## UNIVERSITY OF READING HENLEY BUSINESS SCHOOL

# Three Essays in Competitive Strategy: Changing Market Structures and Implications for Intra-Industry Differential Firm Performance

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## DECLARATION

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Reading, 25 April 2020

Johannes K Schmalz

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## ABSTRACT

The present dissertation examines the relations between two contemporary strategy concepts-dynamic capabilities & business models-and emerging facts on firmheterogeneity, thereby directing attention to the increasing importance of firm size in performance. The macro market power literature has offered an immense service by revealing substantial increases in performance differences between firms, even within narrowly defined industries. A viable candidate explanation emphasised in the received literature is that many industries appear to have become "winner take most/all" due to globalisation and new technologies and that, therefore, a relatively small number of "superstar firms" is gaining market share across a wide range of markets. This would imply that national, niche producers are increasingly likely to lose market share to more productive, global mass producers. In chapter one, I address this issue by developing a conceptual framework that delineates how firm structure, market structure, and productivity interact, especially when there is a shift in the nature of competition toward winner take most/all. The framework suggests that business model designers may increasingly need to maximise their activity system's sensitivity to the type of scale in which they have the greatest advantage over their competitors. In chapter two, I study empirically how changing demand and technology fundamentals shift the nature of competition toward winner take most in the financial services sector. The key insight is that the dynamic capability to seize potentially profitable opportunities attaches to the scale adjustment process, thus, revealing a connection between dynamic capability and firm scale. In the third chapter, I induct a unique dynamic capability, termed "optionality", by which high market share firms can hedge their commanding positions against various environmental contingencies.

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### **INTRODUCTION**

The firm's choice of competitive strategy, broadly construed, encapsulates two decision domains (Porter, 1985). The first is the choice of industry. Here the focus revolves around the examination of the structural differences that determine the attractiveness of industries. Some industries simply are more profitable than others. The second is the choice of relative competitive position within an industry, and the structural factors that determine it. Some firms simply are more profitable than others, no matter what the average profitability of an industry may be (e.g., McGahan & Porter, 1997). The present dissertation focuses on the latter issue, thereby attempts to enhance understanding of the determinants of sustained intra-industry profit differentials amongst rivals. This is not a new idea. Scholarly inquiry in the area of strategic management has long been interested in explanations for the measured cross-sectional heterogeneity in firm performance (e.g., Ghemawat & Cassiman, 2007).

But what is less recognized is that performance differences between firms have been increasing substantially over time, even within narrowly defined industries (e.g., Autor, Dorn, Katz, Patterson & Van Reenen, 2020; Bloom, Guvenen, Price, Song & von Wachter, 2019; Van Reenen, 2018). Emerging facts on firm heterogeneity document, for instance, substantially increasing skewness in the size distribution of firms as well as decreasing churn rates among firms operating at significant scale—so-called "persistent dominance" (e.g., Autor et al., 2020). The key point is that many industries, including with regard to the vast bulk of the U.S. private sector, appear to be characterised by a "winner take most" feature. This change seems to push market share towards the most productive firms in each industry. In fact, a substantial body of empirical in work in

economics across varied industries, there are perhaps hundreds of such studies, show that an exogenous increase in the elasticity of substitution among the outputs of industry producers lead to concentration-increasing shifts of market share towards the larger and more productive firms (e.g., Syverson, 2004; Goldmanis, Hortacsu, Syverson & Emre, 2010). The exogenous factors that make consumers more willing or able to shift to different firms may include, but are not limited to, the falling of substitution barriers like reductions in trade costs, transport costs, or search costs. In this view, new technology and globalization trends have substantially increased the ease with which consumers can substitute among producers, thereby making markets tougher and putting sustained pressure on smaller, less productive firms. Underpinning this rationale, an entire class of commonly used economic models imply that exogenous increases in substitutability/competitiveness raise industry concentration by engendering concentration-increasing shifts of market share from smaller, higher-cost/lower-quality producers toward larger, lower-cost/higher-quality producers (e.g., Melitz, 2003; Asplund & Nocke, 2006; Melitz & Ottaviano, 2008; Foster, Haltiwanger & Syverson, 2008).

Since economists rather than scholars in strategic management have conducted this research, it is not surprising that scholarly research into how exogenous increases in substitutability/competitiveness reshape the factors that determine a firm's relative competitive position within an industry remains comparatively thin to date<sup>1</sup>. I attempt to make progress on that. In the remainder of this section, I summarize how each of my three essays contributes to the attainment of this broader purpose and preview my conclusions.

<sup>&</sup>lt;sup>1</sup> Ramey (2018: 70): 'Van Reenen bemoans the fact that many of the insights from the classic "Structure-Conduct-Performance" of Bain and Demsetz in classic industrial organization have been lost. I agree completely. In fact, I believe that an important way to get more definitive answers is to conduct the detailed case studies that were the hallmark of that literature.'

In the first chapter, I examine how recent increases in substitutability/competitiveness at the industry level are likely to impact the dynamics of business model innovation at the firm level. While business model innovation is argued to create value (e.g., Amit & Zott, 2012; Casadesus-Masanell & Ricart, 2011; Chesbrough, 2010), strategic incentives of firms to innovate are driven by what part of the value created the firm can extract after innovating (e.g., Aghion & Howitt, 1992; Grossman & Helpman, 1991; Romer, 1990). In this view, increases in competition reduce the monopoly rents that reward new innovation and, therefore, the strategic incentives of firms to innovate. Note that business model innovations have been argued to be particularly exposed to product market rivalry. As Teece (2010: 179) notes: 'Once implemented, the gross elements of business models are often quite transparent and (in principal) easy to imitate. ... Being first with an imitable business model may teach the customers about the new value proposition, priming the way for entry by rivals without securing any lock-in for the pioneer firm.' If business model innovations indeed do transfer easily between firms, there is a gap in the literature as to the distinctive mechanisms that make superior business models difficult to imitate. Thus, I ask: 'How do business model innovators protect the value of their superior designs against inroads by rivals?'

To address this research question, I develop a conceptual framework from the literature that takes stock of the available knowledge on how firm structure, market structure, and productivity interact, especially when industries are characterised by a "winner take most" feature. A consideration of productivity is important because significant comparative international studies provide compelling evidence that there are large and persistent measured differences in productivity across producers (for a review, see Syverson, 2011). It follows that business model pioneers—to shield their innovations from new competition—also need to attain superior productivity as differences in

productivity do not appear to transfer easily between firms. Relating this insight to the present research question, superior productivity may well allow business model innovators to protect the value of their superior designs against inroads by rivals.

But this does not seem to be the whole story. Timing ought to play a key role too. In the absence of perfectly contestable markets and the presence of mobility barriers (e.g., Caves & Porter, 1977), first mover advantages likely play a crucial role (Casson, 1982). Arguably, first mover advantages partially materialise in terms of the scale that a firm is able to attain relative to rivals, especially when there is a shift in the nature of competition toward winner-take-most. Scale, in turn, is a key entry/mobility barrier and, therefore, an important driver of long-run competitive success (e.g., Porter, 1985). Taken together, these observations suggest that the business model approach to management should be broadened, presumably to include a firm scale perspective. The following shall illustrate:



The chain of causality unfolds as follows. Changes in a firm's business model are supported by strong dynamic capabilities (e.g., Zott & Amit, 2016; Teece, 2018). The dynamics of capabilities, in turn, relate to the firm's productivity. Recall, the large (and increasing) cross-firm productivity spread is rooted in managerial and technological capabilities (e.g., Bloom et al., 2019). The link between the dynamics of capabilities and firm scale is clear in that skewness in the productivity distribution among firms is a key driver of between-firm output reallocation (e.g., Melitz, 2003; Asplund & Nocke, 2006; Melitz & Ottaviano, 2008). A more sophisticated expression of these relationships can be found in figure 1 on page 26. When viewed through the lens of the business model concept, this framework highlights that enduring success at the individual firm-level may

increasingly require the focal firm to perform its activity system in ways that maximise the system's sensitivity to the type of scale in which the firm has the greatest advantage over its competitors. Fundamentally, a shift in the nature of competition toward "winner take most" is shown to elevate the importance of "scale" for designing sustainable advantages at the individual firm-level. This key insight enables me to articulate a "new to the literature" design element of business models. While the activity system has been shown to provide a useful common perspective across the various conceptualizations of the business model (e.g., Zott, Amit & Massa, 2011), the importance of activity system scale has been largely overlooked. This contribution is significant as upward scale adjustment is a means of building commitment over time and the key role of commitment for competitive advantage is well known (Ghemawat, 1991). The latter connection between scale and competitive advantage also enables me to contribute to the competition-innovation debate (for a review, see Gilbert, 2006) by isolating scale as a key factor conditioning firms' ability to profit from business model innovation.

In the second chapter, I empirically examine the relations between a firm's scale and the strength of its dynamic capabilities, thereby delineating how and why the elements of the aforementioned theoretical model are linked by a feedback mechanism. The following graph shall illustrate.



In fact, firms that operate at significant scale may have stronger dynamic capabilities. Consistent with this logic, emerging facts on firm heterogeneity reveal decreasing churn rates among firms with a high market share (e.g., Autor, Dorn, Katz, Patterson & Van Reenen, 2020). In other words, the rise of dominant firms across a wide range of markets is associated with more persistent dominance (Gilbert & Newbery, 1982; Gilbert & Vives, 1986) rather than greater creative destruction (Aghion & Howitt, 1992). These decreasing churn rates suggest that there are incumbent advantages for high market share firms. Thus, I ask: 'How does operating at the top of the global firm size distribution affect firms' dynamic capability to seize potentially profitable opportunities?'

Studying two incumbent firms in the global financial service industry, I induct a theoretical framework that illuminates how the strength of a firm's opportunity seizing capacity attaches to the scale adjustment process. Taking into account the cumulative, evolutionary character of enterprise-level seizing capacities, I theorize that larger, more productive firms can substantially lift the liquidity constraints in entrepreneurial choice, thereby pre-emptively invest in new opportunities as they emerge. My primary contribution is to move beyond the analysis of dynamic capabilities as a source of sustained intra-industry profit differentials amongst rivals to explicating the connections between dynamic capability and firm scale. In doing so, I join forces with Winter (2018) and Pisano (2019) in arguing that dynamic capabilities, due to their large overhead cost element to adoption, are likely to be primarily important among very large firms only. Operating at significant scale appears to provide a more stable platform to investing in dynamic capabilities.

