted Ludwig von Mises's "deductive-causal method" (Mises 1998). As appropriate to his methodological approach, he started with the case of an abstract, specialized, and decentralized, but no-firm production process: *the specialization island* or *the Smithian economy* (Bylund 2016; Langlois & Cosgel 1993). The originality of Bylund's theory lies in redefining the fundamental question of firm theory: rather than asking *why a firm exists*, it asks *what a firm actually is*. Secondly, Bylund also reversed Oliver Williamson's statement (Williamson 1985, p. 20): initially, there was the firm, rather than the market.

The key concept of his theory is "specialization deadlock." Its significance arises from its emphasis on market limits. The market can enhance productivity only within its own structure through further specialization. However, it may not work for new, innovative projects that the market does not know, especially when stakeholders are strictly interdependent. If one fails, the other partners lose value and become incompatible with the market. Said differently, the difference between the market and the firm is that while markets provide solutions and easily adapt to piecemeal changes in the economy, the firm arises from the entrepreneurial efforts involved in specialized production processes and is the source of radical changes in the economy (Bylund 2016, pp. 64–65). In short, contrary to popular belief, it is not the decentralized market order, but the firms enabling the implementation of innovative production methods and the development of new products; the market, on the other hand, favors maintaining the existing order.

In this context, we can return to the question of *what the firm is*. A firm is an organizational entity developing and implementing a new production function that the existing market structure cannot yet accommodate. It arises outside the current market's boundaries because the market lacks the necessary intermediate goods,

complementary factors, or price signals for the new project. On this view, the firm is "an island of specialization," where factors are coordinated entrepreneurially, not through market prices (Bylund 2016, p. 6-7, and 83). The firm integrates components and processes that the market cannot yet price or support. However, once the innovation succeeds, the firm is eventually absorbed by the market as new suppliers, components, and competitors emerge. The firm is thus a "shield" protecting specialized production from the "noise" of market prices.

On the other hand, *firms exist because* they provide the only rational way to introduce innovations. As mentioned earlier, markets face a "specialization deadlock" at a stage—they support only established production methods. However, many innovative projects demand specific, complementary, and uncertain investments for which no existing market exists. Therefore, entrepreneurs must establish firms to organize these new combinations of capital. As a result, entrepreneurship involves implementing, within an organization, innovative production methods that differ from those coordinated with the existing market structure. That is, symbiotic relationships between firms and entrepreneurs are a sine qua non for the progression of the market economy (Bylund 2016, pp. 82–84).

Bylund (2014, 2016, 2021) critiqued certain Austrian economists for combining Austrian concepts with mainstream theories, such as Coase's transaction-cost theory and Oliver Williamson's ideas (Foss & Klein 2011). He pointed out that, while both perspectives recognize the costs of economic planning arising from resource diversity, their conclusions significantly differ. Austrians, following Mises, argued that the market uniquely coordinates advanced production. By contrast, Coase contended that firms exist primarily to minimize transaction costs and that their internal organization reflects the market's resource allocation.

In Bylund's analysis, a firm is seen as an entrepreneurial creation of a production function. Unlike Coase's view, it does not simply minimize transaction costs. Instead, the firm integrates capital goods that cannot be purchased or coordinated through market exchanges. Therefore, coordination within the firm is managerial and entrepreneurial rather than solely driven by prices.

Another critical aspect of Bylund's analysis is the reconciliation of the various Austrian concepts of entrepreneurship, with a particular emphasis on the creation of productive innovation. All three types of entrepreneurs have essential functions in market process analysis: Kirzner's *arbitrageur-entrepreneur* helps maintain market balance by reallocating resources through exchange for profit; furthermore, Schumpeter's *creative-destruction entrepreneur* disrupts the existing market structure by introducing innovations outside the current market scope and builds a new market order; finally, using the disruptive potential of energetic/creative destructor entrepreneurs, the *imitator-entrepreneur* accelerates competitive discovery and fosters industry and economic growth (Bylund 2016, pp. 136–137).

Bylund's theory significantly deepens our understanding of firms in several ways. First, it provides a firm theory based on economic and Austrian principles that competes with existing mainstream and heterodox theories, especially those rooted in legal origins. Second, it highlights the close relationship between firm theory and

capital theory, showing how a market's production structure is connected to capital markets. Third, the theory suggests that a successful innovative firm will generate profits, promote competition, attract other entrepreneurs to participate in the competitive production process within the market economy, as well as enhance both industry and overall economic productivity and output. This theory also offers an alternative view of the ongoing debate within mainstream economics about the microeconomic foundations of macroeconomics during the 20th century. Finally, Bylund's theory serves as a clear example of how collaboration and coordination among Austrian economists and academics in strategic management can lead to positive outcomes.

2.2.4 Distinctiveness of the Austrian Entrepreneurial Firm Theory

Today, roughly 40 years after O'Driscoll and Rizzo's (1985, p. 123) statement, the Austrian entrepreneurial theory of the firm offers an essential alternative to mainstream firm theory by integrating concepts of the firm, entrepreneurship, and market process analysis. This means: a distinct Austrian theory of the firm does exist alongside mainstream and heterodox theories.

Although the Austrian theory of the firm and the Coasean theories both focus on the firm as the subject matter, they differ in their methodological approaches.

