

Investment opportunities in competitive product markets:**When do internal capital markets matter?**

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ABSTRACT

Arguments about internal capital markets (ICMs) possibly allowing businesses to compete more effectively in product markets have lost traction in strategy over time, despite contemporary supporting evidence from advanced economies with developed external capital markets. We develop a theoretical framework to understand under which conditions an ICM is likely to be an important complement to a business in a competitive product market, by allowing that business to more easily fund and capture investment opportunities therein. Our framework seeks to add to existing theory on ICMs by explicitly inserting investment opportunities in their product-market contexts. We posit that an opportunity's *firm-specificity* and *uncertainty* will fundamentally shape the nature of the interactions between a firm's business and its product-market rivals. Accordingly, a given opportunity will entail distinct critical capital needs—which may go beyond just securing enough funding at an affordable cost—that must be satisfied if the opportunity is to be captured by the business. Our theory suggests that an ICM is likely to enhance the ability of a business to capture some types of opportunities but not others, which has implications for the returns and the long-term prevalence of businesses belonging to diversified firms with active ICMs across different product markets.

Keywords: Internal capital markets, external capital markets, transaction cost economics, investment opportunities, businesses, competitive product markets

**INVESTMENT OPPORTUNITIES IN COMPETITIVE PRODUCT MARKETS:
WHEN DO INTERNAL CAPITAL MARKETS MATTER?**

The allocation of capital through the internal capital markets (ICMs) of diversified firms is a long-established research topic in strategy (e.g., Alchian, 1969; Bower, 1970; Henderson, 1970; Williamson, 1975; Chandler, 1977). At the onset of strategy as a field of study (i.e., the 1960s and 1970s), arguments encapsulated in popular *portfolio management* frameworks such as the Boston Consulting Group's growth-share matrix suggested that the existence of an ICM could allow a business unit of a diversified firm to compete more effectively in a product market against comparable single-business firms when the business unit's cash-flow generation alone is insufficient to cover its envisioned value-enhancing investments. Given that frictions in external capital markets (ECMs) could make it challenging to obtain outside funding in the form of new equity or debt, the benefit of an ICM would stem from the business unit being able to leverage a (potentially large) pool of funds generated by the diversified firm's other businesses to fund its investments, thereby strengthening its position in the product market and ultimately obtaining greater financial returns (e.g., Henderson, 1970, 1976; Haspeslagh, 1982; Seeger, 1984).

Notwithstanding their initial impetus, these arguments have become less central within strategy over time in light of the development of ECMs and the widespread corporate-refocusing and de-conglomeration waves of the 1980s in many Western economies (e.g., Bhagat, Shleifer, & Vishny, 1990; Davis, Diekmann, & Tinsley, 1994; Zuckerman, 2000). Coincidentally, with the emergence of the resource-based view (RBV), the emphasis of theoretical discussions on competitive advantage and superior performance shifted to uniquely valuable and difficult-to-imitate non-financial resources and capabilities (Penrose, 1959; Lippman & Rumelt, 1982; Wernerfelt, 1984; Barney, 1986, 1991; Dierickx & Cool, 1989), implicitly downplaying the

potential complementary role of capital allocation in ICMs (Sengul, Almeida Costa, & Gimeno, 2019). Echoing a general sentiment among strategy scholars at the time, Barney (1986: 1237) claimed that “under the assumption of efficient and well-informed capital markets, capital will flow to high return potential firms”, while Porter (1987: 51) stated that “[s]imply contributing capital isn’t contributing much”. The current received wisdom is that highly fungible and non-specialized resources like capital should rarely constitute the key source of competitive advantage (Collis & Montgomery, 2008: 149) and that focusing on capital as *the* scarce resource is typically misguided (Ghemawat, 2017: 12). Hence, various current textbooks on strategy tend to see capital allocation in ICMs as beneficial mostly in extenuating circumstances, when ECMs are underdeveloped, as in emerging economies, or unavailable, as during financial crises (e.g., Grant, 2016; Puranam & Vanneste, 2016; Ghemawat, 2017).

However, diversified firms are still a widespread phenomenon and capital allocation in ICMs continues to have a great economic importance, even in advanced economies with developed ECMs.¹ Moreover, several contemporary empirical studies set in advanced economies suggest that ICMs may, in some circumstances, allow the business units of diversified firms to compete more effectively against their product-market rivals. For instance, Khanna and Tice (2001) analyzed the capital expenditures of discount retailers in the US as a response to Walmart’s entry into their markets, showing that the discount divisions of diversified incumbents were quicker to exit the discount business or to stay and fight than their focused counterparts. Studying French business groups, Boutin, Cestone, Fumagalli, Pica, and Serrano-Velarde (2013) showed that the likelihood of entry into industries was negatively related to the cash holdings of incumbent-affiliated groups and positively related to the cash holdings of entrant-affiliated groups. Finally, Morandi Stagni, Santaló, and Giarratana (2020) showed that diversified firms in

the US tended to reallocate capital to business units that faced heightened exposures to international product-market competition and away from other business units, and that this effect was positively associated with overall firm performance.

We contend that the discrepancy between the preceding empirical evidence and the apparent downplaying of ICMs as potentially important complements to competing businesses exists in part because most research dealing with capital allocation and ICMs overlooks the conditions faced by those businesses in their product markets.² Arguably due to the anchoring of seminal theoretical contributions on ICMs in the intellectual tradition of transaction cost economics (TCE) (e.g., Alchian, 1969; Williamson, 1975; Teece, 1980, 1982; Gertner, Scharfstein, & Stein, 1994; Stein, 1997), most research assessing the merits of ICMs has focused on how information asymmetries and (mis)aligned incentives influence the efficiency of ICMs *versus* ECMs as interfaces for a business to access capital to fund investment opportunities, while neglecting how those opportunities may relate to competition between the business and its product-market rivals (for a review, see Sengul et al., 2019). By treating investment opportunities largely as if they existed in a competitive vacuum, the mainstream of research on ICMs does not explicitly consider that those opportunities may sometimes be shared with rivals, for example.

Our purpose is to add to existing theory by exploring the impact of capital allocation through ICMs on performance in competitive product markets. Specifically, we develop a theoretical framework to address the following research question: Under which conditions is an ICM likely to be an important complement to a business in a competitive product market, by allowing that business to more easily fund and capture investment opportunities therein when business-level cash-flow generation alone is insufficient to cover the required investments? Our

framework starts by explicitly inserting investment opportunities in their product-market contexts, thus departing from the mainstream of research on ICMs. In doing so, we emphasize *firm-specificity* and *uncertainty* as two key characterizing dimensions of an investment opportunity that fundamentally shape the nature of interactions between a firm's business and its product-market rivals by, respectively, influencing (i) the ability of rivals to directly access the opportunity, and (ii) the ability to commit to a predetermined investment path to capture the opportunity. Due to these interactions, a given investment opportunity is likely to entail distinct *critical capital needs*—which may go beyond just securing enough funding at an affordable cost, to also include hitherto overlooked aspects such as *confidentiality*, *timeliness*, and/or *reliability*—that must be satisfied if the opportunity is to be captured by the business. After discussing investment opportunities and their critical capital needs, we align our theory with seminal work anchored in the intellectual tradition of TCE (e.g., Williamson, 1975; Teece, 1980, 1982; Gertner et al., 1994), highlighting ways in which the existence of an ICM as an interface for accessing funds influences capital allocation at a business unit of a diversified firm relative to a comparable single-business firm that resorts directly to the ECM.

We answer our research question by leveraging the above aspects to predict whether and under which conditions an ICM should allow for a better matching of the critical capital needs entailed by an investment opportunity of a given type, and thus for an enhanced ability of a business to fund and capture that opportunity. Moreover, in agreement with the *discriminant alignment hypothesis* from TCE (Williamson, 1985), we take advantage of those main predictions to make forecasts about the relative returns and long-term prevalence of businesses belonging to diversified firms with active ICMs across different product markets. Ultimately, our framework upholds a contingency view (e.g., Lawrence & Lorsch, 1969; Galbraith, 1973) of the

relationship between ICMs and performance, postulating that whether an ICM is likely to be beneficial for a business depends on the type of product-market investment opportunities.

INVESTMENT OPPORTUNITIES IN COMPETITIVE PRODUCT MARKETS

Although capital may be allocated to an investment based on *ex-ante* expectations of improved business-level financial returns from a product market, these may not materialize *ex-post*. A typical explanation for this discrepancy would be the uncertainty of the investment in terms of its technological feasibility or product-market potential. Going beyond this, our theory also emphasizes another reason that has been largely neglected in the literature on capital allocation and ICMs but is nonetheless crucial: *interactions between the investment behavior of a business and that of its product-market rivals*. For example, suppose that demand growth in a product market creates an opportunity for a given business to invest in added production capacity which, all else being equal, will yield a positive financial return. However, if its rivals were to add capacity as well to capture some of the demand growth, that should depress the return to the business from adding capacity and might even preclude profitable investment altogether

The interplay between *ex-ante* expectations, potential investments by a business and its rivals, and *ex-post* outcomes makes it challenging to define what constitutes an investment opportunity in a product market. To base our theory on a solid foundation, we need to beware of (i) the tautology inherent to defining an investment opportunity based on *ex-post* successful outcomes, and (ii) the arbitrariness in considering specific expectations about rivals' investment behavior. Therefore, we define an investment opportunity in a product market based on the *ceteris paribus* expected outcome for a business as

an instance where, if capital were allocated to an investment, a business would (ex-ante) expectedly improve its returns from a product market, assuming rivals' investment behavior is held constant.