In the third chapter, I empirically study the prescriptive managerial actions that may result in incumbent advantages for high market share firms, thereby delineating the microfoundations of the dynamic capabilities hinted at in the previous chapters. At first glance, incumbent advantages for high market share firms may be entirely attributed to their pre-entry capabilities. Dominant firms may have excess pre-entry capabilities and, therefore, major advantages over smaller firms without such requisite capabilities (for a review, see Helfat & Lieberman, 2002). However, incumbent failures in the face of change (e.g., Christensen, 2006; Danneels, 2012; Rosenbloom, 2000; Tripsas & Gavetti, 2000) suggest that gaps remain as to how pre-entry capabilities can be reliably leveraged and used in the face of the revealed inertial forces endemic to large, established firms. Thus, I ask: 'How do large, established firms hedge their sunk cost commitments to ordinary capabilities against new industry growth phases associated with shifts in business practices or technological developments?

Studying two incumbent firms in the global automotive industry, I induct a theoretical framework that clarifies the microfoundations of a particular class of a firm's dynamic capabilities, a capability that I term "optionality". My findings lead me to define optionality as "the smallest set of sunk cost commitments firms maintain to avert lock-out from strategically important alternatives." By avoiding lock-out from multiple (competing) strategically important scenarios, high market share firms can smoothly negotiate a possible future change, so as to maintain "persistent dominance". Recall, the notion of lock-out describes one of the four causal factors of commitment, according to Ghemawat (1991). These relationships can be indicatively expressed as:



Essentially, high market share firms can use their monopoly profits (and others) to hedge their outsized commitments to existing capabilities against various environmental contingencies/scenarios by managing lock-out. Arguably, dominant firms can adapt to

changing environmental conditions if—and only if—they are not excluded from such competitive contests in the first place.

Taken together, my three papers directly speak to emerging facts on firm heterogeneity, most notably the increased skewness in the firm size distribution as well as the observed persistent dominance that is associated with these changes. Effectively, all three chapters highlight the importance of scale for competitive advantage. The chapters are different in their level of abstraction, with subsequent chapters carrying the understanding to a greater level of specificity. Thus, managers and consultants will likely find the third chapter to be the most prescriptive, yet, the strength of the analysis provided here is that it blends across different levels of abstraction using different angles, thereby advancing a more holistic understanding. In essence, I find that recent exogenous increases in substitutability/competitiveness appear to reshape the factors that determine a firm's unique and valuable competitive position within an industry to increase the importance of scale relative to prior periods.

Future research may explore a number of intriguing questions. In the main, they fall into two categories. First, research on business models could further explore empirically how the selective pursuit of scale in different activities, if at all, represents a novel design element of business models. One may wonder why a business model should not be selectively tuned to the activities in which the focal firm has (or can build) superior scale of the appropriate type. If true, the design elements of business models, as delineated in the received literature, need to be broadened to include activity system scale. How do the existing design elements of business models, then, interact with the new design element around scale? For example, what are the consequences of scale choices for activity system content, structure, and governance choices? To what extent can scale increases insulate the post-innovation rents that reward new business model innovations from new competition?

Second, research on dynamic capabilities could elaborate on the Teecian assumption that efficiency based economic models outline arrangements that transfer easily between firms (for a recent re-emphasis, see Teece, 2019). If, in fact, heterogenous productivity rooted in managerial and technological capabilities does not transfer easily between firms (e.g. Syverson, 2011), what does this mean for the relationship between dynamic capability and competitive advantage? Efficiency based economic models suggest that there are incumbent advantages for high market share firms (e.g., Gilbert & Newbery, 1982; Gilbert & Vives, 1984). Consistent with these models, emerging facts on firm heterogeneity report more persistent dominance rather than greater creative destruction among firms with a high market share (e.g., Autor et al., 2020). To what extent can incumbent advantages be traced back to dynamic capabilities? More research is warranted to enhance our understanding of how enterprise level sensing, seizing and reconfiguring capacities are linked to competitive advantage. Is superior productivity a necessary condition for strategically important dynamic capabilities to come into existence? How can firms afford investing in dynamic capabilities in the absence of large cash-flows and high profits? Dynamic capabilities have been argued to represent an overhead cost burden (Winter, 2003, 2019). Qualitative, in-depth longitudinal investigations may complement hypothesis-testing studies and economic modelling techniques for illuminating these issues.

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## CHAPTER I

# **PROFITING FROM BUSINESS MODEL INNOVATION:** A CONCEPTUAL FRAMEWORK FOR INCREASING THE POSTINNOVATION RENTS THAT REWARD

### **NEW INNOVATION\***

**Research Summary:** A central question in strategy is to design a unique and valuable strategic position or, in modern language, a winning business model. In its current version, however, the BM perspective often outlines arrangements that, in practice, are relatively easy to imitate and that therefore cannot support durable firm-specific performance advantages. Thus, I ask: How do BM innovators protect the value of their superior designs against inroads by rivals? To move the discussion further, I develop a conceptual framework advocating the key role of scale for shielding off superior BMs from the competitive force of continuing entry. Overall, I take stock of the available knowledge on the BM design-performance relationship, thereby illuminating the relevance of design to strategy.

Managerial Summary: Designing a firm's strategic position 'sets the trade-off rules that define how individual activities will be configured and integrated' (Porter, 1996:74). Shifting our attention back to this seminal concept, recent scholarship identifies the purposeful weaving together of interrelated activities as the essence of the BM design. Despite its intellectual roots, however, the BM concept in its current version lends comparatively less importance to the notion of competitive advantage. Addressing this gap, I develop a conceptual framework that extends the BM concept through integration with a firm scale perspective to explain the performance consequences of BM design choices. In so doing, the present study attempts to enhance understanding of the BM design-performance relationship, thereby building further bridges between design theory and central questions in strategy.

**KEYWORDS** Business model design • Competitive advantage • Innovation incentives • Strategic positioning • Value creation

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### **1** | INTRODUCTION

'One thing is certain. There is still more to learn about why firms outperform one another. The answers will be complex, and good answers will involve integrative thinking.'

— Michael E. Porter, 1998: xx

'Despite its many offshoots, the field of strategy converges towards the consensus that the value chain and its variations must give way to a broader, more systemic concept such as the business model.'

— Joan E. Ricart, 2012: 5

Prior work has argued that firms excel because of what they do. In this view, the value chain pre-emanates as the basis for unpacking the sources of heterogeneity in performance differences among firms (e.g., Porter, 1985; 1991; 1996). By providing a system's view of a business, the value chain can be viewed as a tailor-made suit for each company that breaks out the essential activities in the business. Hence, the value chain plays an important role in creating and sustaining competitive advantage. As Porter (1991: 102) notes: 'Competitive advantage results from a firm's ability to perform the required activities at a collectively lower cost than rivals or perform some activities in unique ways that create buyer value and hence allow the firm to command a premium price.' At a general level, the activity-system has been shown to provide a useful common perspective across the various conceptualizations of the business model (e.g., Amit & Zott, 2015; Zott & Amit, 2010; Zott, Amit & Massa, 2011). However, outside of these notable recent contributions the Porterian activity-system has not reaped any tangible gains in the strategic management literature (Sheehan & Foss, 2017). Similarly, Markides (2015: 140) puts it starkly: 'Unfortunately, follow-up research did not build on this idea - but now we have a chance to remedy this. The business model concept shifts our attention back to this under-appreciated concept, and can hopefully kick-start a new research programme to explore its importance for strategy.'

While the rapidly expanding, highly cited business model literature has shown that Porterian activity analysis can inform research at the intersection of entrepreneurship and strategy (Foss & Saebi, 2017), a very significant concern centers on the business model concept's applicability for predicting and explaining the sustainability of rents. The reasoning is roughly this: Imitability constraints bind. In fact, successful business model designs are often prone to imitation. As Teece (2010: 179) notes: 'Once implemented, the gross elements of business models are often quite transparent and (in principal) easy to imitate. ... Being first with an imitable business model may teach the customers about the new value proposition, priming the way for entry by rivals without securing any lock-in for the pioneer firm.' Despite important advances, in its current version, the business model concept often outlines arrangements that, in practice, are relatively easy to imitate and that therefore cannot support durable firm-specific performance advantages. And that matters.

Elevated rates of imitability diminish the monopoly rents that reward business model innovators after innovating, thereby reducing the *strategic incentives* to engaging in innovations of this kind. As in most existing endogenous growth models (e.g., Romer, 1990; Aghion & Howitt, 1992; Grossman & Helpman, 1991), competitive forces reduce postinnovation rents and, by taking away the desired reward for innovation, remove the strategic incentives for engaging in such activities in the first place. The importance of this issue cannot be overemphasized. The relationship between competition and innovation (for an excellent review, see Gilbert (2006)) is one of the most fundamental questions in economic theory and dates back at least to the work of Joseph Schumpeter (1942). Thus, I ask: *How do business model innovators protect the value of their superior designs against inroads by rivals*?

Given this limited theoretical understanding, I take stock of the received literature on the business model design-performance relationship. Synthesizing literature streams that link firm organization to market performance, I theorize that business model designers may usefully insulate the value of their superior designs from the competitive force of continuing entry by leveraging upward scale adjustment as a means of building commitment over time. My primary contribution is to develop a conceptual framework that may serve future research on business models as guidance for addressing the concept's inherent built-in *imitability problem*.