In this context, Coase (1937) explained how firms emerge based on individual choices. For example, individuals might choose to start their own businesses rather than work for someone else, or they might prefer a few long-term contracts over many short-term ones. Although Coase used the concept of an "exchange economy," the term is unclear; it appears to be used interchangeably with "market economy" without clarifying the differences between the two. In this framework, Coase's theory begins with the observation that firms and markets exist as two alternative modes of production. By simply comparing management and transaction costs, it attempts to explain why a firm exists. Afterwards, this observational analysis is integrated into an abstract equilibrium model that does not account for firms or entrepreneurs and thus cannot, in principle, justify their presence (see above for the quotes from Arrow, 1971 and Debreu, 1959). In this context, the flawed link between equilibrium analysis—based on unrealistic assumptions—and empirical observations of firms' economic and legal features is used as evidence for why firms exist within mainstream equilibrium analysis. However, firms only emerge in situations of change and economic uncertainty (Boettke 1997; Langlois 2007).

In relation to this issue, Oliver Williamson (1985, p. 20) added a premise in transaction cost analysis: "in the beginning there were markets." Markets serve as the first and fundamental coordination mechanism. Following that, firms arise as a secondary, corrective response to market frictions. In short, the firm emerges as a "second-best" response when the transaction costs of market operations are high. However, Williamson's analysis remained silent on how a market's existence and operation are possible without the produced products.

By contrast, the Austrian theory of the firm seeks to explain why firms emerged as a necessity from an abstract, specialized exchange economy. This emergence is viewed as a social requirement or a limitation of specialization, based on a priori methodological consistency (Covan 1994; Mises 1998).

Importantly, both Coase and modern Austrian school economists drew on D. H. Robertson and Stanley Dennison's analogy of "island (company) - ocean (market)." Robertson (1923, p.73) stated: "Islands of conscious power in an ocean of unconscious cooperation are like pieces of butter coagulating in a bucket of buttermilk." However, they arrived at completely different conclusions from the same analogy.

In the original context, Robertson described the firm as a "conscious island" to explain how planning and authority operate within the market system. Firms are described as "lumps of butter" to illustrate the visible hand of management coordination. Ronald Coase used this analogy to address a fundamental question in economic theory: why do firms exist? In this context, a firm is described as a "conscious power" or an "administrative authority or hierarchy." It functions as a mechanism to save costs by avoiding the high transaction costs typically associated with market exchanges.

In contrast to Coase's "transaction cost" explanation, scholars from the Austrian School, such as Per Bylund and Frédéric Sautet, viewed this analogy as a foundation for advancing a knowledge-based and entrepreneurial theory of the firm. They perceived the firm (represented by an island) as a mechanism for discovery and innovation, rather than simply as a deviation from market efficiency. In this analogy, the ocean symbolizes the market, serving as a process for price discovery, while the islands (firms) act as specialized environments where entrepreneurs allocate resources to create value that the market has yet to reveal.

In other words, an island represents an entrepreneurial experiment aimed at developing a new production function. The originality and power of this process stem from the entrepreneur's ability to coordinate resources amidst uncertainty. The firm exists because the market does not yet know how to produce a specific innovation that has not been created. Furthermore, Bylund (2016, p. 55) shifted the focus from exchange to production, revisiting Williamson's statement: "in the beginning, there was production." In this sense, the firm is not merely a cost-saving mechanism but serves as a creative engine. Ultimately, though, both the firm and the entrepreneur still rely on the market's price signals to determine whether their "conscious power" will result in profit or loss.

There are also various viewpoints among Austrian economists regarding the primacy of exchange or production. The production and exchange stages are undoubtedly two essential and complementary dimensions of the same process, from the supply of inputs required to produce goods to their delivery to the consumer. In this sense, as Foss and Klein (2009, 2012) suggested, a theory of the firm integrating Knightian, Austrian, and Coasian views could provide a foundation for collaboration between economists and management scientists.

However, another Austrian perspective more closely aligns with the Austrian School's fundamental views. Economist Victor Mataja defined entrepreneurship as

"production for exchange" and emphasized that the entrepreneur is personally accountable for this production. He identified the following three key characteristics of an entrepreneur (Möller & McCaffrey 2023): a focus on production, responsibility for production costs, and the potential to either make a profit or incur a loss. In addition, Mataja situated the entrepreneur at the center of Carl Menger's analysis of the structure of production, thereby highlighting two significant points. First, production is time-consuming, introducing a temporal dimension. This results in resource heterogeneity, as the same resource—such as a delivery truck—can be used at different stages of production. Furthermore, production costs must be covered before any sales to consumers can occur (Möller & McCaffrey 2023). This perspective, which integrates the entrepreneur, the firm, the structure of production, and the market process, fosters more productive discussions and facilitates the connection of micro-, meso-, and macroeconomic analyses through capital theory. Notably, modern Austrian theories of the firm, as formulated by Sautet and Bylund, propose a framework for the firm that could evolve in an exchange economy devoid of transaction costs.

Another important concept is the role and significance of information and knowledge in the theories of the firm. Coasean transaction costs are grounded in the framework of imperfect (or asymmetric) information. This imperfect information impacts both the internal organization of firms and their external relationships with labor, capital, and product markets. Understanding this aspect of information is crucial for the analysis of various types of firm contracts, including those related to employment, production, pricing, investment, and research (Greenwald & Stiglitz 1996). By acknowledging these factors, firms can reduce management costs and mitigate the risks associated with opportunism and moral hazard.