This definition is consistent with the notions of investment opportunity that are implied in seminal theoretical work on ICMs (e.g., Williamson, 1975; Gertner et al., 1994; Stein, 1997) in two respects. First, it is closer to a project bounded to a business—with a relatively fixed scope in terms of its target product market—than to a broad and generic growth agenda for a firm. Second, notwithstanding the relevance of philosophical debates around the construct of opportunity in the entrepreneurship literature (e.g., Alvarez & Barney, 2020; Foss & Klein, 2020; Wood & McKinley, 2020; Wright & Phan, 2020), it is agnostic as to whether an opportunity is generated by exogenous shocks and then discovered (Kirzner, 1973; Shane & Venkatraman, 2000) or endogenously created (Knight, 1921; Alvarez & Barney, 2007) by the business and/or its parent firm. Nonetheless, we depart from previously implied notions of opportunity by explicitly inserting investment opportunities in their product-market contexts, to consider possible interactions between the investment behavior of a business and that of its rivals.

Harnessing relevant literature on competitive advantage, oligopolistic competition, and investment under uncertainty, our theory emphasizes *firm-specificity* and *uncertainty* as two key characterizing (and intersecting) dimensions of an investment opportunity. We argue that these dimensions fundamentally shape interactions between the investment behavior of a business and that of its product-market rivals by, respectively, influencing (i) the ability of those rivals to access the opportunity, and (ii) the ability to commit to a predetermined investment path to capture the opportunity. We contend that such interactions between a business and its rivals create distinct critical capital needs—possibly beyond just securing enough capital at an affordable cost—that must be satisfied if the business is to capture the opportunity. Tables 1 and 2 intersect the two dimensions in a two-by-two typology of investment opportunities and synthesize our argument, which is developed below.

Insert Tables 1 and 2 about Here

Firm-Specificity

Even though product-market competitors are largely subject to the same industry and environmental conditions (e.g., overall demand growth, broad technological evolution), they may differ substantially in terms of their endowments of non-financial resources and capabilities—including their networks of potential alliance partners—and information (e.g., Porter, 1980, 1985; Dyer & Singh, 1998; Lavie, 2006; Collis & Montgomery, 2008; Besanko, Dranove, Shanley, & Schaefer, 2017; Trigeorgis & Reuer, 2017). In this context, the *firm-specificity* of the conditions (i.e., unique endowments of non-financial resources and capabilities, and/or information) of a firm's business relative to product-market rivals may be fundamental for an investment opportunity to be available to that business. Evidently, the more an investment opportunity stems from the firm-specific conditions of a business and/or its parent, the less easy to access it will be by its product-market rivals. Thus, the more *exclusive* the opportunity will be to the business and the less *shared* it will be with rivals.

For an investment opportunity that is available to a business to be shared with (at least some) product-market rivals, those rivals must (i) have or easily obtain the relevant non-financial resources and capabilities to access the opportunity, and (ii) be as informed about the opportunity as the focal business. These conditions ensure that rivals are both aware of the opportunity and, if granted funding, able to capture it by making their own investments (Chen, 1996). Shared opportunities are echoed in the basic microeconomic models of oligopolistic competition proposed by Cournot (1838) and von Stackelberg (1934), wherein competitors selling homogeneous products set their output or invest in production capacity. In the real world, they are arguably more common in mature industries with established technological standards—such

as electricity generation, commodity chemicals, or cement—and often take the form of large investments in physical capital (i.e., property, plant, and equipment).

Since investment opportunities are typically bounded, shared opportunities may allow for investments by product-market rivals to crowd out profitable investments by a focal business (and *vice versa*). Hence, a shared opportunity may be *short-lived*—that is, only available to a business until pre-empted by rivals' investments. Accordingly, early and significant investments (that are both visible and understandable by rivals) may be critical for a business to capture a shared opportunity before its rivals and to potentially dissuade those rivals from investing. If this is the case, the business needs capital to be available not only in sufficient quantity and at low-enough cost (standard pre-requisites) but also in a *timely* manner.

For an investment opportunity to be exclusive to a business, its product-market rivals must (i) not have and not easily obtain the relevant non-financial resources and capabilities to access the opportunity, or (ii) be less informed about the opportunity. These conditions ensure that rivals are not aware of the opportunity, or, if they are, that they are not able to capture it through their own investments (Chen, 1996). Exclusive investment opportunities are arguably close in spirit to the RBV, which equates firms to bundles of uniquely valuable and difficult-to-imitate non-financial resources and capabilities, including information (Penrose, 1959; Lippman & Rumelt, 1982; Wernerfelt, 1984; Barney, 1986, 1991; Dierickx & Cool, 1989). Seen through the RBV lens, exclusive opportunities stem largely from the uniquely valuable and difficult-to-imitate endowments of intangible assets and capabilities (e.g., brands, processes, human capital, supplier relationships) or tangible assets (e.g., production facilities, distribution channels) of a business and/or its parent firm, and possibly entail the enhancement of those endowments. A pertinent example here is Disney, whose characters and franchises offer exclusive investment

opportunities across its many businesses (e.g., merchandise, home-video distribution, movie sequels) (Collis & Montgomery, 2008).

Since an exclusive investment opportunity cannot be accessed (and pre-empted) by product-market rivals, it is less likely to be short-lived than a shared one. Hence, timeliness in obtaining capital should not be critical for a business to capture an exclusive opportunity. Nonetheless, if the exclusivity is mainly ensured by sensitive proprietary information held by firm insiders, including knowledge of the mere existence and potential of the opportunity, then *confidentiality*—that is, the concealment of (at least some) information from existing or potential rivals—can be critical when securing investment capital. In those cases, the absence of confidentiality when sourcing capital may make the opportunity less exclusive, and thus more easily accessible (and pre-emptible) by rivals (e.g., Bettis, 1983; Liebeskind, 2000; Hitt, Ireland, & Hoskisson, 2016).

Uncertainty

Akin to most strategic decisions, pursuing an investment opportunity generally involves making resource commitments under some level of uncertainty (e.g., Wernerfelt & Karnani, 1987; Ghemawat, 1991; Rumelt, Schendel, & Teece, 1994; Tong & Reuer, 2007; O'Brien & Folta, 2009). As mentioned before, investment opportunities are typically subject to uncertainty about their technological feasibility or product-market potential (e.g., Ghemawat, 1991; McGahan, 1993; Dixit & Pindyck, 1994; Adner & Levinthal, 2004; Smit & Trigeorgis, 2017). In essence, a high level of uncertainty exists if the relevant parameters, contingencies, and possible outcomes of an investment opportunity cannot be *a priori* defined (or specified) with a high degree of confidence without more information being revealed (Knight, 1921).³ Conversely, a low(-enough) level of uncertainty exists if the parameters, contingencies, and possible outcomes

of an opportunity can be *a priori* defined with a high degree of confidence. Thus, we refer to the two conditions as *ill-defined* and *well-defined* investment opportunities, respectively.

Given that investments generally entail some degree of irreversible (sunk) costs—by involving the development of non-financial resources or capabilities that are firm-specific to some degree, and/or forgoing other investments (e.g., Ghemawat & Del Sol, 1998; Adner & Levinthal, 2004; Pacheco de Almeida, Henderson, & Cool, 2008)—, the high uncertainty of an ill-defined investment opportunity will reduce not only the feasibility of committing upfront to a predetermined investment path to capture that opportunity but also the desirability of doing so, because of the possibility of making a costly mistake. In such cases, the literature on investment under uncertainty, real options, and the behavioral theory of the firm broadly suggests that large upfront commitments should be postponed in favor of investing in a more sequential or staged way, so that a business (and/or its parent firm) retains the flexibility to adapt its investment path (including the possibility of abandonment) as more information about the opportunity is revealed (e.g., Ghemawat, 1991; Bowman & Hurry, 1993; Dixit & Pindyck, 1994; Ghemawat & Del Sol, 1998; Adner & Levinthal, 2004; Li, James, Madhavan, & Mahoney, 2007; Tong & Reuer, 2007; Smit & Trigeorgis, 2017). The revelation of information about an ill-defined opportunity (and the consequent resolution of its uncertainty) may occur (simply) through the passage of time, or because the sequential investments made in the opportunity themselves entail search processes that elicit such information (e.g., Levitt & March, 1988; Adner & Levinthal, 2004; March, 2006; Li et al., 2007). Sequential investments in R&D, product development, and market testing in industries such as pharmaceuticals and consumer goods are illustrative of the latter.⁴

The lower the uncertainty of an opportunity, the more the trade-off between commitment and flexibility should tilt toward the former, all else being equal. This is because the parameters,

contingencies, and possible outcomes of the opportunity can be *a priori* defined (or specified) with an increasing degree of confidence—without further information being required—, which should increase the feasibility (and the desirability) of committing upfront to a predetermined investment path to capture the opportunity (e.g., Gilbert & Lieberman, 1987; Lieberman, 1987a, b, c; Ghemawat, 1991). Therefore, postponing large upfront commitments and investing in a more sequential or staged way to preserve flexibility in the face of irreversible costs will be less justified in the case of a well-defined opportunity than in the case of an ill-defined one.

The fact that it is neither possible nor desirable to commit upfront to a predetermined investment path to capture an ill-defined opportunity, and that large upfront commitments should be postponed in favor of investing in a more sequential or staged way has two implications. First, it suggests that, to capture an ill-defined opportunity, a business should need to *reliably* source sufficient capital at a low-enough cost over an extended period to fund sequential investments, as more (positive) information about the opportunity is revealed. This should not be the case with a well-defined opportunity. Second, obtaining capital in a timely way to invest in an ill-defined opportunity that is shared with product-market rivals should be less critical than if the opportunity were well-defined, all else being equal. This is because the impossibility and undesirability of committing upfront to a predetermined investment path under high uncertainty will naturally impair the ability of a business to pre-empt its rivals and *vice versa* (Smit & Trigeorgis, 2006, 2017), even with timely access to capital.