At its core, the conceptual framework attempts to broaden the business model concept through integration with a firm scale perspective. An extension of this kind appears to be particularly suitable for connecting the field of design with strategy's focus on sustained intraindustry profit differentials<sup>2</sup>. This may be true for two reasons in particular: First, scale naturally connects with competitive advantage. In fact, scale defines one of the most important *drivers* of competitive advantage in an activity, according to Porter (1985, 1991). Recall, activity drivers capture structural determinants of differences among competitors that alter the cost or buyer value of individual activities or groups of activities and define arrangements that cannot profitably be imitated by rivals. As Porter (1985: 112) emphasizes: 'Scale is a key entry/mobility barrier and the cost of replicating scale is often high because competitors must buy share.' Reaffirming this view, Knudsen, Levinthal & Winter (2014: 1581/2) more recently noted: 'Entering an industry with a potentially superior cost value, or business model, is not sufficient. To achieve significant profitability and to establish a major position in the industry, a firm must effectively scale

<sup>&</sup>lt;sup>2</sup> Caves & Ghemawat, (1992: 1): 'Sustained intraindustry profit differentials are best viewed in terms of the theory of mobility barriers, which was first proposed by Caves and Porter (1977) as a way of thinking about the structure within industries, and which has been greatly extended by further research into committed competition.'

up its operations.' Importantly, a holistic understanding of why firms outperform one another ought to incorporate a wider perspective on the firm (e.g., Porter, 2001). The second point shall illustrate. In fact, as larger parts of the modern economy become winner take most/all due to globalization and new technologies (e.g., Autor, Dorn, Katz, Patterson & Van Reenen, 2020; Van Reenen, 2018), scale is arguably of the essence. This point is notable. A stylized pattern that has been documented across a wide range of markets is that sales concentration has risen sharply, including with regard to all six of the U.S. Economic Census sectors (e.g., Autor, Dorn, Katz, Patterson & Van Reenen, 2017, 2020; Criscuolo, 2018; Gabaix & Landier, 2010; Grullon et al., 2016). The average U.S. top 500 firm (by sales) tripled in size between 1972 and 2015 and increased by a factor of six in terms of real market value (Autor et al., 2020). Further, churning rates among this elite group of firms have been falling since the 2000 period (Andrews, Criscuolo & Gal, 2015; Decker, Haltiwanger, Jarmin & Miranda, 2018). In other words, recent increases in firm size are accompanied by more "persistent dominance" (Gilbert & Newbury, 1982) rather than greater "creative destruction" (Aghion & Howitt, 1992). As Autor et al., (2020: 1) note: 'If globalization or technological changes push sales towards the most productive firms in each industry, product market concentration will rise as industries become increasingly dominated by superstar firms, which have high markups and a low labor share of value-added.' Arguably, there are two underlying forces at work here. First, an upsurge in product market competition due to new technologies increasing the ease with which consumers can substitute among producers (e.g., Goldmanis, Hortaçsu, Syverson & Emre, 2010; Syverson, 2004). Second, globalisation trends which expose local firms to global competition, thereby reallocating market share from low to high productivity firms (e.g., Melitz, 2003; Asplund & Nocke, 2006; Melitz & Ottaviano, 2008; Foster, Haltiwanger & Syverson, 2008).

Importantly, recent evolutions of technology and market conditions—or their interaction—generate new opportunities and problems for designing sustainable advantages at the individual firm-level. Above all, if the pioneering business model innovator does not seek scale albeit doing business in the midst of a "winner take most" competition, his odds of success will be marginal. In this view, the pursuit of upward scale adjustment at the individual firm-level can be seen as a 'rational response'<sup>3</sup> to external changes turning more and more markets into "winner take most". Put differently, a shift in the nature of competition from competition "in the market" to competition "for the market" elevates the importance of firm scale for competitive advantage. Taken together, these research streams suggest that the business model concept needs to be extended, presumably through integration with a firm scale perspective, to explain the performance consequences of business model design choices.

Several important theoretical insights emerge from my literature synthesis. First, the present study identifies an important gap in the existing business model literature that impedes the field to contribute substantially to major questions associated with competitive strategy: The *imitability problem*. Without securing any lock-in for the pioneer firm, even a superior business model may not be a "sticky factor" in a game-theoretic industrial organization sense. Second, the study shows how the imitability problem can be addressed by extending the business model concept through integration with a firm scale perspective, thereby advancing a way of increasing the postinnovation rents that reward new business model innovation. Third, the study offers an interesting twist to the content, structure, and governance perspective of business model design

<sup>&</sup>lt;sup>3</sup> Casson (2000: 60): 'The need to incorporate a wider perspective on the firm is particularly strong in the light of the continuing 'globalization' of the world economy. This has generated significant changes in the environment of the typical firm. Recent changes in the boundaries of firms are best understood as a rational response to external changes of this kind.'

(Amit & Zott, 2001, 2012, 2014; Zott & Amit, 2007, 2008, 2009, 2010, 2015, 2016) by proposing a fourth business model design element: Activity System Scale (Table 1.1). Activity system content, structure, and governance are shown to be optimally guided (or forced) by the focal firm's current or expected scale relative to rivals, but not the other way around. In Porterian language, the type of scale the firm performs relative to rivals sets a key trade-off rule that defines how individual activities will be configured and integrated. Scale is a means of (structural) positioning (Porter, 1980, 1985). In the adaptive application, a business model innovator should design the focal firm's activity system so as to maximise the system's sensitivity to the *type of scale*<sup>4</sup> in which the firm has the greatest advantage over its competitors. In so doing, the proposed conceptual framework essentially marries the design approach to business models (activity system content, structure & governance) with Porterian industry positioning (activity system scale) by disciplining the analysis of the value of novel designs by how they allow firms to perform certain types of scale that create advantages in particular markets.

<sup>&</sup>lt;sup>4</sup> Porter (1985: 72) differentiates, for instance, between: 'global scale, national scale, local scale, plant scale, project scale, scale per production line, scale per buyer, scale per order, or some other measure of scale.'

### **TABLE 1.1** Gaining the Appropriate "Type of Scale"

### **Activity System Scale**

### **Definition:**

"Scale is not the same as market share. Depending on the relevant measure of scale, the appropriate definition of market share that will serve as a proxy for scale will differ markedly. ... The relevant measure of scale differs among value activities and industries." (Porter, 1985: 72)

#### **Differentiation Advantage:**

"Large scale can allow an activity to be performed in a unique way that is not possible at smaller volume. For example, Hertz's scale in car rental underlies some of its differentiation. Hertz's many locations in all areas of the United States provide more convenient pick-up and drop-offs of cars, and faster field service. The relevant type of scale that leads to differentiation will vary - with Hertz it is number of rental and service locations, while in another industry it might be the scale of plant that allows precise tolerances due to high speed equipment." (Porter, 1985: 127)

### **Cost Advantage:**

"[T]he type of scale that drives cost differs by activity. ... By looking through the value chain for the types of scale that drive cost, the value of scale (and hence market share) of different types can be assessed. Pursuit of scale should be selectively tuned to the type of scale that drives the cost of important activities in the particular industry." (Porter, 1985: 100)

### **Managerial Implications:**

"[A] firm should set its strategy to emphasize as much as possible the activities in which it has superior scale of the appropriate type. ... A regional firm should accentuate the value of its regional scale, for example, while a national competitor without leadership in any region should manage its activities to maximize the value of its national scale. ... Scale increases in different activities must be balanced, moreover, so that pursuing scale in one activity does not create diseconomies in another." (Porter, 1985: 101/73/100)

### 2 | BACKGROUND

The *process* of BMI can be conceived of as a design-based approach to the fundamental challenge facing economic organizations: How to create value for customers, suppliers, partners, and the focal firm? (Amit & Zott, 2014; Bucherer et al., 2012; Casadesus-Masanell & Ricart, 2011; Cavalcante, Kesting, & Ulhøi, 2011; Chesbrough, 2010; Demil & Lecocq, 2010; Frankenberger et al., 2013; McGrath, 2010; Sosna et al., 2010; Zott & Amit, 2007, 2008, 2018). As Zott & Amit (2016: 401) note: 'More recently, scholars have

turned their attention to the dynamics of BM creation, adaptation, and change, partly by drawing on the design perspective (e.g., Zott and Amit, 2015)'. The BMI process is, thus, a prime example of how the ongoing orchestration and coordination of "designerly" and design thinking in organizations may advance enterprise-level opportunity exploitation in ways that create value for all stakeholders involved, thereby enhancing the benefits of technology for society as the 4th Industrial Revolution unfolds.

While much of the received literature on business models has been devoted to understanding the conceptual nuances of "what it means" in different contexts (for two recent reviews, see Foss & Saebi, 2017 or Massa, Tucci & Affuah, 2017), the available knowledge on the "how" of business model design is surprisingly thin. Zott and Amit (2007, 2008, 2010) have introduced the idea of 'design themes' (i.e. novelty, efficiency, complementarity, and lock-in), which are specific configurations of the "design elements" (i.e., the content, structure, and governance) of a business model (Amit & Zott, 2001). For instance, efficiency-centred business model designs orchestrate and coordinate design elements in ways that reduce transaction costs for all participants, whereas noveltycentred business model designs refer to new sets of boundary-spanning transactions. Anchoring their reasoning, among others, in the transaction cost perspective (Williamson 1975), Zott & Amit (2007) offer hypotheses about the implications of design themes for the value creation outcomes of the focal firm. Anchored in the broad design literature, Zott & Amit (2015) identify four design-relevant antecedents of BMs (i.e. goals, templates, stakeholder activities, and environmental constraints) and link these "design drivers" to the "design themes" of BMs.

Another research stream offers a dynamic capability-based perspective (e.g., Teece, 2010, 2018; Zott & Amit, 2016). In this view, dynamic capabilities may usefully govern and
guide the conception, market introduction, and ongoing management of BMs. As Leih, Linden & Teece (2015: 35) note: 'Dynamic capabilities are deeply enmeshed with business model innovation and implementation. ... Each of the three clusters is tied to business model innovation, development, and implementation.' Attending to and dealing with this perspective, scholarly research has recently focused on understanding, defining, predicting, and measuring how business model innovation capabilities shape value creation at the individual firm-level (Zott & Amit, 2017). In sum, the business model approach, which views the firm as a system, may have substantial potential for future research in the area of (strategic) entrepreneurship, and the very high citations to Amit & Zott (2001, 2012, 2014) and Zott & Amit (2007, 2008, 2009, 2010, 2015, 2016) testify to this.