Conversely, when the Austrian approach is compared with alternative approaches, known as knowledge-based firm theories—including resource-based, evolutionary, and dynamic capabilities frameworks—their common denominators emphasize the production process and the significance of knowledge. One of Hayek’s key contributions to economics is the idea that knowledge is dispersed among individuals. Hayek (1937, 1945) emphasized that the knowledge crucial to economic actors is frequently local, partial, and context-specific. Furthermore, a central authority cannot effectively gather or understand this knowledge. Knowledge-based views derive from the epistemological perspectives of Michael Polanyi (1962, 1966) and Hayek (1948), highlighting the essential characteristics of tangible, intangible, and experiential knowledge (including Polanyi's personal and tacit knowledge) in firms' production and exchange processes. This perspective emphasizes the knowledge creation and innovation functions for profit maximization (Grant 2009; Foss 1996; Pitelis & Teece 2009; Cohendet et al., 2024). In this context, Hayek's concept of knowledge and the Austrian framework's assumption of sheer uncertainty are more readily incorporated into knowledge-based perspectives than into imperfect-information ones. It is also essential that three critical economists in this collaboration—namely, Mises, Schumpeter, and Fritz Machlup's student, Edith Penrose—were affiliated with the Austrian School.

In addition, in the history of economic thought, Mises, Kirzner, and Schumpeter stand out as key economists who highlighted the crucial role of entrepreneurs in the theory of the firm, market dynamics, production, and innovation. Within this framework, the various terms used to describe entrepreneurs' abilities—such as alertness, judgment, and imagination—should not be overly debated as contentious. The term “idea” can effectively encompass all these attributes (Cohendet et al., 2024). It is essential to have an idea, irrespective of its source, whether it comes from alertness, judgment, or imagination. What truly matters is whether a production process, inspired by an alert, creative, or innovative idea, can generate value and produce results that satisfy the entrepreneur.

Moreover, the use of the three types of entrepreneurs (Kirznerian arbitrageur-entrepreneur, Schumpeter's creative-destructive or energetic entrepreneur, and imitator-entrepreneur), along with an analysis covering the firm, production, market, innovation, industry, economic growth, and foreign trade, reveals another critical function of the entrepreneur in the analysis: the cement function of the entrepreneur.

At this stage, it must be emphasized that the role and function of the entrepreneur are the Austrian School's vital contributions to the theory of the firm and even to economic theory. To grasp the importance of this point, it suffices to examine three prominent perspectives in mainstream economics. Ronald Coase's analysis indicated the existence of the entrepreneur, but does not place them at the center of his argument. By contrast, Oliver Williamson's work emphasized managers' efforts to mitigate risk, without focusing on entrepreneurship. Finally, Jensen and Meckling (1976) depicted the entrepreneur as an optimizing manager who creates contracts to align the interests of the manager (the agent) with those of the owner (the principal). In a nutshell, in the mainstream theory of the firm, the entrepreneur is nothing but a manager.

Finally, considering the growing interest in the Austrian approach within organization theory and strategic management, the Austrian entrepreneurial theory of the firm provides a solid foundation for promoting interdisciplinary research in these areas (Conner 1991; Jacobson 1992; Rumelt et al., 1995; Foss & Klein 2012; Hussler et al., 2012; Möller & McCafrey 2013; Guerras-Martín et al., 2014; Bylund 2016; Saadatmand et al., 2018).

3. Conclusion

Many economists rightly believe that, although Coase's (1937) study sparked discussions of the theories of the firm, this field was overlooked until the 1970s. However, this gap has been significantly addressed through ongoing discussions and studies. Yet, this does not necessarily mean that we have a synthesis framework for analyzing the firm, or that there is no discussion of the theories of the firm. Therefore, the arrival point of the debate about the theories of the firm does not offer us an outlook such as the emergence of a more comprehensive theory, as Karl Popper suggested, or, as Thomas Kuhn said, the replacement of the old paradigm by a new one through the scientific revolution. Instead, it manifests "a patchwork structure" or "a few dappled

approaches standing side by side," as stated by Nancy Cartwright (1999), the philosopher of science.

In this context, mainstream firm theory has reached its limits. Economists have thoroughly examined issues related to incentives in team production, principal-agent relationships, information gathering and utilization, and property rights within a contractual framework. Although they are frequently referred to as economic theories, they are primarily legal-contract-based. Until the late 20th century, economists largely adhered to the transaction-cost theory of firms. By contrast, scholars in management, organization, and strategy generally focused on the resource-based view of the firm as their primary analytical framework.

In recent years, there has been a positive trend among economists and management scientists towards more collaboration in studying the theory of the firm, rather than towards working in isolation. Despite complaints about a lack of communication between economists and management scientists—something that is also evident within management science—this collaboration has started to yield fruitful results in advancing the theory of the firm.

One fruitful branch of firm theory is the framework comprising Penrose's resource-based, Schumpeterian evolutionary, and knowledge-based and behavioral approaches. This framework has significantly enhanced firm theory by focusing on knowledge, learning, capabilities, and production innovation rather than on contracts or transaction costs.

The second productive branch consists of studies by proponents of the Austrian School of Economics. Since the late 1990s, the Austrian entrepreneurial theory of the firm has evolved into a progressive approach to firm theory. One group at the school sought to enrich mainstream firm theory by combining Austrian concepts with those of Knight and Coase.

Yet another group from the Austrian School developed the entrepreneurial theory of the firm, emphasizing the production process within a completely Austrian framework. These authors enhanced the integrative analysis of entrepreneurs, firms, and markets. As a result, they demonstrated that a theoretically and methodologically coherent, complete, and comprehensive microeconomic analysis is achievable by examining the inseparable trio of the entrepreneur, the firm, and the market process.