A Typology of Investment Opportunities and Their Critical Capital Needs

Table 2 distills the conclusions from the preceding arguments by showcasing the four types of product-market investment opportunities—with examples of each—and their likely critical capital needs, beyond a sufficient supply of affordable capital. When an opportunity is

exclusive-and-well-defined (top-left quadrant), confidentiality may be an added critical need for a business to capture it if the exclusivity is mainly ensured by sensitive proprietary information held by firm insiders. For a business to capture an *exclusive-and-ill-defined* opportunity (top-right quadrant), reliability of funding will be an additional critical requirement of capital allocation at the business level. When an investment opportunity is *shared-and-well-defined* (bottom-left quadrant), timeliness in funding will be the distinguishing critical capital need for a business to capture that opportunity, whereas for a *shared-and-ill-defined* opportunity (bottom-right quadrant) it will be reliability of funding.

THE IMPACT OF INTERNAL (VERSUS EXTERNAL) CAPITAL MARKETS ON CAPITAL ALLOCATION AT THE BUSINESS LEVEL

The preceding arguments suggest that, for a business to capture a product-market investment opportunity, its capital allocation system should match the critical capital needs entailed by that opportunity. In line with our research question, we now characterize how the existence of an ICM as an interface for a business to access capital shapes capital allocation at the business level. In the spirit of TCE, we do so by conducting a basic mental experiment, where we compare capital allocation at two contrasting organizational forms: (i) a single-business firm that is *capital-insufficient* because its cash-flow generation is not enough to cover the required investments in an investment opportunity, and thus which must access extra capital directly from the ECM to fund that opportunity; and (ii) a similarly capital-insufficient business unit within a diversified firm which, to fund an investment opportunity, must access extra capital through the diversified firm's ICM, be that capital ultimately internally generated by the operations of the diversified firm's other businesses or sourced from the ECM by corporate headquarters (e.g., Williamson, 1975; Bettis & Prahalad, 1983; Gertner et al., 1994). Note that,

to focus on comparing ICMs and ECMs as alternative interfaces for accessing capital, we must assume that the business in question does not have enough capital on its own to fund an investment opportunity. Otherwise, there would be no need for accessing extra capital, and thus no funding transactions. Hence, our theory is primarily applicable to situations of business-level capital insufficiency.⁵ Furthermore, for the sake of clarity, the existence of an ICM (*versus* the ECM) as an interface for a business to access capital is the only treatment or manipulation in our mental experiment. Therefore, we do not home in on other possible connections between the business units of a diversified firm, such as operational synergies (e.g., Helfat & Eisenhardt, 2004)—we elaborate on these and other aspects later, in the discussion section. Table 3 synthesizes our arguments, to be developed next.

Insert Table 3 about Here

Source(s) of Extra Capital and Predominant Governance Mechanisms

To access extra capital, a single-business firm must issue equity or raise debt, thereby directly engaging in transactions in the ECM (e.g., Bettis & Prahalad, 1983; Myers & Majluf, 1984). In essence, these *market transactions* are *contractual* arrangements whereby ECM investors provide capital to the firm in exchange for financial stakes which entail contingent claims on the firm's future returns and asset base (Williamson, 1975, 1988; Teece, 1982). The supply side of ECMs is usually equated to institutional investors—such as retail and investment banks, mortgage providers, brokerage houses, pension funds, or insurance firms—that borrow capital from other investors and then provide it to firms (Porter, 1992; Bushee, 1998; Liebeskind, 2000).⁶ In agreement with standard TCE arguments regarding market transactions (Coase, 1960; Teece, 1980), sourcing funds from the ECM is commonly not an immediate process for the firm, since it entails the discovery of other relevant actors to carry out a funding transaction—beyond

investors, involving support services and intermediaries such as investment banks and underwriters—and a set of due diligence steps that include disclosing pertinent information to those actors (e.g., about an investment opportunity to which the sourced funds will be channeled), negotiating and agreeing the terms of the transaction, and drawing up contracts (e.g., Mikkelson & Partch, 1986; Smith, 1986; Dierkens, 1991; Sengupta, 1998).⁷

Unlike a single-business firm, a business unit within a diversified firm accesses extra funding through the diversified firm's ICM. Although some of the capital in the ICM may be (or may have been) obtained from the ECM by the diversified firm's corporate headquarters, akin to the process described above for a single-business firm, a significant portion is typically cash generated by the operations of the diversified firm's other businesses (Henderson, 1976). Hence, the functioning of an ICM largely comes down to the *administrative* mechanisms of capital budgeting that are used by managers at a diversified firm's corporate headquarters to (re)allocate the funds therein by *fiat* to alternative uses such as different projects, divisions, or businesses (e.g., Williamson, 1975; Porter, 1992; Gertner et al., 1994; Stein, 1997). In effect, given the salience of hierarchy in such administrative mechanisms (e.g., Bower, 1970; Williamson, 1975; Scharfstein & Stein, 2000; Wulf, 2009), the term “market” in “internal capital market” may be considered a misnomer. Since a significant portion of funds to be allocated through an ICM already exists within the typical diversified firm, its business units should regularly be able to access capital for investments without the need for corporate headquarters to tap outside investors—and without incurring the costs and delays associated with those market transactions—, in contrast with comparable single-business firms (Alchian, 1969; Gertner et al., 1994; Matsusaka & Nanda, 2002).⁸

Information Possessed by the Key Decision Makers

The above description points to a contrast between a capital-insufficient single-business firm and a comparable business unit of a diversified firm when it comes to the likely key decision makers for capital allocation. Since the business unit must obtain funds through the administrative mechanisms of an ICM, managers at the diversified firm's corporate headquarters—firm insiders—are likely to be the main decision makers. In contrast, in the case of the single-business firm, the main decision makers are likely to be the ECM investors from whom/which extra funds must be directly sourced (e.g., Chandler, 1977; Bettis & Prahalad, 1983; Gertner et al., 1994). These two types of decision makers differ in the *information* that they possess.

Presumably, when it comes to understanding the prospects of a business, firm insiders (i.e., managers, employees) have an edge thanks to the *depth* of their firm-specific, fine-grained, qualitative, and tacit information that is not publicly available, and thus not held by the generality of investors in ECMs. In particular, managers at a diversified firm's corporate headquarters usually have a greater ability to closely monitor the firm's businesses than ECM investors *vis-à-vis* the firms in their portfolios (Williamson, 1975; Porter, 1992; Gertner et al., 1994; Liebeskind, 2000; Stein, 2002; Malkiel, 2003). These informational advantages may be compounded by the fact that financial managers at the major institutional investors are often evaluated and compensated in terms of short-term (quarterly or yearly) portfolio performance relative to stock or bond market indices (Porter, 1992; Lang & McNichols, 1997; Bushee, 1998). Such evaluation and compensation schemes lower the incentive of financial managers to engage in the time-consuming collection of detailed business- and firm-specific information, instead directing them to allocate capital based on (mostly) publicly available, higher-level, quantitative,

and often short-term metrics of performance and investment opportunities—such as current earnings, patent approvals, comparable stock price-earnings multiples, broad industry trends, and forecasts by security analysts (Porter, 1992; Liebeskind, 2000).⁹

When the lack of information among ECM investors is severe, arguments in the TCE tradition indicate that it is often costly and time-consuming to convey pertinent information to those investors, and thus challenging to source capital to fund investment opportunities through ECM transactions (Williamson, 1975; Teece, 1982; Gertner et al., 1994).¹⁰ The “efficient internal capital market hypothesis” then proposes that a given business would receive a more adequate supply of capital to pursue its investment opportunities as a business unit resorting to a diversified firm’s ICM than as a (single-business) firm seeking funding from the ECM on its own. This edge of ICMs over the ECM would stem from the ability of a diversified firm’s corporate headquarters to use the powers of fiat to flexibly move capital at low cost and in a timely manner across business units, and thereby to perform “winner-picking” among the best investment alternatives within the firm (Alchian, 1969; Williamson, 1975; Teece, 1982; Stein, 1997).¹¹

Moreover, since an ICM may regularly obviate the need for tapping the ECM to fund an investment opportunity, it becomes less likely that information about that opportunity will have to be disclosed to ECM actors (e.g., investors, investment banks, underwriters) for a business unit within a diversified firm than for a comparable capital-insufficient single-business firm. This implies that the potential hazards associated with the leakage of sensitive proprietary information related to the opportunity to firm outsiders will be lower in the former case (e.g., Teece, 1980; Hitt et al., 2016).

FIT BETWEEN CAPITAL ALLOCATION AND INVESTMENT OPPORTUNITIES

Two main points emerge from the previous depiction of the building blocks of our theoretical framework. First, the critical capital needs for a given business to capture a product-market investment opportunity should depend on how relevant opportunity characteristics—namely, firm-specificity and uncertainty—shape the interactions of the business with its product-market rivals. Second, the existence of an ICM as an interface for a capital-insufficient business to access capital will have an important influence on capital allocation at the business level. We now assess the fit between these two aspects to address our research question.

In particular, for each of the four defined types of investment opportunities, we predict whether the existence of an ICM as an interface for accessing capital is likely to enhance the ability of a business to capture an investment opportunity, by enabling capital allocation that matches the critical capital needs of that opportunity more adequately (Propositions 1, 2, 3, and 4). Following the intellectual tradition of TCE (e.g., Williamson, 1985; Teece, 1982), in each of those cases we make our predictions by appraising the relative effectiveness of a capital-insufficient single-business firm in directly tapping the ECM for funds—that is, the relative effectiveness of the market-based, contractual alternative for funding transactions. Based on those predictions and considering product markets that are predominantly characterized by a given type of investment opportunity, we then extrapolate whether businesses belonging to diversified firms with active ICMs are more or less likely to have higher returns than comparable single-business firms (Corollaries 1a, 2a, 3a, and 4a), and consequently are more or less likely to have a high prevalence in the long term (Corollaries 1b, 2b, 3b, and 4b).

Exclusive-and-Well-Defined Opportunities (Top-Left Quadrant of Tables 1 and 2)

An exclusive-and-well-defined investment opportunity (i) stems largely from the firm-specific conditions of a business and/or its parent—such that rivals cannot access it—and (ii) is subject to a sufficiently low level of uncertainty that makes committing to a predetermined investment path to capture it *a priori* possible. If the firm-specific conditions that ensure exclusivity have mainly to do with sensitive proprietary information related to the opportunity, then confidentiality when securing investment capital should be critical for a business to capture the opportunity, beyond the standard pre-requisites of obtaining a sufficient supply of capital at an affordable cost.