# 2.1 | Business Model Innovation and Competitive Strategy

It is less clear how the business model concept may yield rich dividends to competitive strategy as a field of inquiry (e.g., Markides, 2015). Some high stakes challenges appear to stand in the way of more rigorous and relevant contributions to the field. For instance, the seminal work by Amit & Zott (2001) emphasizes, at its core, the importance of the structuring of transactions<sup>5</sup>. As Amit & Zott (2001: 551, italics added) note: 'A business model depicts the content, structure, and governance of *transactions* designed so as to create value through the exploitation of business opportunities.' A very significant concern centers on the applicability of transaction cost economics for predicting and explaining sustained performance differences between firms. Market conditions or technology constraints often limit by how much firms can reduce costs over a sustained

<sup>&</sup>lt;sup>5</sup> Inducted in the context of "e-businesses", Amit and Zott (2001: 514) also emphasize the wider external validity of their findings: 'We believe that our definition of a business model is applicable to firms doing business in virtual markets as well as to more conventional businesses.'

period of time (e.g., Winter, 2009). Costs are not directly linked to revenues. Hence, the selection of the appropriate mode of governance—important as it is—is one step removed from measuring actual performance. For the purpose of the present study, it seems important to note here that growth in firm size, in turn, is directly linked to revenues. Transaction cost economics is not primarily concerned with explaining financial performance. As Casson (2000: 118) notes: 'Transaction cost analysis ... is concerned first and foremost with explaining the boundaries of the firm. ... What lies inside the boundaries of the firm is not explained so well, however, because it is not the focus of the theory.' Transaction cost economics is concerned with explaining the boundaries of the firm, thereby raising concerns about Amit & Zott's (2001) theoretical model and the construct validity of the measures for explaining persistent performance differences among competitors.

More generally there is at least one additional concern that needs to be clarified before assuming as fact a sizeable link between business models and firm performance. Which few concepts from the business model approach can be used to explain a wide variety of empirical regularities, not only in terms of ex-post rationalization but also in terms of exante prediction? Addressing the link between business models and competitive advantage, Demil, Lecocq, Ricart & Zott (2015:2) note: 'Compared to other perspectives in strategic management (such as industrial organization or resource-based theory), the business model lends comparatively less importance to the notion of competitive advantage, focusing more on the study of value creation and value capture mechanisms and promoting voluntary choices over environmental conditions.' Effectively, the relevance of the business model concept for explaining how managerial choices impact performance is theoretically ambiguous<sup>6</sup>. At the core of this issue lies, perhaps, that the business model concept neglects the importance of the theory of mobility barriers<sup>7</sup> (Caves & Porter, 1977) for competitive advantage. As a consequence, the business model concept tells us next to nothing about what makes superior business models difficult to imitate. And that matters.

While business model innovation is argued to create value, *innovation incentives* of firms to innovate are driven by what part of the value created firms can appropriate (e.g., Cassiman & Vanormelingen, 2013, Geroski, Machin & Van Reenen, 1993; Gilbert, 2006). Imitability may decrease the incremental profits from innovating, and thereby discourage investments in business model innovations aimed at "escaping competition." In other words, pursuing a mode of innovation with a high rate of imitability may constrain innovation incentives because it may reduce a firm's postinnovation rents while keeping preinnovation rents unaffected. Consistent with this logic, Aghion, Bloom, Griffith, Blundell & Howitt (2005:711) note: 'This prediction is shared by most existing models of endogenous growth (e.g., Romer [1990], Aghion and Howitt [1992], and Grossman and Helpman [1991]), where an increase in product market competition, or in the rate of imitation, has a negative effect on productivity growth by reducing the monopoly rents that reward new innovation.' Hence, the strategic incentives for investment in business model innovation are rather limited: imitability constraints bind.

<sup>&</sup>lt;sup>6</sup> For a valuable exception, see Casadesus-Masanell & Ricart (2011) who anchor their BM conceptualization in fundamental issues of strategic choice (and their consequences), thereby emphasizing value creation through virtuous value loops and protection from imitation through complementarities and fit (Milgrom & Roberts, 1995).

<sup>&</sup>lt;sup>7</sup> Caves & Ghemawat (1992: 1): 'Some readers may prefer terms other than mobility barriers, e.g. isolating mechanisms, for the same concept of durable conditions that yield excess profits to favourably situated firms and that cannot profitably be imitated by their competitors.'

Ultimately, Michael Porter (2001: 73) puts it starkly: '[S]imply having a business model is an exceedingly low bar to set for building a company. Generating revenue is a far cry from creating economic value, and no business model can be evaluated independently of industry structure. The business model approach to management becomes an invitation for faulty thinking and self-delusion.' In sum, no matter how purposefully designed a business model may be if it is built without securing any lock-in for the pioneer firm the chances of enduring success are tiny. Thus, I ask: *How do business model innovators protect the value of their superior designs against inroads by rivals*?

# 3 | CONCEPTUAL FRAMEWORK BUILDING

Business models ought to be designed with industry structure and other exogenous factors in mind (e.g., Porter, 2001). To this end, I set out a system-wide perspective of the business model concept that encompasses both the firm itself and the wider economic environment of which it forms a part. This yields a general framework within which several key sources of heterogeneity in performance differences among firms can be brought together and discussed at once. The range of different issues discussed is summarized in Figure 1.1. The pattern of the figure reflects the nature of the synthesis attempted in this section. The literature review is the theoretical method used to build the conceptual framework from the literature (e.g., Creswell, 2014; Easterby-Smith, Thorpe & Jackson, 2015). In this regard, I take stock of relevant bodies of literature on: (1) recent changes in the environment of the representative firm, (2) the linkages between business model design and strategic positioning, and (3) emerging facts on firm heterogeneity. Informed by this analysis, I address my research question on how to increase the postinnovation rents that reward new business model innovation. The conceptual framework reveals that business model designers may increasingly need to configure and integrate individual activities in ways that maximize the activity system's sensitivity to a particular *type of scale* which cannot profitably be replicated by rivals. Fundamentally, a shift in the nature of competition toward winner take most/all due to globalization and new technologies are shown to elevate the importance of scale for designing sustainable advantages at the individual firm-level. Overall, the proposed conceptual framework attempts to link the business model concept to emerging facts on firm heterogeneity, thereby bridging the gap between abstract theory and descriptive empiricism that has characterised much of the literature so far.

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### 3.1 | Strategic Position

At a high level of abstraction, product market strategies may be dichotomized into generic types of strategy, i.e. cost leadership, differentiation or focused cost leader or focused differentiator (Porter, 1980). Product market strategies usually follow one of these typologies but may sometimes conflate different types, thereby risking the well-known "stuck in the middle." Given its generalness, however, this perspective is comparatively less attuned to explaining performance differences among firms. A narrower approach to strategy was warranted.

Therefore, Porter (1985) introduced the concept of the value chain as a way of carrying generic strategy choices to a greater level of specificity. By considering how individual activities or groups of activities affect cost or buyer value, the value chain pre-emanates as the basis for assessing the competitive advantage of firms. All competitive advantage can be traced to the value chain. Porter (1996) emphasizes that value chains must be designed at the system-level. Changing any individual activity in one part of the business may affect, through complementarity or substitution (Porter & Siggelkow, 2008), the performance of other activities in the value chain. Hence, a holistic approach to designing the firm's *activity system* is essential. Importantly, crafting a firm's activity system is the essence of strategic positioning. As Porter (1996: 74) notes: 'Strategic positioning sets the trade-off rules that define how individual activities will be configured and integrated.'

A focus on exploring how firms employ individual activities at the system level lies at the heart of the various conceptualizations of the business model (e.g., Zott, Amit & Massa, 2011). For instance, Zott & Amit (2010: 218) note: '[the] purposeful weaving together of interdependent activities performed by the firm itself or by its suppliers, partners and/or customers – is the essence of the business model design.' In gaining academic acceptance, however, business model research has almost exclusively

emphasized the distinctiveness of the concept relative to the received strategy literature. For instance, Zott & Amit (2008) emphasize that business models are distinct from product-market strategies. This reaction against the conventional strategy view can be pushed too far. While Zott & Amit (2008) show that business models are related yet distinct from generic types of strategies, this tells us little about the relationship between business models and strategic positions. Generic types of strategy and strategic positions are not quite the same either. More generally, Markides (2015:135) stresses: 'The growing literature on business models has so far had limited impact on research in strategy. The main reason for this is the fact that the intellectual territory of the business model construct overlaps significantly with that of strategy. Without acknowledging this overlap, academics doing research on business models run the risk of asking questions that have already been explored in the strategy literature.' In fact, the similarities between business model design and strategic positioning are rather striking—so much that contributions from a business model design perspective should be placed squarely within the strategy field and viewed as an extension of it.

A seminal contribution in the business model literature identifies specific business model design elements (content, structure & governance) that may help managers orchestrate and coordinate how individual activities will be configured and integrated (Amit & Zott, 2001; Zott & Amit, 2010). However, this appears not to be the whole story—'the nature of the interaction among activities may not be an inherent property of the activities, but a function of the other choices made by a firm' (Porter & Siggelkow, 2008: 35). In other words, there are more design elements than content, structure, and governance that business model designers may consider. In this view, the design elements of business models are too narrowly defined. Cassiman & Veugelers (2006), for instance, show empirically that reliance on basic R&D represents an important *contextual variable* affecting complementarity between a firm's internal and external innovation activities.

Without reliance on basic R&D, the two activities are not complementary. In other words, the bases for *contextual interactions* carry the understanding of activity system content, structure, and governance to an (even) greater level of specificity. Choices about the basicness of R&D exemplify what Porter & Siggelkow (2008) refer to as 'other choices'<sup>8</sup> and choices like this remain exogenous to the contemporary business model approach. This is particularly worrying as a firm's set of activities may be particularly difficult to imitate when contextual variables in its strategy affect the existence of complementarity among activities. As Porter & Siggelkow (2008: 52) note: '[W]e would suggest increasing the focus on sets of activities whose interaction effects are contextual, because these activities are more difficult to imitate and, thus, more likely to represent sources of competitive advantage.' Identifying and examining these contextual variables is, thus, a fertile research area in its own right. I next turn to explain why the nature of the interaction among activities may well be a function of the type of scale that a firm performs.