Over the past 50 years, discussions surrounding the theory of the firm have resulted in the coexistence of several approaches, rather than the emergence of a single dominant perspective. These approaches include transaction-cost, evolutionary, resource-based, knowledge-based, behavioral, and Austrian perspectives. In this context, a comprehensive discussion of firm theory today without mentioning the Austrian perspective is not possible. This is so because the Austrian School went beyond being merely assertive (Langlois 2013) to offer economics a comprehensive and integrated framework for the analysis of the *inseparable trio of the entrepreneur, the firm, and the market process*.

To conclude, the development of the Austrian School is a good example of how economics, as an academic discipline, progresses through discussions and collaborative efforts among economists and scholars in managerial science. As long as

ongoing challenges persist and new ones arise, discussions among scientists will continue. As the title of Karl Popper's book (1999) suggests, all science, like all life, is fundamentally an effort to solve problems through trial and error.

References

Agarwal, Rajshree, Jay B. Barney, Nicolai J. Foss & Peter G. Klein. 2009. "Heterogeneous resources and the financial crisis: implications of strategic management theory." *Strategic Organization*, 7(4):467–484. https://journals.sagepub.com/doi/abs/10.1177/1476127009346790

Aghion, Philippe, and Jean Tirole. 1997 "Formal and Real Authority in Organizations." *The Journal of Political Economy*, 105(1): 1–29. http://www.jstor.org/stable/2138869

Alchian, Armen A., and Harold Demsetz. 1972. "Production, information costs, and economic organization." *American Economic Review*, 62(5):777–795. https://www.jstor.org/stable/1815199

Alvarez, Sahoran A., and Lowell W. Pusenitz. 2001. "The entrepreneurship of resource-based theory." *Journal of Management,* 27: 755–775. https://journals.sagepub.com/doi/10.1177/014920630102700609

Argote, Linda., and Henrich D. Grave. 2007. **"**A Behavioral Theory of the Firm—40 Years and Counting: Introduction and Impact." *Organization Science***, 18 (3): 337–349.** DOI: 10.1287/orsc.1070.0280

Arrow, Kenneth J. and Gerard Debreu. 1954. "Existence of an Equilibrium for a Competitive Economy." *Econometrica*, 22(3): 265-290. https://doi.org/10.2307/1907353

Arrow, Kenneth. J. 1971. "The Firm in General Equilibrium Theory." In: *Corporate Economy: Growth, Competition, and Innovative Potential*. ed. Robin Marris and Adrian Wood. Palgrave Macmillan.

Arvanitis, Sypros, and Euripidis Loukis. 2024. "Factors Explaining Firm Economic Vulnerability During the 2008 Crisis." *Journal of Industry, Competition, and Trade*, 24(15):14–41. https://link.springer.com/article/10.1007/s10842-024-00425-6

Barney, Jay B. 1991. "Firm Resources and Sustained Competitive Advantage." *Journal of Management*, 17(1):99–120. https://doi.org/10.1177/0149206391017001

Barney, Jay B. 2001. "Is the Resource-Based View A Useful Perspective for Strategic Management Research? Yes." *Academy of Management Review*, 26(1):41–56. https://doi.org/10.2307/259393

Barney, Jay B., and William Hasterly. 2006. "Organizational Economics: Understanding the Relationship between Organizations and Economic Analysis." In: T*he SAGE Handbook of Organization Studies, by* et al. Stewart R. Clegg. SAGE Publications Ltd.

Blaug, Mark. 1997. *Not Only Economics*. Cheltenham: Edward Elgar.

Blaug, Mark. 2003. "Formalist Revolution of the 1950s." In: *A Companion to the History of Economic Thought.* ed. W. J. Samuels, J. E. Biddle, and J. B. Davis. UK: Blackwell. pp. 395–410.
Boettke, Peter J. 1997. "Where did economics go wrong? Modern Economics as a Flight from Reality." *Critical Review,* 11(1):11–64.https://doi.org/10.1080/08913819708443443
Boudreaux, Donald J. and Randall G. Holcombe. 1989. "The Coasean and Knightian Theories of the Firm." *Managerial and Decision Economics*, 10:147-154. http://lproxy.yeditepe.edu.tr/login?url=https://www.proquest.com/scholarly-journals/coasian-knightian-theories-firm/docview/230071305/se-2?accountid=17381
Butos, William N. 1994. "The Hayek-Keynes Macro Debate In: *The Elgar Companion to Austrian Economics.* ed. Peter Boettke. Cheltenham: Edward Elgar Publishing. pp.478–484.
Bylund, Per L. 2014. **"**Explaining Firm Emergence: Specialization, Transaction Costs, and the Integration Process." *Managerial and Decision Economics*.36(4):221-238. https://doi.org/10.1002/mde.2661
Bylund, Per L. 2016. Problem of Production: A new theory of the firm, New York: Routledge
Bylund, Per L. 2021. "The Firm versus the Market: Dehomogenizing the Transaction Cost Theories of Coase and Williamson." *Strategic Management Review*, 2(1): 29–46. https://doi.org/10.1561/111.00000018
Cartwright, Nancy. 1999. *The Dappled World: A Study of the Boundaries of Science*. Cambridge: Cambridge University Press.
Casson, Mark. 2005. "Entrepreneurship and the theory of the firm." *Journal of Economic Behavior & Organization,* 58(2):327–348. .https://doi.org/10.1016/j.jebo.2004.05.007
Cheung, Steven. N. S. 1983. "The Contractual Nature of the Firm". *Journal of Law and Economics,* 26(1):1–21. https://doi.org/10.1086/467023
Coase, Ronald H. 1937. "The Nature of the Firm." *Economica*, 4(16):386–405. https://doi.org/10.1111/j.1468-0335.1937.tb00002.x
Coase, Ronald H. 1993a. "The Nature of the Firm: Origin." In: O. E. Williamson, & Sidney G. Winter (1993), pp.34–47. https://doi.org/10.1093/oxfordjournals.jleo.a036946
Coase, Ronald H. (1993b). The Nature of the Firm: Meaning. In: Williamson, O. E. & Sidney G. Winter (1993), pp.48-60. https://doi.org/10.1093/oxfordjournals.jleo.a036944
Coase, Ronald H. (1993c). The Nature of the Firm: Influence. In: Williamson, O. E. & Sidney G. Winter (1993), pp.61–74. https://doi.org/10.1093/oxfordjournals.jleo.a036947
Coase, Ronald H. (1993d). 1991 Nobel Lecture: The Institutional Structure of Production. In: *The Nature of the Firm,* by editors Williamson, O. E. & Sidney G. Winter (1993), pp. 227–235.
Cohendet, Patrick, Oliver Dupouet, Patrick Llerena, Raouf Naggar, R., and Romain Rampa 2024. "Knowledge-based Approaches to the Firm. An Idea-driven