For the ECM to be tapped for funds, potential external investors (i.e., prospective lenders or shareholders) should be adequately informed about the uses of those funds (Bettis, 1983; Liebeskind, 2000; Merton, 1995). In line with this, standard arguments in TCE suggest that, for an exclusive-and-well-defined opportunity to be funded through the ECM, the possible lack of information among potential external investors about the opportunity (relative to firm insiders) is a central contingency (Williamson, 1975; Teece, 1980, 1982).

The lack of information among potential external investors can be high since the firm-specificity of the opportunity may make it such that its prospects are not reflected in the (mostly) publicly available, higher-level, quantitative information that is available to them. Moreover, this lack of information may be insurmountable because information about the prospects of the opportunity, besides very firm-specific and fine-grained, is qualitative and tacit, and thus difficult for firm management to articulate, codify, and ultimately convey to external investors (Williamson, 1975; Teece, 1982). Under these two conditions, TCE arguments would contend that it is challenging for external investors to be adequately informed about the opportunity, and

hence that contractual arrangements to source enough capital at an affordable cost from the ECM should be very difficult (if not impossible) to implement. Therefore, an ICM should benefit a business unit of a diversified firm relative to a comparable capital-insufficient single-business firm that depends on the ECM for extra funds, given the pool of funds generated by the diversified firm's other businesses that can be channeled to the focal business unit.

In contrast, when the lack of information among external investors about an exclusive-and-well-defined opportunity is lower or surmountable—because the prospects of the opportunity are reflected in the information that is available to external investors or can be conveyed in a straightforward way—, the same line of reasoning suggests that informing those investors and sourcing sufficient capital at an affordable cost from them should not be problematic. A notable instance of this would be Tesla's past investments in its network of charging stations ("Superchargers"), a well-defined opportunity that was exclusive because of Tesla's patent-protected technologies and strong complementarities with (i.e., compatibility restricted to) Tesla's portfolio of electric vehicles. Given that information about this opportunity was largely public or could be easily conveyed to external investors, Tesla did not face challenges in raising outside capital to fund it.

However, the preceding conjecture—which follows the traditional TCE focus on the informational conditions within a (funding) transaction—does not hold if the exclusivity of the opportunity stems mainly from the possession of sensitive proprietary information. In such a case, confidentiality when securing funding should be critical, and conveying information about the opportunity to external investors runs counter to it by increasing the risk of information leakage to existing or potential rivals (Bettis, 1983; Liebeskind, 2000; Cox Pahnke, McDonald, Wang, & Hallen, 2015; Hitt et al., 2016).¹² Hence, an ICM should benefit a business unit of a

diversified firm relative to a comparable capital-insufficient single-business firm, since the pool of funds generated by the diversified firm's other businesses may often obviate the need for tapping ECM investors to fund the investment opportunity.

Proposition 1:

*(i) An internal capital market is **not likely** to enhance the ability of a business to capture **exclusive-and-well-defined investment opportunities** if **both the lack of information among external investors about those opportunities is low or surmountable, and the exclusivity of those opportunities is not ensured by sensitive proprietary information.***

*(ii) An internal capital market is **likely** to enhance the ability of a business to capture **exclusive-and-well-defined investment opportunities** if **the lack of information among external investors about those opportunities is high and insurmountable, or the exclusivity of those opportunities is mainly ensured by sensitive proprietary information.***

Exclusive-and-Ill-Defined Opportunities (Top-Right Quadrant of Tables 1 and 2)

Compared to an exclusive-and-well-defined investment opportunity, an exclusive-and-ill-defined one is subject to a higher level of uncertainty—such that committing to a predetermined investment path to capture it is *a priori* impossible (and not desirable). Hence, reliability in obtaining sufficient capital at a low-enough cost over time is likely to be an additional critical need for a business to capture an exclusive-and-ill-defined opportunity.

An analogous rationale to the one developed for an exclusive-and-well-defined opportunity suggests that whether an ICM enhances the ability of a business to capture an exclusive-and-ill-defined opportunity will depend on similar informational contingencies. First, if due to the firm-specificity of an exclusive-and-ill-defined opportunity the lack of information among potential external investors is high and insurmountable, it should be even more challenging for those investors to be adequately informed about that opportunity given the underlying uncertainty (Williamson, 1975; Teece, 1980, 1982). Thus, a series of contractual arrangements to reliably source sufficient capital at an affordable cost over time from external investors is likely to be very difficult (if not impossible) to implement. This may happen, for

instance, if the opportunity pertains to a long-term investment program to develop co-specialized and intangible resources and capabilities (e.g., employee training, supplier relationships, internal routines) (Henderson, 1970; Porter, 1992) which, besides being non-collateralizable, are often difficult to quantify and convey to external actors (e.g., Zingales, 2000; Corrado & Hulten, 2010; Clausen & Hirth, 2016; Peters & Taylor, 2017; Ramaswamy, Birshan, Manyika, Bughin, & Woetzel, 2019). Second, when the lack of information among external investors about an exclusive-and-ill-defined investment opportunity is lower or surmountable but the exclusivity of the opportunity stems mainly from the possession of sensitive proprietary information, then conveying information about the opportunity to external investors runs counter to the critical need for confidentiality by increasing the risk of leakage of such information to rivals (Bettis, 1983; Liebeskind, 2000; Cox Pahnke et al., 2015; Hitt et al., 2016). In both situations, an ICM should then enhance the ability of a business unit of a diversified firm to (reliably) fund an exclusive-and-ill-defined opportunity relative to a comparable capital-insufficient single-business firm, as the pool of funds generated by the diversified firm's other businesses may often obviate the need to tap external investors to fund the opportunity.

A salient example of the above contingencies is Sharp Corporation's technology development strategy (Collis, 1995). Sharp's ICM allowed it to provide reliable funding to support long-term investment programs for the exploration and development of particular (and at times forsaken) technologies (e.g., LCDs, laser diodes), whose prospects were likely difficult to convey to firm outsiders or involved sensitive proprietary information. When the markets for products using those technologies eventually took off (e.g., LCD screens, CD players), Sharp's prior investments allowed its businesses to achieve leadership positions.

Contrasting with the two types of situations described above, when the lack of information among external investors about an exclusive-and-ill-defined investment opportunity is lower or surmountable and the exclusivity of the opportunity does not stem from sensitive proprietary information, then informing external investors about the opportunity and sourcing capital from them should not be problematic. Thus, an ICM should not enhance the ability of a diversified firm to capture the opportunity relative to a comparable capital-insufficient single-business firm.¹³

Proposition 2:

*(i) An internal capital market is **not likely** to enhance the ability of a business to capture **exclusive-and-ill-defined investment opportunities** if **both the lack of information among external investors about those opportunities is low or surmountable**, and the **exclusivity** of those opportunities is **not ensured by sensitive proprietary information**.*

*(ii) An internal capital market is **likely** to enhance the ability of a business to capture **exclusive-and-ill-defined investment opportunities** if the **lack of information among external investors about those opportunities is high and insurmountable**, or the **exclusivity** of those opportunities is **mainly ensured by sensitive proprietary information**.*

The similarity between Propositions 1 and 2 has an interesting implication: the level of uncertainty should not qualitatively affect the desirability of an ICM for a business to capture exclusive opportunities, despite the added critical capital need of reliability for exclusive-and-ill-defined opportunities. The reason for this is that, since rivals cannot access an exclusive opportunity, a lower level of uncertainty—and the possibility of committing to a predetermined investment path to capture the opportunity—does not imply that they can pre-empt the opportunity. Therefore, an exclusive-and-well-defined opportunity is unlikely to be short-lived and to have timeliness as a critical capital need, in contrast to a shared-and-well-defined one.

Nonetheless, it is likely that a more uncertain opportunity entails a higher and more insurmountable lack of information among external investors due to a greater importance of firm-specific, fine-grained, qualitative, and tacit information in defining the prospects of the

opportunity for firm insiders (e.g., Williamson, 1988, Adner & Levinthal, 2008). Thus, in practice, an ICM should be more often desirable in the case of exclusive-and-ill-defined opportunities than in the case of exclusive-and-well-defined ones.

Shared-and-Well-Defined Opportunities (Bottom-Left Quadrant of Tables 1 and 2)

A shared-and-well-defined investment opportunity (i) stems more from the industry and environmental context than from the firm-specific conditions of a business and/or its parent—hence can also be accessed by rivals—and (ii) implies a sufficiently low level of uncertainty that makes committing to a predetermined investment path to capture it *a priori* possible. The possibility of being pre-empted by rivals' investments makes timeliness critical for a business to capture the opportunity, beyond securing enough funds at an affordable cost.

The public availability of information about the industry and environmental context underlying a shared-and-well-defined opportunity, besides making confidentiality an unlikely critical capital need, implies that conveying information about the opportunity to potential ECM investors should not be challenging and that those investors' lack of information should not be very high to begin with. Hence, TCE logic suggests that it should be straightforward to source sufficient capital at a low-enough cost from the ECM to fund the opportunity (Williamson, 1975; Teece, 1980, 1982). However, TCE-based arguments also indicate that tapping outside investors—and incurring the costs and delays associated with such market-based, contractual (funding) transactions—runs counter to raising capital for a shared-and-well-defined opportunity in a timely way (Alchian, 1969; Teece, 1980). Therefore, relative to a capital-insufficient single-business firm that depends on the ECM for extra funds, an ICM should benefit a comparable business unit of a diversified firm. This is because the pool of funds generated by the diversified firm's other businesses can be quickly and flexibly channeled to the business unit by fiat, while

possibly obviating the need for outside investors to fund the opportunity (Alchian, 1969; Gertner et al., 1994; Matsusaka & Nanda, 2002). Furthermore, the existence of a large pool of funds generated by the diversified firm's other businesses may, in and of itself, dissuade investments by the business unit's rivals in the opportunity (e.g., Boutin et al., 2013).