## 3.2 | Structural Position

An important choice in the firm's strategy relates to the type of scale it performs relative to rivals. As Porter (1980: 143) notes: 'All firms following the same strategy are not necessarily equally positioned from a structural standpoint. Specifically, a firm's structural position may be affected by its scale relative to others in its strategic group.' From this, I infer the basic proposition that the existence of complementarity among the set of activities performed by a particular firm depends critically on how these activities interact with the activities performed by other players in the marketplace. To harness the power of complementarity, firms must, therefore, perform a type of scale that is different from rivals. Otherwise, firms risk creating a zero-sum competition in which everyone

<sup>&</sup>lt;sup>8</sup> Porter & Siggelkow (2008:51): 'For an interesting test along these lines, see Cassiman and Veugelers (2006).'

fights everyone. Similarly, Porter (1980:143) notes: 'A firm should manage its activities to maximize their sensitivity to the type of scale in which it has the greatest advantage over its competitors.' In so doing, a small number of firms may find a unique and valuable "local" peak<sup>9</sup> in the performance landscape and establish a dominant position, i.e. multiple positionings are possible. In essence, firms classified in categories of strategic similarity may anchor their positioning choices 'specifically' in the type of scale that they perform relative to rivals.

A potential mechanism through which scale functions as a contextual variable affecting complementarity among innovation activities relates to innovation incentives. While complementarity among innovation activities is argued to create value (e.g., Cassiman & Veugelers, 2006), private incentives of firms to innovate may be driven by the effects of market share (e.g., Blundell, Griffith & Van Reenen, 1999). For example, Gilbert & Newbery (1982) argue that high market share firms have greater incentives to search for innovation than potential entrants. As Gilbert (2006: 9) notes: "The incentive to preempt is driven by what Tirole (1997) calls the "efficiency effect". This is the gap between monopoly profits and total industry profits with competition. The efficiency effect increases the monopolist's incentive to invest in R&D when preemption is feasible.' When interpreting scale as a proxy for market share in a local peak, scale becomes a contextual variable affecting complementarity among innovation activities by determining the strategic incentives to innovate. In the absence of scale, a firm may no longer internalise the "efficiency effect" that incentivises to innovate over and above a level that a potential entrant attempts to achieve. Hence, there is an indirect relationship

<sup>&</sup>lt;sup>9</sup> This terminology is common in the context of the framework of performance landscapes (Kauffman, 1993; Levinthal, 1997; Wright, 1931).

between scale and the nature of the interaction among innovation activities, mediated by the innovation incentives arising from current and expected product market power.

To illustrate this point, consider the study by Cassiman & Veugelers (2006) who show that the existence of complementarity between internal and external innovation activities is a function of choices a firm has made on the degree of basic R&D reliance. I propose to take a step back and to look at what determines firm-level choices about basic R&D reliance. Arguably, these choices are driven by innovation incentives. But what determines whether or not a firm has an incentive to invest in basic R&D? It is precisely here, where the issue of scale returns to the stage. The externality or "efficiency effect" is internalized by firms operating at significant scale but ignored, for instance, by the entrant (e.g., Blundell, Griffith & Van Reenen, 1999; Gilbert, 2006; Gilbert & Newbery, 1982; Gilbert & Vives, 1986; Tirole, 1997). Hence, high market share firms have greater incentives to rely on basic R&D to search for innovation. Generally, innovation incentives are more fundamental than complementarities among innovation activities. Innovation activities are performed to realize innovation incentives—and not the other way around. Further, the firm may innovate without reliance on complementarities among innovation activities. The firm may not, however, innovate without the incentives to doing so. This general logic suggests that innovation incentives directly affect the nature of the interactions among activities. Innovation incentives, in turn, are determined by the effects of market share and the associated "efficiency effect" (Tirole, 1997). In this sense, scale is particularly difficult to replicate because firms operating at a significant scale have the strategic incentives to pre-emptively innovate, foreclose existing rivals, and exclude entry. As a consequence, any insurgent hoping to invade a market, industry, or sector would have to fear a strong reaction from existing firms (e.g., Gilbert & Vives, 1986).

#### 3.3 | Dynamics of Capabilities

But how can a firm effectively scale up the magnitude of its operations once it has found a unique and valuable local peak in the performance landscape? While managers may be inclined to seek "easy" growth by tapping potential high growth arenas, such efforts may blur uniqueness, relax trade-offs and, ultimately, undermine the purposefully designed basis for competitive advantage. In contrast, there is an arguably more difficult mode of growth available to firms: Leveraging and reinforcing the company's unique position. As Porter (1996: 77, italics added) notes: 'Broadly, the prescription is to concentrate on deepening a strategic position rather than broadening or compromising it. ... [M]anagers can ask themselves which activities, features, or forms of competition are feasible or less costly to them because of *complementary activities* that their company performs.' Along these lines, managers can attempt to profit from the innovations of others by leveraging their unique access and ownership of complementary assets (Markides & Geroski, 2004; Teece, 1986). Having an established position in complementary assets may give the focal firm major advantages over innovating firms that do not perform such requisite activities and have to compete on a stand-alone basis (e.g., Adner & Kapoor, 2010; Hannah, 2017; Hannah & Eisenhardt, 2018). For instance, Cassiman & Vanormelingen (2013) provide compelling empirical evidence that the ability of firms to market their products defines an important complementary asset that significantly affects firm-level markups after innovating.

Another important research stream on complementary assets examines the importance of such assets for entry into new product market niches (Agarwal & Bayus, 2002; Agarwal & Gort, 1996; Bayus & Agarwal, 2007; Furr & Kapoor, 2018; Helfat & Lieberman, 2002; Klepper, 1996, 1997, 2002). These studies indicate that the similarity of assets possessed by the focal firm to those of value in the market of entry critically conditions post-entry

firm survival. For instance, Mitchell (1989) shows that firms with complementary assets were more likely to enter a number of emerging technical subfields of the U.S. diagnostic imaging industry. Similarly, Helfat (1997) finds that incumbent U.S. petroleum companies with greater complementary knowledge accumulated from (more established) refining R&D also undertook greater amounts of (more speculative) coal conversion R&D. Or consider King & Tucci (2002) who find that incumbent firms with greater prior disk drive sales were also more likely to enter the next generation of disk drives.<sup>10</sup>

While these studies relate to organic growth, the importance of complementary assets for entry into new product markets may well include inorganic modes of growth too. As Helfat & Lieberman (2002: 749) note: 'Acquisitions may be particularly attractive for diversifying firms that hold complementary assets but lack the technological know-how possessed by start-ups.' For instance, Schoar (2018) finds this to be the case in the financial services industry where more than 95% of exits across all fields of fintech are via acquisitions to existing large companies. Taken together, these research streams explicate how focal firms can leverage and use the power of complementary assets to further deepen and entrench their commanding positions. Scale becomes a proxy for the stock of complementary assets accumulated by the firm.

A particularly interesting type of complementary assets relates to general-purpose management competences (to be discussed in more detail later). Pisano (2019) recently speculates that these management competences may well provide firms paths into new markets. Pisano's assertion is underpinned by significant comparative international studies demonstrating the importance of *management practices* for several observable headcounts of firm performance, including with regard to productivity, growth and

<sup>&</sup>lt;sup>10</sup> King & Tucci (2001) assume greater disk drives sales to be a proxy for production and sales knowledge.

innovation (Bloom, Brynjolfsson, Foster, Jarmin, Patnaik, Saporta-Eksten & Van Reenen, 2019; Bloom, Eifert, Mahajan, McKenzie & Roberts, 2013; Bloom, Sadun & Van Reenen, 2012, 2017; Bloom & Van Reenen, 2007, 2011).

As the foregoing analysis reveals, the process of deepening a strategic position attends to and deals with the dynamics of capability creation and accumulation at the individual firm level—the dynamics of capabilities. In fact, firm-level capabilities are not simply a scale-free attribute (Levinthal & Wu, 2010) but develop over time through a series of committed choices (Ghemawat, 1991). The relationship between scale, capabilities, and commitment is clear in that: 'Scaling involves prioritizing large investments in the most promising technologies and overcoming internal resistance—and it is a means of building commitment' (Birkinshaw, Visnjic & Best, 2018: 96). While the key role of commitment for competitive advantage is well known (Ghemawat, 1991), it seems important to note that commitments in complementary assets essentially provide options to invest in different types of competencies. Exercising those options is the essential element underpinning the dynamics of capabilities and the essence of deepening a strategic position.

While the performance implications of scaling and the dynamics of capabilities are implicit in the foregoing analysis, this point deserves more attention. In fact, the rate of scale adjustment firms can achieve influences the evolution of industry structure (Nelson & Winter, 1982). The importance of industry-level structural factors for explaining supracompetitive profits defines the hallmark of industrial organization, the field of economics that focuses on studying market power. In fact, most economists appeal to structural causes to explain why firms outperform one another. Consistent with this view, Knudsen, Levinthal & Winter (2014: 1569) note: 'We show that the bases of profitability in the industry (monopoly-like profits stemming from the restriction of output, efficiency

rents based on firm-specific productivity differences, or transitory Schumpeterian profits) can be traced to the scale adjustment process.' In this view, a consideration of growth in firm size qualifies as a basis for assessing patterns of firm performance in and of itself. As Winter (2009: 102) notes: 'Empirical research in strategic management has tended to ignore an obvious alternative to accounting profits as a measure of firm performance over time: growth in firm size.' Taken together, this analysis suggests that upward scale adjustment (and the underlying dynamics of capabilities) likely represent an important source of sustained intra-industry profit differentials amongst rivals.