Perspective." *Industrial and Corporate Change*, 34(3)1–23. https://doi.org/10.1093/icc/dtae032
Conner, Katleen R. 1991. "A Historical Comparison of Five Schools of Thought Within Industrial Organization Economics: Do We Have a New Theory of the Firm?" *Journal of Management*,17(1):121–154.https://doi.org/10.1177/014920639101700109.
Covan, Robin. 1994. Causation and genetic causation in economic theory. In: *The Elgar Companion to Austrian Economics* ed. Peter J. Boettke. Cheltenham: Edward Elgar. pp.72–76.
Cyert, Richard M. and James G. March. 1963. *A Behavioral Theory of the Firm*. New Jersey: Prentice-Hall Inc.
Davis, Gerald. F. and Theodore DeWitt. 2021. "Organization Theory and the Resource-Based View of the Firm: The Great Divide." *Journal of Management,* 47(7):1684 –1697. https://doi.org/10.1177/0149206320982650
Debreu, Gerald 1959. *Theory of Value: An Axiomatic Analysis of Economic Equilibrium.* Yale University Press.
Demsetz, Harold. 1988. "The Theory of the Firm Revisited." *Journal of Law, Economics, & Organization*, 4(1):141–161. https://doi.org/10.1093/oxfordjournals.jleo.a036941
Demsetz, Harold. (1997). "A Quiet Revolution." *The American Economic Review, Papers and Proceedings*, 87(2):426-429. https://www.jstor.org/stable/2950959.
Demsetz, Harold. 2001. *The Economics of the Business Firm: Seven Critical Commentaries.* Cambridge: Cambridge University Press.
Dosi, Giovanni., Richard R. Nelson, and Sidney G. Winter (ed). 2000. *The Nature and Dynamics of Organizational Capabilities.* Oxford: Oxford University Press.
Douma, Sytse and Hein Schreuder. 2017. *Economic Approaches to Organizations.* Pearson Education Limited.
Foss, Kirsten. 2010. "How do economic crises impact firm boundaries?" *European Management Review*, (7):217–227. https://doi.org/10.1057/emr.2010.19
Foss, Nikolai Jull. 1993. "More on Knight and the Theory of the Firm." *Managerial and Decision Economics,* (14):269–76. https://www.jstor.org/stable/2487944
Foss, Nikolai Jull. 1994. "The Theory of the Firm: The Austrians as Precursors and Critics of Contemporary Theory." *The Review of Austrian Economics,* 7(1):31–65. https://doi.org/10.1007/BF01102135
Foss, Nikolai Jull. 1996. "Knowledge-Based Approaches to the Theory of the Firm: Some Critical Comments." *Organization Science*, 785), pp. 470–476. https://jstor.org/stable/2635285
Foss, Nikolai Jull. 1997. "Austrian Insights and Theory of The Firm." *Advances in Austrian Economics*, 4:175-198. https://doi.org/10.1016/S1529-2134(97)04014-3
Foss, Nikolai Jull. 1998. "The Theory of the Firm: An Introduction to Themes and Contributions." http://www.cassey.com/foss.pdf
Foss, Nikolai Jull, and Peter G. Klein. 2009. "Austrian Economics and the Transaction Cost Approach to the Firm." *Libertarian Papers*, 39(1):1–20. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=+%E2%80%9CAustri