Ørsted, a Danish multinational that is the world's largest developer of offshore wind power, is a case in point. Its investment opportunities predominantly take the form of offshore wind farms, projects that are generally driven by rising (but bounded) demand and by the provision of subsidies for renewable electricity, for which the relevant parameters and possible critical contingencies can be *a priori* defined with a high degree of confidence. They can thus be interpreted as shared-and-well-defined opportunities. In this context, Ørsted leverages a fully integrated cash pool among over 200 subsidiaries to ensure fast, predictable, and cost-efficient funding for their investment and liquidity needs (Ørsted, 2021). A robust internal pool of funds is preferred over external financing "to limit the company's sensitivity to [...] financial markets" (Ørsted, 2020: 126).

Proposition 3: *An internal capital market is likely to enhance the ability of a business to capture shared investment opportunities if those opportunities are well-defined.*

Shared-and-Ill-Defined Opportunities (Bottom-Right Quadrant of Tables 1 and 2)

In contrast with a shared-and-well-defined investment opportunity, it is *a priori* impossible (and not desirable) to commit to a predetermined investment path to capture a shared-and-ill-defined opportunity due to the higher uncertainty. It follows that reliably obtaining sufficient capital at a low-enough cost over time will be critical for a business to capture such an opportunity. However, timeliness is less likely to be critical than in the case of a shared-and-well-defined opportunity, because the impossibility of committing to a predetermined investment path will diminish the importance of pre-emption dynamics between a business and its rivals.

Since information about the industry and environmental conditions underlying a shared-and-ill-defined opportunity is publicly available, conveying information about the evolving prospects of the opportunity to potential ECM investors should not be overly complicated. Moreover, those investors' lack of information should not be *a priori* very high. Thus, according to TCE logic, reliably obtaining sufficient capital at a low-enough cost from the ECM to fund sequential investments in the opportunity should not be problematic (Williamson, 1975; Teece, 1980, 1982). Therefore, a capital-insufficient single-business firm should not be disadvantaged relative to comparable business unit of a diversified firm with an ICM at its disposal.¹⁴

The effectiveness of the ECM in funding shared-and-ill-defined investment opportunities was apparent at the inception of innovative industries such as ride-hailing, e-commerce, and social networks. Because of the centrality of network externalities for value creation in those industries, the potential returns for businesses competing therein hinge on the adoption of their product or service offerings by a critical mass of users. Hence, *every* competitor engaged in sequential (and often sizable) investments to drive the adoption of its products or services over rivals'. Given the public availability of information about those opportunities, single-business firms with good prospects were usually able to secure appropriate (and plentiful) funding from external sources (e.g., Uber, Amazon, Facebook).

Proposition 4: *An internal capital market is **not likely** to enhance the ability of a business to capture **shared investment opportunities** if those opportunities are **ill-defined**.*

The divergence between Proposition 4 and Proposition 3 implies that the level of uncertainty should have a marked qualitative impact on the desirability of an ICM for a business to capture shared investment opportunities. Since rivals can access a shared opportunity, a lower level of uncertainty—and the possibility of committing to a predetermined investment path—increases the ability of those rivals to pre-empt that opportunity. Thus, a shared-and-well-defined

opportunity is likely to be short-lived. In this instance, timeliness is a likely critical capital need such that a business should be best served by having access to an ICM.

The above contrasts with the previously mentioned similarity between Propositions 1 and 2 in the context of exclusive investment opportunities. Therefore, to judge the desirability of an ICM for a business to capture investment opportunities, our theory points to the *interaction* between the dimensions of firm-specificity and uncertainty, such that the effects of changes to one dimension depend on the level of the other.

Recap

Propositions 1-4 and the accompanying discussion postulate that whether an ICM is likely to enhance the ability of a business to capture product-market investment opportunities will fundamentally depend on how the key dimensions of firm-specificity and uncertainty vary and interact. Propositions 1 and 2 posit that an ICM is more likely to enhance the ability of a business unit of a diversified firm to capture an exclusive opportunity (both well- and ill-defined) *versus* a comparable capital-insufficient single-business firm when (i) the lack of information among external investors about the opportunity is higher and insurmountable, or (ii) the exclusivity of the opportunity is mainly ensured by sensitive proprietary information. Proposition 3 predicts that an ICM is likely to be beneficial for a business *vis-à-vis* capturing a shared-and-well-defined opportunity. Contrastingly, Proposition 4 advances that an ICM is not likely to enhance the ability of a business to capture a shared-and-ill-defined opportunity. Table 4 lays out Propositions 1-4 and their most salient mechanisms schematically over the typology of investment opportunities from Tables 1 and 2.

Insert Tables 4 and 5 about Here

It is important to note that Propositions 1-4 are about the fit between characteristics of capital allocation at the business level and the likely critical capital needs of an investment opportunity (i.e., what is needed to capture that opportunity and its expected returns), rather than simply about whether investments take place, even though the two aspects are related. The reason being that the occurrence of an investment is not *per se* a guarantee of higher expected returns for a business, for instance if capital has been sourced at too high a cost, or because the opportunity may have been pre-empted by product-market rivals.

Corollaries: Relative Returns and Long-Term Prevalence in Product Markets

In the spirit of the discriminant alignment hypothesis from TCE (Williamson, 1985), we can leverage the predictions of Propositions 1-4—which are at the level of funding transactions for different types of investment opportunities—to make forecasts about business returns and long-term prevalence at the product-market level. Specifically, Propositions 1-4 suggest that whether businesses belonging to diversified firms with active ICMs are more or less likely to have higher returns in distinct product markets than comparable single-business firms will be contingent on how effective ICMs are (*versus* ECMs) in matching the critical capital needs of the predominant type of investment opportunities in those product markets. In turn, due to the selection of organizational forms with comparative governance advantages over time (Williamson, 1985), product markets for which ICMs fit well the predominant type of investment opportunities should be more likely to exhibit a high prevalence of businesses belonging to diversified firms with active ICMs in the long term. These added predictions are embodied in Corollaries 1a-4a and 1b-4b, respectively, and presented in Table 5.

DISCUSSION

We have developed a theoretical framework to understand under which conditions an ICM is likely to be an important complement to a business in a competitive product market, by allowing that business to more easily fund and capture investment opportunities therein when business-level cash-flow generation alone is insufficient to cover the required investments. Our theory emphasizes firm-specificity and uncertainty as two key characterizing dimensions of an opportunity that fundamentally shape the interactions between a firm's business and its product-market rivals. Due to these interactions, we posit that a given type of opportunity is likely to entail distinct critical capital needs—possibly including previously overlooked aspects that go beyond just securing enough funds at an affordable cost, such as confidentiality, timeliness, and reliability—that must be satisfied for the business to capture it. We follow by aligning our theory with seminal work in the intellectual tradition of TCE (e.g., Williamson, 1975; Teece, 1980, 1982; Gertner et al., 1994), and delineating relevant ways in which the existence of an ICM as an interface for accessing funds influences capital allocation at a business unit of a diversified firm relative to a comparable single-business firm that resorts directly to the ECM. We then answer our research question by predicting when an ICM is likely to allow for a better matching of the critical capital needs of different types of investment opportunities, and thus for an enhanced ability of a business to fund and capture those opportunities (Propositions 1-4). Leveraging those main predictions, and in consonance with the discriminant alignment hypothesis from TCE (Williamson, 1985), we extend our theorizing to the relative returns and long-term prevalence of businesses belonging to diversified firms with active ICMs across distinct product markets (Corollaries 1a-4a and 1b-4b, respectively). The overall structure of the theoretical framework is summarized in Figure 1.

Insert Figure 1 about Here

We now turn to discussing relevant issues related to our theoretical framework, starting with the empirical measurement of important theoretical constructs. We then reflect on some boundary conditions. We conclude by highlighting implications for future research.

Empirical Measurement of Theoretical Constructs

In principle, both the firm-specificity and the uncertainty of investment opportunities could be empirically measured by using or adapting variables from prior research. For instance, firm-specificity could be gauged by a high dispersion or a low (absolute) correlation between standard measures of investment prospects (e.g., ROA, growth, Tobin's Q of single-business firms) across competing businesses; by the intensities of R&D, advertising, and skilled labor between and within industries, since these capture the importance of intangible, firm-specific assets for competition (e.g., Riley, Michael, & Mahoney, 2017); or even by comparative textual analyses of competitors' annual reports and communications (e.g., Hoberg & Phillips, 2016). Uncertainty could also be empirically appraised in multiple ways, from using the variance of product-market demand (e.g., Pacheco de Almeida et al., 2008), to estimating the volatility of stock returns of single-business firms in an industry (e.g., O'Brien & Folta, 2009).

One could also empirically measure the informational constructs that are central to our predictions about exclusive investment opportunities. The relevance of sensitive proprietary information for exclusivity could, for instance, be operationalized at the industry level by using existing surveys where R&D managers specialized in different industries assess the importance of secrecy for appropriating returns from innovation (e.g., Levin, Klevorick, Nelson, & Winter, 1987; Silverman, 1999; Cohen, Nelson, & Walsh, 2000). Following established practices in the finance literature, the lack of information among external investors could be operationalized at

the firm level for publicly traded firms, either through measures based on microstructural data from stock markets (such as bid-ask spreads, correlations of returns and trade volumes, and estimates of the arrival informed trades), or through broader measures of stock liquidity (e.g., Bharath, Pasquariello, & Wu, 2009). Alternatively, assuming that the lack of information among external investors is less severe in industries that are more scrutinized, it could also be measured at the industry level with a metric that would vary inversely with the number of analysts covering single-business firms in an industry (e.g., Anjos & Fracassi, 2015).