### 3.4 | Industry Structure & Exogenous Factors

The foregoing analysis has focused on the role of scale in strategic positioning and, explicitly, the role of upward scale adjustment as a means of deepening strategic positions. In this section, I direct attention to the wider economic environment in which the firm operates and review how exogenous factors currently reshape the distribution of economic activity across firms within markets, industries, or sectors. This is necessary because changes in the boundaries of firms are best understood as a "rational response" to changes in the wider economic environment in which they operate (Casson, 2000: 60).

Emerging evidence documenting the relationship between large firm dynamics and fluctuations in aggregates is getting a lot of attention lately. There is growing consensus among economists that a rich understanding of fluctuations in aggregates requires taking into account the (increasingly) large and persistent measured productivity differences between firms. For instance, the 2018 Jackson Hole Economic Symposium has focused on the topic of "Changing Market Structures and Implications for Monetary Policy." Two prominently featured papers in the symposium, Van Reenen (2018) and Crouzet & Eberly (2018), examine in detail the interactions of firm structure, market structure, and productivity, especially in terms of recent changes. The topic is important because market

structures appear to have changed significantly over time. An example of an attentiongetting headline is concentration, i.e. the distribution of revenues across companies. Concentration of sales has risen substantially across a wide range of markets, including with regard to all six of the U.S. Economic Census sectors (e.g., Autor, Dorn, Katz, Patterson & Van Reenen, 2017, 2020; Criscuolo, 2018; Gabaix & Landier, 2010; Grullon et al., 2016).

A central question is what drives changes in concentration or, more broadly, market structures? A robust finding of the large and growing literature using longitudinal microdata to document productivity movements is that within-industry reallocation and its associated firm turnover are a major force shaping fluctuations in industry aggregates (e.g., Melitz, 2003; Asplund & Nocke, 2006; Melitz & Ottaviano, 2008; Foster, Haltiwanger & Syverson, 2008). These papers share an important common thread namely that reallocation of market share to more efficient producers is the mechanism driving aggregate productivity growth-the so-called "between-firm reallocation" effect. For instance, Bailey, Hulten & Campbell (1992) find that about half of the U.S. industry's TFP growth (over a five-year period) is due to reallocation of output among producers. Subsequent work has confirmed over and over that there is always a significant betweenfirm component (e.g., Olley & Pakes, 1996; Melitz & Polanec, 2015). Focusing on aggregate markups, several studies confirm that reallocation of market share towards high markup firms is quantitatively important (Autor, Dorn, Katz, Patterson & Van Reenen, 2020; Baqaee & Farhi, 2017; De Loecker & Eeckhout, 2018; Hartman-Glaser, Lustig & Zhang, 2016). In essence, fluctuations in aggregates, such as changes in industry concentration, are to a large extent driven by within-industry reallocation of output among heterogeneous producers.

However, this explanation leaves open the question to be addressed - why are we seeing these concentration trends today? In other words, what determines the current "strength" of the "between-firm reallocation" effect? This shifts attention to examining potential changes in "the nature of competition". In fact, the mass of available empirical evidence, including with regard to quasi-experiments examining discrete historical episodes of changes in the competitive environment, suggest that increases in competition lead to increases in industry productivity (Bloom, Draca & Van Reenen, 2016; Holmes & Schmitz, 2001; Galdon-Sanchez & Schmitz, 2002; Schmitz, 2005; Syverson, 2004; Matsa, 2011; De Loecker, 2011; Goettler & Gordon, 2011; Tybout, De Molo & Corbo, 1991). Directly speaking to this point, Syverson (2004) finds that market size may condition aggregate productivity due to composition changes between firms. The author shows that in larger markets low productivity plants find it more difficult to survive because they usually have to compete against very high productivity plants. In this sense, market size becomes a proxy for competition as larger markets have more random entry draws compared to smaller markets. Hence, larger market sizes (and therefore higher competition) are likely to make markets tougher, and low productivity plants will find it more difficult to compete. Hence, if there are recent increases in competition these could advantage the most productive firms in an industry causing low productivity firms to shrink and exit, thereby explaining why the between-firm component is more pronounced today than it has been in prior eras.

#### 3.4.1 | Recent Changes in the Nature of Competition

Several explanations have been proposed to explain increases in the toughness of product market competition but there is no undisputed leading candidate explanation. In all likelihood, therefore, the truth is a mix of these explanations with varying degrees of relevance across industries and time periods. In this section, I address two viable candidate explanations in particular: globalization and new technologies.

Perhaps most relevant to the current discussion are the articles by Autor, Dorn, Katz, Patterson & Van Reenen (2020) and Crouzet & Eberly (2019). Both studies bolster an efficiency-enhancing mode of industry concentration, i.e. patterns of simultaneous concentration and productivity growth, where the most productive firms get to control, through between-firm reallocation, a very large share of the market. Autor et al., (2020) note: 'Globalization, which increases effective market size, or greater competition (meaning higher substitutability between varieties of goods) will tend to make markets tougher, causing low productivity firms to shrink and exit.' In this view, consumers have become more sensitive to quality-adjusted prices through globalization or increases in the ease with which they can substitute among producers, for example, through improved search technologies such as the availability of price comparisons on the Internet (see also, Akerman, Leuven & Mogstad, 2017). In two notable studies, Syverson (2004a, b) provides compelling evidence that these consumer-centred mechanisms raise the market share of the most productive firms in each sector at the expense of less productive competitors. This effect is shown to be particularly strong when spatial differentiation is limited, or products are commodifizing, i.e. becoming more physically similar. Studying changing market structures in the retail industry, Goldmanis, Hortaçsu, Syverson & Emre (2010) find that search cost reductions in e-commerce make it easier for consumers to find firms able to deliver higher quality at the same cost or lower-price sellers, thereby increasing market concentration and skewness in the size distribution.

A non-consumer centered explanation for increases in competition has been proposed by Crouzet & Eberly (2019). They find that the largest and fastest-growing firms in an industry, due to a large overhead cost element to adoption, invest the most in intangible assets. Smaller firms are locked-out of such investments by force majeure because they couldn't possibly. The key point is that intangible assets can create both efficiency gains and barriers to entry at the same time. As Syverson (2019: 16) notes: 'If a company invests in intangibles that allow it to deliver a higher quality product at a lower price (reconfiguring its organizational structure and internal processes, for example), market share will naturally shift toward it, creating coincident growth of intangible intensity and industry concentration.' Along similar lines, Bessen (2017) finds a strong link between investments in proprietary IT software by large firms and rising industry concentration. In this view, within-industry reallocation of output across producers can be traced to differing amounts of intangible investment by firms in the same industry.

Finally, increases in the toughness of product market competition may be due to the growth of platform competition in many industries. As Scott Morton et al., (2019) note: 'These markets often have extremely strong economies of scale and scope due to low marginal costs and the returns to data. Moreover, they often are two-sided and have strong network externalities and are therefore prone to tipping.' For instance, digital products are susceptible to network effects in the sense that the value experienced by one user increases as the number of other users increases (Shapiro & Varian 1998). Further, platform companies often position their business models as a de facto mandatory bottleneck between partners and customers, thereby obtaining higher margins and squeezing other stakeholders. Alternatively, they make all the necessary complements themselves (Arthur 1994). The combination of these features adds up to whopping barriers to entry once an established player operates at a significant scale. As Birkinshaw (2018: 186) puts it simply: 'In a digital economy, the bigger firms are, the bigger they are likely to become.' In essence, the theme that runs throughout all these explanations is the emergence of a "winner takes most" competition. The shift in the nature of competition from competition "in the market" to competition "for the market" appears to have toughened product market competition in recent years. As industries are increasingly characterized by a "winner take most" feature, a relatively small number of firms will be able to capture a very large share of the market by legitimately competing on the merits of their superior productivity. In order to reconnect my analysis here with the "scale" considerations of previous sections, I next review a notable amount of evidence that is consistent with the foregoing analysis.

## 3.4.2 | Emerging Facts on Firm Heterogeneity

Descriptive empiricism suggests that: (i) the average top 500 U.S. firm (by real sales) tripled in size between 1972 and 2015, (ii) growing firm size is accompanied by decreasing churn rates (so-called "persistent dominance").

The average firm size of the top 500 U.S. firms (by sales) has increased substantially over time. The combined global sales of firms in this elite group have tripled from about \$ 4 trillion in 1972 to \$ 12 trillion in 2015 (Autor, Dorn, Katz, Patterson & Van Reenen, 2020). Alongside these changes, sales concentration has increased sharply across a wide range of markets globally, including with regard to all six of the U.S. Economic Census sectors (e.g., Criscuolo, 2018; Gabaix & Landier, 2010; Grullon, Larkin & Michaely, 2017). Further, in 1987 about 29 percent of the U.S. employment share was concentrated in firms with over 5,000 employees, in 2016 this figure has risen to 34 percent (Autor et al., 2020). One interesting fact is that top 500 firms appear to have become larger not through unrelated diversification across industries but, quite the opposite, through a greater focus on their leading line of business. As Autor et al. (2020:13) note: 'We found that the largest firm (by sales) in a four-digit industry in the Census operated on average

in 13 other four-digit industries in 1982, but this number fell to under 9 by 2012.' Echoing these findings, industries are becoming increasingly concentrated by occupational, educational, and ability of employees (e.g., Card, Heining & Kline, 2013; Barth, Bryson, Davis & Freeman, 2016; Hakanson, Lindqvist & Vlachos, 2015). Outsourcing could be playing a key role in explaining how firms reorganize away from full-service production toward a more focused occupation structure (e.g., Bloom, Guvenen, Price, Song & von Wachter, 2019). This is suggestive evidence that firms appear to maximize the sensitivity of their activity-systems to the type of scale in which they have the greatest advantage over their competitors, thereby better penetrating needs and varieties rather than broadening or compromising current market positions. These findings connect perfectly with the idea of position "deepening" explicated in my conceptual framework.