an+Economics+and+the+Transaction+Cost+Approach+to+the+Firm%E2%80%9D&btnG=
Foss, Nikolai Jull, and Peter G. Klein. 2012. *Organizing Entrepreneurial Judgment: A New Approach to the Firm*. Cambridge: Cambridge University Press.
Foss, Nikolai Jull, and Peter G., and Per L. Bylund. 2011. "Entrepreneurship and the Economics of the Firm." SMG Working Paper 6/2011. https://ssrn.com/abstract=1747710
Fox, Glenn Cameron. 2014. Is the Theory of the Firm a Missing Chapter in Austrian Economics? https://www.academia.edu/52041608/Is_the_Theory_of_the_Firm_a_Missing_Chapter_in_Austrian_Economics
Gaffard, Jean Luc. 2022. "Uncertainty, Market, and Organization: The Meaning and Scope of Knight's Contribution." OFCE Sciences Po, Université Côte d'Azur, Institut Universitaire de France. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=+Gaffard+J.+L.+Uncertainty%2C+market+and+organization&btnG=
Garrison, Roger W. 2001. *Time and Money: The Macroeconomics of Capital Structure*. London: Routledge.
Gavetti, Giovanni. 2012. "Toward a Behavioral Theory of Strategy." *Organization Science*, 23(1):267–285. http://dx.doi.org/10.1287/orsc.1110.0644
Gavetti, Giovanni., Henrich R. Greve, Daniel A. Levinthal, & William A. Ocosaio. 2012. "The Behavioral Theory of the Firm: An Assessment and Prospects." *The Academy of Management Annals*. 6(1): 1–40. https://doi.org/10.5465/19416520.2012.656841
Grant, Robert M. 2009. "The Knowledge-Based View of the Firm." In: The *Oxford Handbook of Strategy*. ed. David O. Faulkner and Andrew Campbell, Oxford: Oxford University Press. doi:10.1093/oxfordhb/9780199275212.001.0001. pp.203–227.
Greenwald, Bruce C. and Joseph E. Stiglitz. 1999. "Asymmetric Information and the New Theory of the Firm: Financial Constraints and Risk Behavior." *The American Economic Review*, 80(2):160–165. https://www.jstor.org/stable/2006562
Grossman, Sanford, and Oliver Hart. 1986. "The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration". *Journal of Political Economy*, 94(4): 691–719. https://www.jstor.org/stable/1833199
Guerras-Martín, Luis Angel, Anoop Madhok, and Angeles Montoro Sanches. 2014. "The evolution of strategic management research: Recent trends and current directions". *Business Research Quarterly*, **17**:69-76. http://dx.doi.org/10.1016/j.brq.2014.03.001
Hagen, Moritz., Wnjia Su, and Sebastian Junge. 2024. "60th birthday of 'A Behavioral Theory of the Firm': a review of the relational concepts and recommendations for future research." *Management Review Quarterly* (2024) 74:2637–2682. https://doi.org/10.1007/s11301-023-00369-x
Hart, Oliver. 1989. "An Economist's Perspective on the Theory of the Firm." *Columbia Law Review*, 89(7):1757-1774. https://doi.org/10.2307/1122818

Hart, Oliver & John Moore. 1990. "Property Rights and the Nature of the Firm." *The Journal of Political Economy,* 98(6):1119-1158.
Hart, Oliver & John Moore (1994). "A Theory of Debt Based on the Inalienability of Human Capital.**"** *The Quarterly Journal of Economics***,** 109(4):841–879. https://www.jstor.org/stable/2118350
Hart, Oliver. 2011. "Thinking about the firm: A Review of Daniel Spulber's The Theory of the Firm." *Journal of Economic Literature,* XLIX (1):101–103. doi=10.1257/jel.49.1.101
Hayek, Friedrich A. 1937. "Economics and Knowledge." In *Individualism and Economic Order*. 1948, Chicago: The University of Chicago Press. pp.33–56.
Hayek, Friedrich A. 1945. "The Use of Knowledge in Society." In *Individualism and Economic Order*. 1948. Chicago: The University of Chicago Press, pp.77-91
Hayek, Friedrich A. 1948. *Individualism and Economic Order*. Chicago: The University of Chicago Press.
Hayek, Friedrich A. 1967. *Studies on Philosophy, Politics, and Economics*. Chicago: The University of Chicago Press.
Hayek, Friedrich A. 1978. *New Studies on Philosophy, Politics, and Economics*. London: Routledge.
Hughes, Jonathan. 1986. *The Vital Few the Entrepreneur and American Economic Progress*, Extended Edition, New York: Oxford University Press.
Holmström, Bengt. 1979. "Moral Hazard and Observability." *The Bell Journal of Economics*, 10(1):74–91. https://doi.org/10.2307/3003320
Holmström, Bengt & John Roberts. 1988. "The Boundaries of the Firm Revisited." *Journal of Economic Perspective*, 12(4):73–94. https://scholar.google.com.tr/scholar?q=10.1257/jep.12.4.73&hl=en&as_sdt=0&as_vis=1&oi=scholart
Huerta de Soto, Jesús. 2008. *Austrian School: Market Order and Entrepreneurial Creativity*. Cheltenham: Edward Elgar.
Hussler, Caroline., Julien Penin, Michael Dietrich, and Thierry Burger-Helmchen. 2012. "Strategic Management and the Economics of the Firm: How to Reconcile the Brother Enemies?" *Journal of Strategic Management*, 5(4):372–380. http://dx.doi.org/10.1108/17554251211276344
Ioannides, Stavros. 1992. *The Market, Competition, and Democracy*. Cheltenham: Edward Elgar
Ioannides, Stavros. 1999. "Towards an Austrian Perspective on the Firm." *Review of Austrian Economics*,11:77-97. https://doi.org/10.1023/A:1007728107685
Jacobsen, Lowell R. 2008. "On Robinson, Coase and The Nature of the Firm." *Journal of the History of Economic Thought*, 30(1):65-80. doi:10.1017/S1042771608000057
Jacobson, Robert. 1992. "The Austrian School of Strategy." *Academy of Management Review*, 17(4): 782–807. https://doi.org/10.5465/amr.1992.4279070
Jensen Michael and William H. Meckling. 1976. "Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure." *Journal of Financial Economics*. 3(4):305–360. https://doi.org/10.1007/978-94-009-9257-3_8