Boundary Conditions of the Theoretical Framework

Building *versus* buying. In strategy, there is an often-emphasized dichotomy—particularly within the RBV—between developing non-financial resources and capabilities in-house over time and promptly buying those resources and capabilities in strategic factor markets (e.g., Barney, 1986, 1988; Dierickx & Cool, 1989; Peteraf, 1993; Makadok, 2001). This dichotomy may have implications for our theory by affecting the firm-specificity and the uncertainty of investment opportunities. For instance, buying an established brand is likely to entail lower levels of firm-specificity and uncertainty (i.e., to be more of a shared-and-well-defined opportunity) than building a new brand from scratch. All else being equal, our theory suggests that an ICM is likely to be beneficial for a business in the former case due to enhanced timeliness in obtaining capital in the face of an opportunity that is accessible (and pre-emptible) by rivals, but also that benefits stemming from an ICM are less evident in the latter case.

Information revelation. Our theory contemplates the possibility that the exclusivity of an investment opportunity may stem mainly from sensitive proprietary information held by firm insiders. When this is the case, our framework is aligned with received wisdom by suggesting that managers at the business (and/or its parent firm) face a trade-off in sourcing funds from the

ECM for that opportunity (e.g., Bettis, 1983; Liebeskind, 2000). On the one hand, conveying information about the opportunity to ECM investors may improve access to external funds. On the other, it may increase the risk of information leakage to existing or potential rivals, making the opportunity less exclusive and thus more accessible (and pre-emptible) by those rivals. It is important to note, however, that this trade-off may be less severe if the opportunity involves the development and adoption of a new technological standard. In such a situation, sharing the standard (and the underlying investment opportunity) with rivals may sometimes be beneficial, by preventing them from developing competing standards and encouraging widespread adoption by users (e.g., Farrell & Saloner, 1985; Katz & Shapiro, 1985; Besen & Farrell, 1994). This angle may help explain why Tesla, as a start-up competing in the development of electric vehicles against established automakers with deep pockets, had Elon Musk disclose so much information about its technology and open its patents for anyone to use in good faith.

Our theory also considers that, in the case of an ill-defined investment opportunity, information is revealed (and uncertainty is resolved) with the simple passage of time or because of a sequence of investments made in the opportunity. This implies that an ill-defined opportunity should typically become more well-defined over time, and thus that the nature of the interactions between a business and its product-market rivals may progressively change. For instance, an initially shared-and-ill-defined opportunity that takes the form of R&D investments in a technology should progressively become more defined as the later stages of commercialization of that technology are reached, with investment pre-emption dynamics among product-market competitors—and the timeliness in accessing capital afforded by ICMs—possibly becoming more important (Smit & Trigeorgis, 2017).

The role of moderating organizational factors. For clarity and parsimony, our theory focused on the existence of an ICM as an interface for accessing capital (*versus* the ECM) as the sole difference between a business unit of a diversified firm and a comparable single-business firm. We now highlight two organizational factors that should moderate the basic mechanisms outlined in our theory, and whose exploration may be a fruitful avenue for future research.

To start, the *degree of relatedness* of a business unit to other business units within a diversified firm, besides possibly reinforcing the informational advantages of managers at a diversified firm's corporate headquarters over ECM investors (e.g., Teece, 1982; Stein, 1997), should propitiate operational synergies (e.g., Helfat & Eisenhardt, 2004). These synergies could make an investment opportunity overall more attractive to a diversified firm than to a single-business firm, and thus more easily justify investment in the former case, for example. Relatedly, the possibility of redeploying non-scale free resources and capabilities across a diversified firm's business units (e.g., Levinthal & Wu, 2010) should reduce the degree of irreversible (sunk) costs from pursuing an investment opportunity under high uncertainty, and hence lead a business unit of a diversified firm to commit earlier to that opportunity than a comparable single-business firm (e.g., Lieberman, Lee, & Folta, 2017; Dickler & Folta, 2020).

Organizational structure and design parameters should also influence the extent of the informational advantage of managers at a diversified firm's corporate headquarters over ECM investors. This point was patent in Williamson's (1975) seminal arguments on the role of the multidivisional structure (i.e., the "M-form") in enabling an efficient ICM within a diversified firm, by formally separating businesses into different units (i.e., divisions) and thus fostering the measurability and comparability of different units' performances and prospects. Furthermore, the potential benefits of a diversified firm's ICM should also depend on whether the flow of capital

within it is subject to constraints, both self-imposed (Sengul & Gimeno, 2013) and determined by regulations (Feldman, 2021), which will naturally affect the ability of a given business unit to pursue investment opportunities.

Implications for Future Research

Interpretation of divergent capital allocation patterns. In contrast to the mainstream logic of empirical research on ICMs—which compares diversified firms’ capital allocation patterns in different industries with the implicitly desirable benchmark of single-business firms (Sengul et al., 2019)—, our framework implies that a business (and/or its parent firm) whose investments deviate from industry-wide trends is not necessarily acting in a suboptimal way. For instance, investing while rivals do not invest may allow a business to capture a shared investment opportunity by pre-empting those rivals (e.g., Ghemawat, 1991; Bromiley, Navarro, & Sottile, 2008). Likewise, investing consistently across time despite fluctuations in overall industry profitability and investment levels may enable capturing an investment opportunity that entails the long-term development of uniquely valuable endowments of non-financial resources and capabilities (e.g., Christensen et al., 2008; Zenger, 2013; Benner & Zenger, 2016).

Long-term specialization of organizational forms. Our theory also implies that, depending on the product-market context, active ICMs may enhance the relative returns of businesses belonging to diversified firms and hence contribute to those businesses’ long-term prevalence. This suggests that businesses (and firms) with distinct characteristics in capital allocation may specialize to compete in different industries and sectors (e.g., Sengul et al., 2019; Feldman, 2021), and that looking at capital allocation through the TCE-based lens of comparative governance advantages (Williamson, 1985) could be fruitful for future research. Coincidentally, this suggestion is aligned with prior research that uncovered salient empirical

patterns regarding the presence of diversified firms in different industries across the economy (Montgomery, 1979; Santaló & Becerra, 2008). More broadly, our theory also underscores that the efficiency-based logic of transaction cost “economizing” (Williamson, 1991) can be reconciled with a commitment-based logic of “strategizing” in product markets (Ghemawat, 1991), and that integrating the two can contribute to better explain the success and prevalence of different types of organizational forms (e.g., Asmussen, Foss, Foss, & Klein, 2021).

Corporate and competitive advantage. By emphasizing that the value of an ICM is contingent on the type of investment opportunities faced by a business in a product market, our theory suggests that a greater consideration of (typically overlooked) aspects related to competitive strategy can bolster scholarly understanding of capital allocation in diversified firms. As such, it is aligned with Porter’s (1987: 46) view that “successful corporate strategy must grow out and reinforce competitive strategy”, and that corporate advantage ultimately stems from business-level competitive advantage(s). In general, we believe that the intersection of corporate and competitive aspects is one of the most promising research approaches for strategy scholars, both within the topic of capital allocation and outside of it.

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FOOTNOTES

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- ¹ For example, from 1979 to 2006 in the US, (re)allocated capital across the business segments of diversified firms on average totaled 640 billion US dollars per year, surpassing average annual equity and bond issuances (85 and 536 billion US dollars, respectively) during the same period (Guedj, Huang, & Sulaeman, 2009).
- ² Of course, there are exceptions. A salient one is Arrfelt, Wiseman, McNamara, and Hult's (2015) empirical analysis of the impact of capital allocation within diversified firms on the performance of business units. Arrfelt et al. found that both underinvestment and overinvestment had negative effects on business-unit performance, and that those negative effects were exacerbated in more fragmented markets, wherein more intense competitive rivalry is "less forgiving of strategic gaffes" (p. 1021).
- ³ Knight's (1921) seminal work distinguishes the notion of uncertainty from the mere notion of risk. Whereas risk relates to a quantity susceptible to measurement, for instance through a known probability distribution over all possible outcomes, uncertainty refers to an unmeasurable quantity, in which neither the possible outcomes nor the probability distribution over those outcomes are *fully* known. This *Knightian* definition of uncertainty that we implicitly adopt to characterize investment opportunities is distinct from the notion implied by Williamson (1975) within the TCE tradition. Williamson assumes that, in the absence bounded rationality, agents can account for and assign probability values to all possible outcomes—and thus achieve complete contracting. A direct implication is that uncertainty is conditional on (and conflated with) complexity, since all possible outcomes are objectively predetermined, and bounded rationality is what prevents agents from accounting for and assigning probability values to those outcomes (Slater & Spencer, 2000). Furthermore, by implicitly assuming that all possible outcomes are knowable and measurable in the absence of bounded rationality, the notion of uncertainty implied by Williamson—also labelled "parametric uncertainty" (Williamson, 1985: 591)—is arguably closer to the *Knightian* definition of risk (Slater & Spencer, 2000). Given that our goal is to use uncertainty to characterize the *a priori* (lack of) knowledge about investment opportunities in a way that is unconditional on the bounded rationality of agents, we believe that adopting the *Knightian* definition is appropriate in our case. In any case, we see no reason for the mechanisms and predictions of our theory not to hold if we adopted the notion implied by Williamson.
- ⁴ Implicit in this distinction is whether the resolution of an opportunity's uncertainty is exogenous or endogenous to the actions of a business and/or its parent firm. Whereas exogenous uncertainty resolution happens (simply) through the passage of time, endogenous uncertainty resolution may happen, for instance, through investments that allow a business and/or its parent firm to learn from feedback and to possibly shape the environment to its advantage (e.g., Weitzman, Newey, & Rabin, 1981; Ghemawat, 1991; Pindyck, 1993; Adner & Levinthal, 2004; Li et al., 2007). Despite interesting, we do not emphasize the distinction between exogenous and endogenous uncertainty resolution in the body of the paper because it does not materially affect our theory: regardless of whether the high uncertainty entailed by an ill-defined opportunity is to be exogenously or endogenously resolved, the flexibility afforded by sequential or staged investments should be favored over a full upfront commitment to that opportunity.
- ⁵ If we considered situations where a business on its own had enough capital to fund an investment opportunity then, in the case of a single-business firm, whether more capital could be obtained from the ECM would be a moot point. In contrast, the capital (in)sufficiency of the otherwise similar business unit within a diversified firm is less relevant for our theory—notwithstanding theoretical arguments and corroborating empirical evidence about the fundamental importance of business-unit capital insufficiency for ICMs to accrete value to diversified firms (Liebeskind, 2000; Billett & Mauer, 2003). This is because any cash generated by the operations of that business unit (or other business units within the diversified firm) is typically channeled to a common pool of internally generated funds, to be (re)allocated across the diversified firm's businesses through its ICM (Williamson, 1975; Liebeskind, 2000).
- ⁶ Institutional investors typically have widely diversified portfolios, with small and often-traded stakes in many firms (Bushee, 1998; Porter, 1992). Of course, there are other relevant types of funding sources in ECMs, such as more 'dedicated' long-term institutional investors, other large (specialized) investors (e.g., private equity and venture capital firms), and small individual investors (Bushee, 1998; Liebeskind, 2000). However, the previously described institutional investors are arguably the most predominant type, especially for publicly traded firms. In the recent past, it was estimated that over 90 percent of the shares of publicly traded firms in the US were held in the portfolios of mutual funds, pension funds, and hedge funds; with the average holding period for stocks in those portfolios being less than ten months (Christensen, Kaufman, & Shih, 2008).