However, growing firm size and concentration does not necessarily mean that there is also inertia associated with these changes at the individual firm-level. For instance, in standard neo-Schumpeterian models of "creative destruction" (Aghion & Howitt, 1992), dominant firms swiftly replace one another. In an auction model of R&D, however, Gilbert & Newbery (1982) demonstrate that incumbent advantages for high market share firms may well create "persistent dominance". Emerging facts on recent changes in performance differences among firms side with Gilbert & Newbery (1982). U.S. Economic Census data clearly show that churning among the largest firms ("creative destruction") has fallen significantly since the 2000 period (Decker, Haltiwanger, Jarmin & Miranda, 2018)<sup>11</sup>. Finding substantially increasing survival rates among U.S. top 500 firms (by sales), Autor et al. (2020: 72) conclude: 'So increasing inequality between firms seems to be accompanied by more persistent dominance rather than greater creative destruction.' This is in line with the broader argument that markets have become "winner"

<sup>&</sup>lt;sup>11</sup> Note that this is precisely the period where concentration has risen.

(and not "loser") take all. Reallocation of economic activity among producers is not a random walk. The most productive, best-managed firms regularly gain market share at the expense of less productive, badly managed firms—and not the other way around. It seems natural to think that these "superstar" firms cannot easily be replaced, they are the best of the best. In fact, examining firm-level data in 24 OECD countries between 2001 and 2013, Andrews, Criscuolo & Gal (2015) find that the productivity gap between frontier firms and laggards is actually widening. They argue that a slowdown in technological diffusion from frontier firms to laggards explains why leading firms have become even better able to protect their commanding positions.

The picture seems clear. Globalization and technological changes appear to be altering the external environment in ways that increasingly shift the nature of competition toward "winner take most" in many industries. Recent firm-level data reveal that a small number of firms are scaling up dramatically, for instance, across the vast bulk of the U.S. private sector, thereby allowing a small number of firms to capture a very large share of the market. A variety of circumstantial evidence indicates that leading firms deepen their strategic positions by reorganizing their activities around a narrower set of occupations rather than expanding their scope over multiple industries where they may lack uniqueness. Above all, however, growing firm size is associated with more "persistent dominance".

# 3.5 | A Conceptual Synthesis

Strategy scholars have long been interested in persistent differences among competitors.<sup>12</sup> However, it has been argued that previous writing on strategy has been essentially an amalgam of work by many scholars and often concerned with internal functions at the

<sup>&</sup>lt;sup>12</sup> Rumelt, Schendel & Teece (1991: 12): 'Some firms simply do better than others, and they do so consistently. Indeed, it is the fact of these differences that was the origin of the strategy concept.'

exclusion of studies that link firm organization to market performance.<sup>13</sup> Synthesizing information from diverse bodies of literature (mostly in Industrial Organization), I propose a conceptual framework that sets out a system-wide perspective on the firm. The basis of this approach is to consider how firm structure, market structure, and productivity interact. According to the framework, leading firms deepen their strategic positions as industries are increasingly characterized by a "winner take most" feature. As globalization and new technologies increase the toughness of product market competition firms get exposed to the forces of the 'between-firm reallocation' effect that moves market share toward the most productive firms. Arguably, a rational firm-level response to external changes of such kind lies in deepening strategic positions. In so doing, firms can "escape competition" by making the company's activities more distinctive and strengthening fit (Porter, 1996). Deepening a strategic position is inextricably bound with upward scale adjustment as scaling is a means of building commitment over time (Ghemawat, 1991). Put differently, deepening a certain market position requires recurrent committed choices about the dynamics of capability creation and accumulation at the individual firm-level.

For instance, to profit from innovation firms may leverage and use their complementary assets to seize new opportunities as they emerge (as in the Teece, 1982, framework). Similarly, to ensure the effectiveness of entry barriers firms often have to make strategic investments that decrease the expected future profits from a target submarket down to a level that deters entry (as in the Gilbert & Newbery, 1982, model). All these activities require recurrent committed choices that must be made and integrated wisely so as to preserve and enhance the company's distinctiveness over time—the dynamic of strategy

<sup>&</sup>lt;sup>13</sup>Addressing this issue, the Editorial Statement of the Business Strategy department at Management Science (2018) emphasises: 'Because we define strategic choices as those with significant competitive implications, the department will eschew papers that focus primarily on internal functions (e.g., finance or marketing), but welcome studies that link firm organization to market performance.'

(Ghemawat, 1991). Therefore, the conceptual model theorizes that competitive advantage is a short run manifestation of a long-run comparative management advantage possessed by the successful firm. This idea is underpinned by significant comparative international studies into the productivity differences across businesses which find that persistent differences in productivity at the firm and the national level reflect variations in *management practices* (e.g., Bloom, Brynjolfsson, Foster, Jarmin, Patnaik, Saporta-Eksten & Van Reenen, 2019; Bloom, Eifert, Mahajan, McKenzie & Roberts, 2013; Bloom, Sadun & Van Reenen, 2012, 2017; Bloom & Van Reenen, 2007, 2011). The connection between strategy and productivity is clear in that recurrent position deepening is coordinated (and enabled) by management practices. Essentially, as a firm scales up it becomes increasingly reliant on teams of managers with complementary entrepreneurial skills to further deepen—through a set of committed choices (Ghemawat, 1991)—the paths the founding entrepreneur has fashioned for the future of the enterprise (Casson, 1982).

### 4 | DISCUSSION

I began my study with the question of how business model innovators (if at all) protect the value of their superior designs against the competitive force of continuing entry. The answer is important because private incentives of firms to innovate are predicated on the share of the value they can appropriate (e.g., Romer, 1990; Aghion & Howitt, 1992; Grossman & Helpman, 1991). Synthesizing literature on strategic positioning and emerging facts on firm heterogeneity, my key insight is that there are incumbent advantages for high market share firms as industries are increasingly characterised by a "winner take most" feature due to globalization and new technologies. Put differently, as the nature of competition shifts toward "winner take most/all" there are disproportionate advantages to be gained from upward scale adjustment compared to prior eras. Hence, to increase the postinnovation rents that reward new business model innovation, the pioneer firm must effectively scale up its operations. The framework sheds some light on how this may be achieved. Prior research conceptualizes business model innovation and design as disconnected from industry structure (e.g., Osterwalder & Pigneur, 2010; Zott & Amit, 2008), and typically lends comparatively less importance to the notion of competitive advantage (e.g., Demil, Lecocq, Ricart & Zott, 2015; Teece, 2010). I contribute a theoretical framework that places the importance of industry structure and competitive advantage for business model design centre stage. In so doing, I refine the activity system perspective of business models, extend the business model approach through integration with a firm scale perspective, and add a more complete, dynamic lens into how business models, market structure and productivity interact. Broadly, the prescription is that a business model ought to be designed in ways that maximizes the activity system's sensitivity to the type of scale in which the firm has the greatest advantage over its competitors, thereby reorganizing around a more specialised set of occupations.

## 4.1 | Insights From a System-Wide Perspective on Business Model Design

A core contribution is an emergent theoretical framework that provides a system-wide perspective on the firm, placing the firm's business model in a performance landscape with exogenous factors affecting business model change and competitive dynamics engendering industry change. In contrast, most contemporary accounts of the theory of the firm emphasise a firm's internal strengths and weaknesses<sup>14</sup> (e.g., Amit & Schoemaker, 1993; Barney, 1991, 1995; Rumelt, 1991; Wernerfelt, 1984) rather than

<sup>&</sup>lt;sup>14</sup> Casson (2000: 60): 'There is considerable emphasis today on firm-specific advantages (or competencies). As a result, the neoclassical concept of a 'representative firm' is rejected because it understates the individuality and character of the typical firm. However, this reaction against the neoclassical approach can be pushed too far. One important advantage of the neoclassical approach is that it directs attention to the wider economic environment in which the firm operates.'

industry structural or other exogenous factors (e.g., Bain, 1956, 1968; Mason, 1939; Porter, 1980, 1985). Yet, recent changes in the boundaries of the firm are best understood as a 'rational response' to what goes on outside the firm, including with regard to the continuing globalisation of the world economy (Casson, 2000: 58). In fact, the determinants of what makes resources valuable remain exogenous to the resource-based view of the firm (Priem & Butler, 2001). As Porter (1991: 108) notes: 'The conditions which make a resource valuable bear a strong resemblance to industry structure.' Therefore, a satisfactory theory of the firm likely needs to move beyond the analysis of the behaviour of a single firm and to consider a set of interacting firms in the midst of an endogenous market structure (e.g., Dasgupta & Stiglitz, 1980). Because the theoretical framework outlined in this paper is the effort of a single scholar it is only a start and is very modest relative to the scale of the problem at hand. Yet, by addressing significant knowledge transfer gaps between the fields of economics and strategy, several "low hanging" insights emerge for scholars interested in designing how firms do business at the system-level.

Above all, if the pioneering business model innovator does not seek scale albeit competing in a "winner take most" competition his chances of enduring success will be tiny. Conversely, if the pioneering business model innovator attempts to seek scale by competing head-to-head with firms who occupy a commanding position, he is likely to face strong exclusionary conduct. These existing firms have not only been able to attain their leading positions by legitimately competing on the merits of their superior productivity (e.g., Autor et al., 2020; Crouzet & Eberly, 2019) but also the strategic incentives to pre-emptively innovate (e.g., Gilbert & Newbery, 1982; Gilbert & Vives, 1986). OECD data demonstrate that leading firms have become better able to protect their advantages (Andrews, Criscuolo & Gal, 2015). U.S. Economic Census data reveals more persistent dominance among top 500 U.S. firms (by real sales) since the 2000 period

(Autor et al., 2020). Echoing these findings, industry and employment data of the U.S. Census Bureau's Longitudinal Business Database confirm that both startup rates and the economic share of young firms have declined significantly since the early 1980s (Decker, Haltiwanger, Jarmin & Miranda, 2017).

The key point that emerges is that "scale" must be understood as a design element in and of itself. The type of scale a firm chooses to perform determines the direction in which future commitment is set to materialize. Caution is warranted if new entrants attempt to establish a position that conflicts with (or is threatening to) the position of an incumbent player that operates at a significant scale. An exception has to be made here if the business model innovator's "exit strategy" is primarily to be taken over by an established firm. In that case, however, business model innovators may be better off by seeking a type of scale that is complementary to the strategic position held by the incumbent, for instance, by solving a specific issue for the incumbent as opposed to competing head to head. Therefore, the firm's type of scale is of paramount importance when designing business models.