Kay, John. A. 1991. “Economics and Business.” *The Economic Journal,* 101(404):57-63. https://doi.org/10.2307/2233838
Kirzner, Israel M. 1973. *Competition and Entrepreneurship,* Chicago: The University of Chicago Press
Kirzner, Israel M. 1997. “Entrepreneurial discovery and the competitive market process: An Austrian Approach." *Journal of Economic Literature,* 35: 60–85. https://www.jstor.org/stable/2729693
Kirzner, Israel M. 2000. *The Driving Force of the Market*. Routledge
Klein, Benjamin, Robert G. Crawford, and Armen A. Alchian. 1978. “Vertical Integration, Appropriable Rents, and the Competitive Contracting Process.” *Journal of Law and Economics*, 21(2):297–326. https://www.jstor.org/stable/725234
Klein, Peter G. 2010. *The Capitalist and Entrepreneur: Essays on Organizations and Markets.* Ludwig von Mises Institute
Knight, Frank Hyneman. 1921. *Risk, Uncertainty, and Profit*. Reprint of Economic Classics. 1964. Augustus M. Kelley, Bookseller.
Lachman, Ludwig M. 1977. *Capital, Expectations, and the Market Process*. Sheed Andrews and McMeel Inc.
Lahmann, Ludwig M.1994. “From Mises to Shackle: An Essay on Austrian Economics and the Kaleidic Society." In: Expectations *and the Meaning of Institutions*. ed. Don Lavoie, Routledge. pp.223–233.
Langlois Richard N. and Metin M. Cosgel. 1993. “Frank Knight on Risk, Uncertainty and The Firm: A New Interpretation.” *Economic Inquiry*. 31: 456–465. https://doi.org/10.1111/j.1465-7295.1993.tb01305.x
Langlois Richard N. 1992. “Orders and Organizations: Toward an Austrian Theory of Social Institutions.” In: *Austrian Economics: Tensions and New Directions.* ed., Bruce Caldwell and Stephen Boehm Springer Science-Business Media.
Langlois Richard N. 1994. “The Boundaries of the Firm.” In: *The Elgar Companion to Austrian Economics*, ed. Peter J. Boettke. Aldershot: Edward Elgar. pp.173–178.
Langlois Richard N. 1998. “Transaction Costs, Production Costs, and the Passage of Time.” In: *Coasean Economics. Law and Economics and New Institutional Economic*s. ed. Steven G. Medema, Kluwer Academic Publishers. pp. 1–21.
Langlois Richard N. 2001. “Strategy and the Market Process: Introduction to the Special Issue.” *Managerial and Decision Economics*, 22:163-168. https://www.jstor.org/stable/3657284
Langlois, Richard N. 2007. “The Entrepreneurial Theory of the Firm and the Theory of the Entrepreneurial Firm.” *Journal of Management Studies*, 44(7):1107–1124. .https://doi.org/10.1111/j.1467-6486.2007.00728.x
Langlois Richard N. 2013. “The Austrian Theory of the Firm: Retrospect and Prospect.” *Review of Austrian Economics*, 26:247–258. 10.1007/s11138-012-0171-y
Lavoie Don.1985. *Rivalry and Central Planning: Socialist Calculation Debate Reconsidered*. Cambridge: Cambridge University Press.
Lewin, Peter, and Nicolas Cachanosky. 2019. *Austrian Capital Theory*. Cambridge: Cambridge University Press

Machlup, Fritz. 1982. “Austrian Economics." In: *The Encyclopedia of Economics*. ed. Douglas Greenwald, London: MacGraw Hill
Mahoney, Joseph T., and J. Rajendran Pandian. 1991. “The Resource-Based View within the Conversation of Strategic Management.” *Strategic Management Journal.* 13:363–380. https://www.jstor.org/stable/2486455
March, James G. and Herbert A. Simon. 1958. *Organizations.* USA: John Wiley & Sons, Inc.
Marshall, Alfred. 1890. *Principles of Economics.* Eighth Edition. Hampshire: Palgrave Macmillan. 2013.
Metcalfe, J. Stanley and Andrew James. 2000. “Knowledge and Capabilities: A New View of the Firm.” In: *Resources, Technology, and Strategy*, ed. Nicolai J. Foss and Paul L. Robertson, Routledge. pp31-51.
Milgrom, Paul. And John Roberts. 1988. “Economic Theories of the Firm: Past, Present, and Future.” *The Canadian Journal of Economics,* 21(3):444–458. https://www.jstor.org/stable/135430
Mises, Ludwig von 1949/1998. *Human Action: A Treatise on Economics*. Auburn: Ludwig von Mises Institute
Möller, Ulrich. and Matthew McCafrey, M. 2023. “Integrating Resources, Capabilities, and Judgment through an Austrian Framework.” *Entrepreneurship Research Journal,* 13(4):997–1031. https://doi.org/10.1515/erj-2020-0519
Nelson, Richard R. 1991. "Why Do Firms Differ, and How Does It Matter?" *Strategic Management Journal*. 12(61-74).
Nelson, Richard R. and Sidney G. Winter. 1982. *An Evolutionary Theory of Economic Change*, Belknap Press of Harvard University Press
Ocasio, William. 1997. "Towards an Attention-Based View of the Firm." *Strategic Management Journal*, Vol. 18:187-206.
O'Driscoll, Gerald. P. & Mario Rizzo. 1985. *The Economics of Time and Ignorance*. New York: Routledge
Penrose, Edith 2009. *The Growth Theory of the Firm.* London: Oxford University Press
Pitelis, Christos. 2009. “Edith Penrose's ‘The Theory of the Growth of the Firm' Fifty Years Later.” In: *The Theory of the Growth of the Firm,* Edith Penrose, Fourth Edition, London: Oxford University Press. pp. ix-xlvii.
Pitelis, Cristos. And David J. Teece. 2009. “The (New) Nature and Essence of the Firm.” European *Management Review*, 6, pp.5–15.
Polanyi, Michael. 1962. *Personal Knowledge: Towards a Post-Critical Philosophy*, London: Routledge.
Polanyi, Michael. 1966. *Tacit Dimension*. Chicago: The University of Chicago Press.
Popper, Karl. 1999. *All Life is Problem Solving.* London: Routledge.
Rajan, Raghuram G. and Luigi Zingales. 1988. “Power in the Theory of the Firm.” The *Quarterly Journal of Economics*, 113(2):387-432. https://doi.org/10.1162/003355398555630