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- ⁷ Nonetheless, sourcing capital externally may not always be as time-consuming. A firm may be able to obtain external funds more expeditiously by, for instance, using an existing credit line facility from a bank (but with debt capital that is possibly more expensive than that obtained through a bond issuance), or by tapping closely related equity investors.
- ⁸ As hinted in the text, possibly vast common pools of internally generated funds do not necessarily mean that diversified firms (and the businesses within them) will be capital sufficient. In effect, the corporate headquarters of diversified firms may still need to resort to the ECM to source extra capital for their businesses (Bettis & Prahalad, 1983; Scharfstein & Stein, 2000). When this is the case, the imperfect correlation between the cash flows of diversified firms' businesses—and the consequently lower bankruptcy risk of each of those businesses—may sometimes enable diversified firms' corporate headquarters to source more funds from the ECM at lower costs than comparable collections of single-business firms, by reassuring prospective equity and debt holders that capital will ultimately be returned to them as dividends and debt repayments, respectively (Lewellen, 1971; Henderson, 1976; Bettis & Prahalad, 1983; Kaplan & Zingales, 1997; Stein, 2003).
- ⁹ Nonetheless, among investors in ECMs, those with more specialized and long-term investment stakes suffer less from this lack of depth of firm- and business-specific information relative to firm insiders. For instance, within institutional investors, dedicated types with long-term stakes in a few firms usually have the ability and incentives to collect detailed information about each of those firms' fundamentals, and to monitor their performance over long periods. Similarly, private equity and venture capital firms typically have access to inside information, and exert active roles in monitoring, managing, and supporting (not only financially) the long-term success of the firms in their investment portfolios (Holderness & Sheehan, 1985; Porter, 1992; Burke, 1995; Liebeskind, 2000).
- ¹⁰ In agreement with this idea, the financial economics literature suggests that, because of a significant lack of information among potential external capital providers, it may be very costly or even impossible for those providers to fully (and promptly) understand the prospects and investment opportunities of a firm (or a business therein) and thus to provide it with adequate funding (e.g., Myers & Majluf, 1984; Fazzari, Hubbard, & Petersen, 1988; Stein, 2003). These kinds of external financing constraints might force firms without enough internally generated capital to forgo valuable investment opportunities, especially in the short term (e.g., Stiglitz & Weiss, 1981; Myers & Majluf, 1984; Fazzari et al., 1988; Hoshi, Kashyap, & Scharfstein, 1991; Kaplan & Zingales, 1997; Lamont, Polk, & Saá-Requejo, 2001; Farre-Mensa & Ljungqvist, 2016).
- ¹¹ However, the potential informational advantages of firm insiders over ECM investors do not mean that an ICM will always work well. For instance, the relevant finance literature highlights that, within a diversified firm, while decision-making authority over capital allocation ultimately resides with corporate headquarters, the most detailed information about the prospects of a business unit vying for capital rests with that unit's managers, whose individual objectives often have more to do with the size or power of their unit, and their own career progression and financial gain, than with the firm's overall performance and shareholder returns (Gertner et al., 1994; Stein, 2002; Wulf, 2009). Given this, finance scholars have emphasized different mechanisms through which the *agency* of business unit managers may inefficiently distort the allocation of capital at diversified firms away from the pursuit of the most promising investments and towards "corporate socialism"—that is, the subsidization of business units with the weakest prospects and underinvestment in business units with the strongest prospects (e.g., Rajan, Servaes, & Zingales, 2000; Scharfstein & Stein, 2000; Stein, 2002; Wulf, 2009).
- ¹² These risks exist even with closely related investors. For example, Cox Pahnke et al. (2015) show empirical evidence of the specific case of multiple product-market rivals being served by the same venture capital firms. In another example, Werth (1995) reports anecdotal evidence of the dilemma faced by a pharmaceutical firm that sought external funding from a venture capitalist who could use the obtained information to establish new rivals.
- ¹³ In these cases, a lower or surmountable lack of information among external investors can arise because sequential investments in the opportunity themselves generate substantial financial returns. Those returns are higher-level, quantitative information that, in all likelihood, will be either already publicly available or easily conveyable to external investors. As such, it should not be problematic for a capital-insufficient single-business firm to source capital from the ECM to fund investments in the opportunity. Furthermore, it may even be possible for the single-business firm to eventually become capital-sufficient *vis-à-vis* the opportunity, by funding its subsequent investments with cash generated by its prior investments in the opportunity.
- ¹⁴ In fact, if an industry where a shared-and-ill-defined opportunity appears is generally deemed attractive by ECM investors, the fact that a single-business firm fits more neatly into that attractive industry than a diversified firm—whose businesses typically span different industries—could make it easier for the single-business firm to tap the ECM for funding (e.g., Malkiel, 2003; Litov, Moreton, & Zenger, 2012; Benner & Zenger, 2016).

TABLES

Table 1

A Typology of Product-Market Investment Opportunities and Implications for the Interactions Between the Investment Behavior of a Business and that of its Rivals

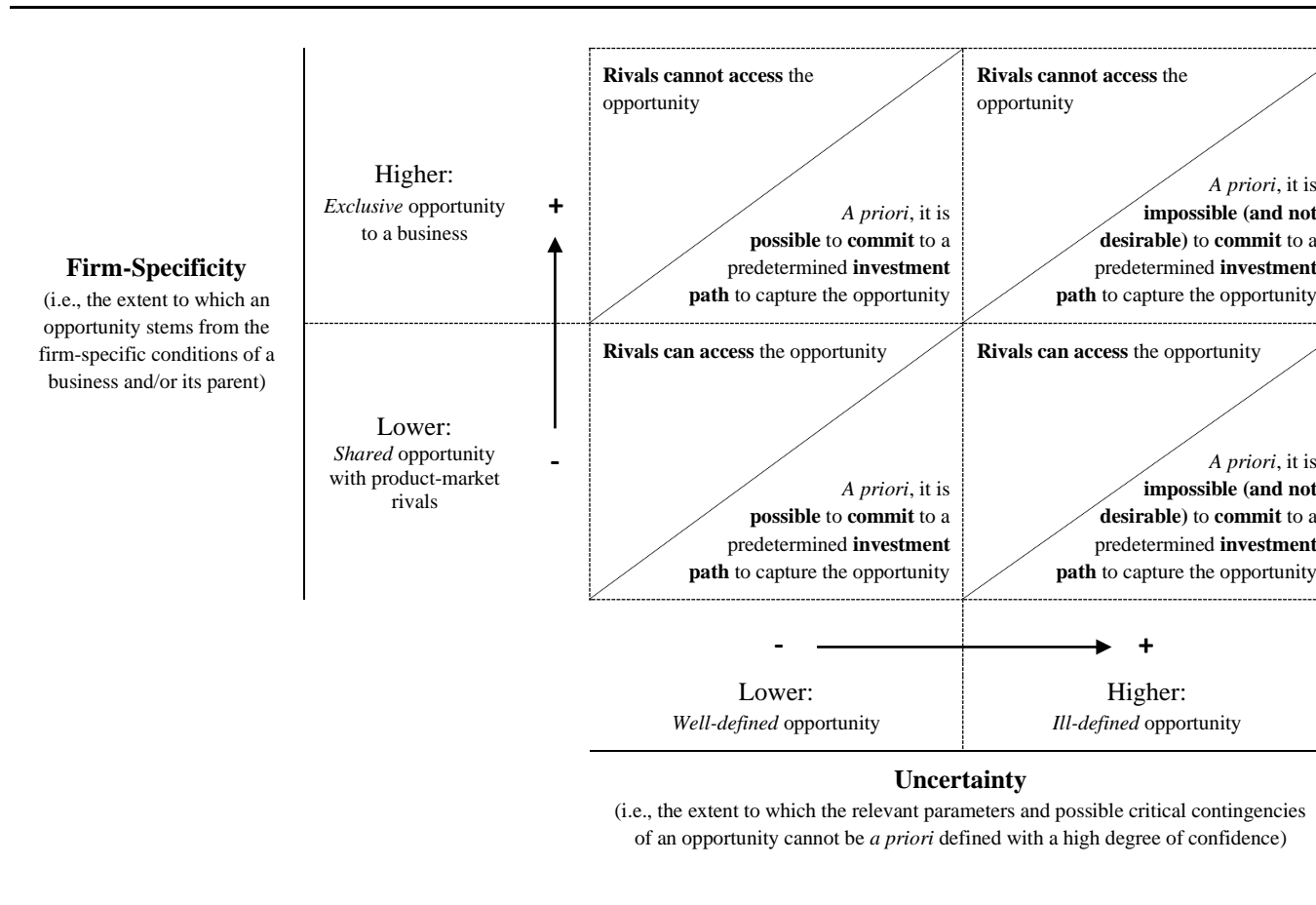


Table 2

A Typology of Product-Market Investment Opportunities and the Likely Critical Capital Needs for a Business to Capture them