Roberts, Peter W. and Kathleen M. Eisenhardt. 2003. "Austrian insights on strategic organization: from market insights to implications for firms." *Strategic Organization*, 1(3): pp. 345-352. https://www.jstor.org/stable/23727424
Robertson, Dennis & Stanley Dennison. 1923. *The Control of Industry*. Cambridge: Cambridge University Press.
Robinson, E. Austin G. 1931. *The Structure of Competitive Industry*. London: Nisbet.
Rothbard, Murray N. 1962/2009. *Man, Economy, and State with Power and Market.* Scholar Edition, Auburn: Ludwig von Mises Institute.
Rumelt, Richard P., Dan Schendel, and David J. Teece. 1991. "Strategic Management and Economics." *Strategic Management Journal,* 12:5-29. https://doi.org/10.1002/smj.42501210036.
Rumelt, Richard P., Don Schendel, and David J. Teece, D. J. 1995. *Fundamental Issues in Strategy*, Harvard Business School Press.
Saadatmand, Mohammadsaleh., Maoloas Dabab and Charles Weber. 2018. "Dynamics of Competition and Strategy: A Literature Review of Strategic Management Models and Frameworks." 2018 Portland International Conference on Management of Engineering and Technology (PICMET), Honolulu, HI, 2018, pp. 1-14. Portland University. doi: 10.23919/PICMET.2018.8481743.
Sautet, Frederic E. 2000. *An Entrepreneurial Theory of the Firm*. New York:Routledge
Sautet, Frederic E. (2010). "The Competitive Market is a Process of Entrepreneurial Discovery." In: *Handbook on Contemporary Austrian Economics.* ed. Peter J. Boettke. Cheltenham: Edward Elgar. pp. 87-108
Schumpeter, Joseph A. 1934. *The Theory of Economic Development*. London: Oxford University Press.
Simon, Herbert A. 1945/1997. *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organizations.* Fourth Edition, New York: The Free Press
Shenoy, Sudha R. 2009. *Tiger by the Tail*. Third Edition. Auburn: Mises Institute
Teece, David J., Gary Pisano, and Amy Shuen. 1997." Dynamic Capabilities and Strategic Management." *Strategic Management Journal,* 18 (7):509–533. https://doi.org/10.1002/(SICI)1097–0266(199708)18:7%3C509::AID-SMJ882%3E3.0.CO;2-Z
Teece, David J. 2009. *Dynamic Capabilities and Strategic Management*. London:Oxford University Press
Vaughn, Karen I. 1994. "Socialist Calculation Debate." In: *The Elgar Companion to Austrian Economics*. ed. Peter J. Boettke. Cheltenham: Edward Elgar Publishing. pp.478–484.
Walker, Paul. 2017. *The theory of the firm: An overview of the Economic Mainstream*. New York: Routledge
Wernersfelt, Birger. 1984. "A Resource-Based View of the Firm." *Strategic Management Journal*, 5 (2):171–180. https://doi.org/10.1002/smj.4250050207

Williamson, Oliver E. 1975. *Markets and Hierarchies: Analysis and Antitrust Implications*. Free Press
Williamson, Oliver E. 1979. "Transaction-Cost Economics: The Governance of Contractual Relations." *Journal of Law and Economics,* 22: 3–61. https://www.jstor.org/stable/725118
Williamson, Oliver E. 1985. *The Economic Institutions of Capitalism*. New York: The Free Press
Williamson, Oliver E. 1993. "The Logic of Economic Organization" In: *The Nature of the Firm.* ed. Oliver Williamson and G. Winter Sidney. Oxford: Oxford University Press.
Williamson, Oliver E. and G. Winter Sidney. 1993. *The Nature of the Firm*, New York, Oxford. Oxford University Press.
Winter, Sidney G. 1993. "On Coase, Competence and Corporation." In: *The Nature of the Firm: Origin, Evolution and Develop*ment, ed. Oliver E. Williamson and Sidney G. Winter, Oxford: Oxford University Press, pp.179-195
Winter, Sidney G. 2006**.** "Toward a neo-Schumpeterian theory of the firm." *Industrial and Corporate Change*, 15 (1): 125–141, https://doi.org/10.1093/icc/dtj006
Witt, Ulrich. 1999. "Do Entrepreneurs Need Firms? A Contribution to a Missing Chapter in Austrian Economics." *Review of Austrian Economics,* 11: 99–109. https://doi.org/10.1023/A:1007780124524
Witt, Ulrich. 2005. "The evolutionary perspective on organizational change and the theory of the firm." In: *The Evolutionary Foundations of Economics.* Kurt Dopfer (ed). Cambridge: Cambridge University Press.
Yay, Turan. 2026. "Theories of the Firm and Organization: An Interdisciplinary Assessment." Working Paper, hal-05495211. https://hal.science/hal-05495211v1