<p>Firm-Specificity (i.e., the extent to which an opportunity stems from the firm-specific conditions of a business and/or its parent)</p>	<p>Higher: <i>Exclusive</i> opportunity to a business</p>	<p>E.g.: Specialized production capacity that is highly complementary to uniquely valuable (non-financial) resources and capabilities and/or information</p> <p>Likely critical capital needs:</p> <ul style="list-style-type: none"> • Amount • Cost • Confidentiality (If the exclusivity of the opportunity is mainly ensured by sensitive proprietary information) 	<p>E.g.: R&D activities that are highly complementary to uniquely valuable (non-financial) resources and capabilities and/or information</p> <p>Likely critical capital needs:</p> <ul style="list-style-type: none"> • Amount • Cost • Reliability • Confidentiality (If the exclusivity of the opportunity is mainly ensured by sensitive proprietary information)
	<p>Lower: <i>Shared</i> opportunity with product-market rivals</p>	<p>E.g.: Generic production capacity and physical capital in mature industries with limited differentiation and established technological standards</p> <p>Likely critical capital needs:</p> <ul style="list-style-type: none"> • Amount • Cost • Timeliness 	<p>E.g.: Product or market development activities in emerging industries with limited differentiation and very uncertain product-market potential</p> <p>Likely critical capital needs:</p> <ul style="list-style-type: none"> • Amount • Cost • Reliability
		<p>-</p>	<p>+</p>
		<p>Lower: <i>Well-defined</i> opportunity</p>	<p>Higher: <i>Ill-defined</i> opportunity</p>
<p>Uncertainty (i.e., the extent to which the relevant parameters and possible critical contingencies of an opportunity cannot be <i>a priori</i> defined with a high degree of confidence)</p>			

Table 3

Single-business Firm *versus* Business Unit Within a Diversified Firm:
Relevant Features for Capital Allocation at the Business Level

	Single-business firm	Business unit within a diversified firm
Interface for accessing extra capital	<ul style="list-style-type: none"> • External capital market 	<ul style="list-style-type: none"> • Internal capital market
Source(s) of extra capital	<ul style="list-style-type: none"> • External funds obtained from external capital market investors 	<ul style="list-style-type: none"> • Internal funds generated by the diversified firm's other businesses • External funds obtained from external capital market investors
Predominant governance mechanisms	<ul style="list-style-type: none"> • Market-based, contractual 	<ul style="list-style-type: none"> • Administrative, allocation by fiat
Information possessed by the key decision makers	<ul style="list-style-type: none"> • External capital market investors, with generally lower depth of firm-specific information about the business and/or its parent 	<ul style="list-style-type: none"> • Managers at the diversified firm's corporate headquarters, with greater depth of firm-specific information about the business and/or its parent (fine-grained, qualitative, and tacit)

Table 4

Is an Internal Capital Market Likely to Enhance the Ability of a Business to Capture Product-Market Investment Opportunities?

<p>Firm-Specificity (i.e., the extent to which an opportunity stems from the firm-specific conditions of a business and/or its parent)</p>	<p>Higher: <i>Exclusive</i> opportunity to a business</p> <p style="text-align: center;">+</p> <p style="text-align: center;">↑</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Relevance of sensitive proprietary information for ensuring the exclusivity of the opportunity</td> <td style="padding: 5px;">Higher +</td> <td style="padding: 5px; text-align: center;">Yes (Enhanced confidentiality in obtaining capital)</td> <td style="padding: 5px; text-align: center;">Yes (Enhanced ability to obtain enough capital at an affordable cost, and possibly also enhanced confidentiality)</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;">Lower -</td> <td style="padding: 5px; text-align: center;">No</td> <td style="padding: 5px;"></td> </tr> </table>	Relevance of sensitive proprietary information for ensuring the exclusivity of the opportunity	Higher +	Yes (Enhanced confidentiality in obtaining capital)	Yes (Enhanced ability to obtain enough capital at an affordable cost, and possibly also enhanced confidentiality)		Lower -	No		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Relevance of sensitive proprietary information for ensuring the exclusivity of the opportunity</td> <td style="padding: 5px;">Higher +</td> <td style="padding: 5px; text-align: center;">Yes (Enhanced confidentiality in obtaining capital)</td> <td style="padding: 5px; text-align: center;">Yes (Enhanced ability to reliably obtain enough capital at an affordable cost, and possibly also enhanced confidentiality)</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;">Lower -</td> <td style="padding: 5px; text-align: center;">No</td> <td style="padding: 5px;"></td> </tr> </table>	Relevance of sensitive proprietary information for ensuring the exclusivity of the opportunity	Higher +	Yes (Enhanced confidentiality in obtaining capital)	Yes (Enhanced ability to reliably obtain enough capital at an affordable cost, and possibly also enhanced confidentiality)		Lower -	No	
	Relevance of sensitive proprietary information for ensuring the exclusivity of the opportunity	Higher +	Yes (Enhanced confidentiality in obtaining capital)	Yes (Enhanced ability to obtain enough capital at an affordable cost, and possibly also enhanced confidentiality)															
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Relevance of sensitive proprietary information for ensuring the exclusivity of the opportunity	Higher +	Yes (Enhanced confidentiality in obtaining capital)	Yes (Enhanced ability to reliably obtain enough capital at an affordable cost, and possibly also enhanced confidentiality)																
	Lower -	No																	
<p>Lower: <i>Shared</i> opportunity with product-market rivals</p> <p style="text-align: center;">-</p> <p style="text-align: center;">↓</p>	<p style="text-align: center;"><i>Proposition 1</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;">-</td> <td style="padding: 5px; text-align: center;">→</td> <td style="padding: 5px; text-align: center;">+</td> </tr> <tr> <td style="padding: 5px; text-align: center;">Lower or surmountable</td> <td></td> <td style="padding: 5px; text-align: center;">Higher and insurmountable</td> </tr> </table> <p style="text-align: center;">Lack of information among external investors about the opportunity (relative to firm insiders)</p>	-	→	+	Lower or surmountable		Higher and insurmountable	<p style="text-align: center;"><i>Proposition 2</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px; text-align: center;">-</td> <td style="padding: 5px; text-align: center;">→</td> <td style="padding: 5px; text-align: center;">+</td> </tr> <tr> <td style="padding: 5px; text-align: center;">Lower or surmountable</td> <td></td> <td style="padding: 5px; text-align: center;">Higher and insurmountable</td> </tr> </table> <p style="text-align: center;">Lack of information among external investors about the opportunity (relative to firm insiders)</p>	-	→	+	Lower or surmountable		Higher and insurmountable					
-	→	+																	
Lower or surmountable		Higher and insurmountable																	
-	→	+																	
Lower or surmountable		Higher and insurmountable																	
	<p style="text-align: center;">Yes (Enhanced timeliness in obtaining capital) <i>Proposition 3</i></p>	<p style="text-align: center;">No <i>Proposition 4</i></p>																	
	<p style="text-align: center;">-</p>	<p style="text-align: center;">→</p>	+																
Lower: <i>Well-defined</i> opportunity		Higher: <i>Ill-defined</i> opportunity																	

Uncertainty
(i.e., the extent to which the relevant parameters and possible critical contingencies of an opportunity cannot be *a priori* defined with a high degree of confidence)

Table 5

Fit Between Internal Capital Markets and Product-Market Investment Opportunities:
Implications for the Relative Returns and the Long-Term Prevalence of Businesses Belonging to
Diversified Firms with Active Internal Capital Markets

	Relative product-market returns of businesses belonging to diversified firms with active internal capital markets	→	Long-term prevalence in product markets of businesses belonging to diversified firms with active internal capital markets
Exclusive investment opportunities	<p><i>Corollary 1a(2a): All else being equal, businesses belonging to diversified firms with active internal capital markets are more likely to have higher returns than single-business firms in product markets predominantly characterized by exclusive-and-well-defined(exclusive-and-ill-defined) investment opportunities if:</i></p> <p>(i) <i>The lack of information among external investors about those opportunities is high and insurmountable, or</i></p> <p>(ii) <i>The exclusivity of those opportunities is mainly ensured by sensitive proprietary information.</i></p>	→	<p><i>Corollary 1b(2b): In the long term, businesses belonging to diversified firms with active internal capital markets are more likely to have a high prevalence in product markets predominantly characterized by exclusive-and-well-defined(exclusive-and-ill-defined) investment opportunities if:</i></p> <p>(i) <i>The lack of information among external investors about those opportunities is high and insurmountable, or</i></p> <p>(ii) <i>The exclusivity of those opportunities is mainly ensured by sensitive proprietary information.</i></p>
Shared investment opportunities	<p><i>Corollary 3a: All else being equal, businesses belonging to diversified firms with active internal capital markets are more likely to have higher returns than single-business firms in product markets predominantly characterized by shared investment opportunities if those opportunities are well-defined.</i></p> <p><i>Corollary 4a: All else being equal, businesses belonging to diversified firms with active internal capital markets are less likely to have higher returns than single-business firms in product markets predominantly characterized by shared investment opportunities if those opportunities are ill-defined.</i></p>	→	<p><i>Corollary 3b: In the long term, businesses belonging to diversified firms with active internal capital markets are more likely to have a high prevalence in product markets predominantly characterized by shared investment opportunities if those opportunities are well-defined.</i></p> <p><i>Corollary 4b: In the long term, businesses belonging to diversified firms with active internal capital markets are less likely to have a high prevalence in product markets predominantly characterized by shared investment opportunities if those opportunities are ill-defined.</i></p>

FIGURES

Figure 1

Overview of the Theoretical Framework