In fact, Porter (1980) long ago alerted scholars and managers to the fact that the type of scale a firm has chosen to perform critically conditions how individual value chain activities should be coordinated or integrated. Scale is a crucial determinant of a firm's position relative to rivals and, hence, a firm should manage its activities 'to maximize their sensitivity to the type of scale in which it has the greatest advantage over its competitors' (Porter, 1980: 143). Scale becomes the yardstick to optimally guide or force how the other activities in the business should be weaved together into a system. In other words, scale choices may belong to what Van den Steen (2017), in his formal definition of strategy, refers to as "the smallest set of choices to optimally guide or force other choices". Scale is a critical *activity driver* affecting both cost and benefit advantages

(Porter, 1991) and a key entry/mobility barrier (Porter, 1980). Not thinking about scale when designing a business model is tantamount to not thinking about how the business model interacts with the business models of other firms competing in the marketplace. Ignoring such competitive dynamics, in turn, is why firms regularly employ doomed business models (Casadesus-Masanell & Ricart, 2011). Despite notable recent contributions, none of the several business model conceptualizations that have been proposed considers scale as a distinct design element. The reasoning is likely that these concepts, in an attempt to prove their distinctiveness from strategy, deliberately neglect the importance of industry structure for firm performance. By acknowledging that the business model approach and strategy theory share common intellectual territory (Markides, 2015), I contribute a "new to the literature" business model design element: activity system scale.

This is significant in light of prior research that emphasises activity system content, structure, and governance as the essential design elements of business models (Amit & Zott, 2001, 2012, 2014; Zott & Amit, 2007, 2008, 2009, 2010, 2015, 2016). In this view, all that business model designers need to do is to choose the set of organizational activities (content); design the linkages that weave these activities together into a system (structure); and decide who should perform them, e.g. the focal firm, partners, competitors, suppliers, buyers etc. (governance). My conceptual framework offers an insightful twist to this perspective: It suggests that managerial choices about activity system content, structure and governance must be tailored to and geared towards the type of activity system content, structure, and governance are an outcome, not a primitive. Porter (1980) stresses that the firm should configure and integrate its activities to support the firm's unique and valuable type of scale. The capacity to design content, structure, and governance without the capacity to choose among future alternative types of scale is not

particularly helpful. To date, the business model approach may have helped us understand how firms do business at the system level without helping us understand the prescriptive (managerial) problem of how to choose among alternative future potential types of scale. The firm's type of scale drives content, structure, and governance choices, however, not vice versa. There is no point in designing activity system content, structure, and governance without having figured out the type of scale in which the firm has the greatest advantage over its competitors. The conceptual limitations of the content, structure, and governance perspective of business model design appear to be both basic and significant. Overcoming these limitations will be essential in order to advance understanding of how business model design choices are linked to market performance.

### 4.2 | How to Profit From Business Model Innovation

The foregoing analysis provides an important insight regarding the firm's scope for increasing the postinnovation rents that reward new business model innovations. Business model designers may protect the value of their superior designs by building commitment to a unique and valuable type of scale.

Prior research leaves open to address what makes superior business models difficult to imitate. Business model conceptualisations usually refer to the logic of the firm, the way it operates, and how it creates value for its stakeholders (e.g., Baden-Fuller, Demil, Lecocq & MacMillan, 2010; Casadesus-Masanell & Ricart, 2010). This raises significant issues as threats to appropriability are concerned. If business model innovations become easily shared by multiple competitors, any monopoly rents that reward new business model innovations will be immediately equalized across firms by competition. The transparent becomes a precarious foundation for the sustainability of rents (Rumelt, 1984). We are left with a somewhat troubling accepted view that business model innovation is argued to be a promising source of value creation at the individual firm

level, but its promise diminishes as competitive forces erode the monopoly rents that reward new innovations of such kind. Despite notable recent contributions, the mainstream business model literature tells us next to nothing about how to profit from business model innovation. To me, this is a regrettable lacuna in the business model literature; but it does not seem to perturb the mainstream. In addressing this issue, Teece (2010: 180) suggests: 'Coupling strategy analysis with business model analysis is necessary in order to protect whatever competitive advantage results from the design and implementation of new business models.' In other words, the business model concept needs to be broadened, presumably through integration with a strategy perspective, to explain the performance consequences of business model design choices.

Research in game-theoretic industrial organization has long emphasized the importance of factor stickiness, inherent irreversibility, and scarcity value for competitive advantage (Ghemawat, 1991). In this view, sunk cost commitments or nonrecoverable fees to a particular course of action determine firm-level immobility (Lippman & Rumelt, 1982; Lippman, McCardle & Rumelt, 1991; Tirole, 1988). The importance of immobility for competitive advantage is widely known. As Foss & Knudsen (2004) note: 'Immobility is a necessary condition for, and perhaps the most fundamental determinant of, competitive advantage.' Therefore, scale is a key entry/mobility barrier (Caves & Porter, 1977). Scaling is a means of building commitment over time and as such an important driver of immobility. Hence, by extending the business model concept through integration with a firm scale perspective, the present study contributes an important, new design element to the business model literature —the threat of imitation requires it.

In so doing, my conceptual framework enables me to articulate a more cohesive and integrative theory of business model innovation. Essentially, the proposed conceptual framework marries the design perspective of business models with Porterian industry positioning by disciplining the analysis of the value of novel designs by how they allow firms to perform activities that create advantages in particular markets. As my previous analysis has shown, the outcome of design or "designerly" thinking may not be a durable, specialized, and untradeable factor from a game-theoretic industrial organization-based perspective. Hence, the connection between business model design and competitive advantage is theoretically ambiguous. To be clear, the present study does not suggest that it is design *or* scale, much rather, my conceptual framework suggests that it is design *and* scale. My framework suggests that design and scale are intimately linked concepts in the sense that design if pursued rigorously, must take into account the consequences of design choices against an industry background. In fact, the nature of the interaction among design choices is not an inherent property of those choices but depends on how the consequences of design choices interact with those choices made by rivals. This is the principal idea of strategic positioning (Porter, 1980, 1985). In sum, design and scale are, in a sense, duals of each other.

By deliberately incorporating activity system scale as a distinct design element of business models, business model innovators can think more strategically when designing novel ways of doing business at the system level. By accentuating the value of the focal firm's unique type of scale, innovators may find new ways of creating value for all the stakeholders involved. Scale is a key determinant of immobility and, hence, a key driver of the monopoly rents that reward new innovation. Activity system scale pre-emanates as an important lever for increasing the innovator's postinnovation rents. Profiting from innovation, in turn, is what incentives a private enterprise-system to make significant economic use of the possibilities that the progress of knowledge has revealed (Schumpeter, 1942).

## 5 | CONCLUSION

The business model approach to management has been argued to represent an underutilized source for firm-level value creation with potential to enlarging the existing economic value pie and creating value for all the stakeholders involved (e.g., Amit & Zott, 2012; Casadesus-Masanell & Ricart, 2011; Casadesus-Masanell & Zhu, 2012; Chesbrough, 2010; Markides, 2006; Zott & Amit, 2007). As with product or process innovations, however, private incentives of firms to tap into underutilized sources of value depend on what part of the value created the firm can appropriate (e.g., Aghion & Howitt, 1992; Cassiman & Varnormerlingen, 2013; Grossman & Helpman, 1991; Romer, 1990). The value of the business model concept for management practice is, thus, a function of the business model innovators' capacity to protect the value of their superior designs from the competitive force of continuing entry. Despite the importance of the topic, research in this area is alarmingly thin. To address this gap, I set out a generalizable and normative model that allows business model designers to evaluate their designs against an industry background and other exogenous factors. The framework yields a system-wide perspective that describes how firm structure, market structure, and productivity interact when industries are characterised by a "winner take most" feature. Such a shift in the nature of competition may be attributed to the continuing 'globalization' of the world economy which exposes firms with regional or national scale to global competition or technological advances which increase, for instance, the ease with which consumers can substitute among producers (e.g., Syverson, 2004a, 2004b; Goldmanis, Hortaçsu, Syverson & Emre, 2010). Essentially, the mechanisms through which increases in product market competition elevate the fundamental problem facing business model innovators—extracting profits from superior design—are twofold: First, increases in market toughness increase the rate at which competition equalizes returns that reward new innovation. Second, increases in competition push sales toward the most productive firms, thereby creating a relatively small number of superstar firms with "deep pockets" and the strategic incentives to pre-emptively innovate (e.g., Autor et al., 2020; Crouzet & Eberly, 2019; Furman & Orszag, 2015; Gilbert & Newbery, 1982; Gilbert & Vives, 1986; Tirole, 1977). Both are undesirable outcomes from a business model innovator's perspective. Hence, business model innovators need to consider wisely where in the performance landscape they wish to seek scale. If they come in at a large scale by competing head to head with a superstar firm, they risk becoming the victim of strong exclusionary conduct. Taken together these ideas suggest that innovators may increasingly need to design business models in ways that maximize the activity system's sensitivity to the type of scale in which the focal firm has the greatest advantage over its competitors. Thus, I contribute a "new to the literature" design element of business models: activity system scale. In contrast, prior research has largely focused on activity system content, structure and governance (Amit & Zott, 2001, 2012, 2014; Zott & Amit, 2007, 2008, 2009, 2010, 2015, 2016). As this study notes, however, an activity system's content, structure, and governance are outcomes, but not a primitive. The way how the focal firm weaves its individual value activities together into a system cannot be made independently of activity system scale considerations. The focal firm's future potential type of scale determines how individual activities will be configured and integrated—and not the other way around. In choosing among alternative future potential types of scale the focal firm sets a key trade-off rule that defines how its individual activities will be configured and integrated (Porter, 1996). Overall, in attempting to build further bridges between design theory and central questions in strategy, my conceptual framework and reflections in this paper may be seen as a contribution to what I hope will develop into an integrated theory in the fullness of time.

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# CHAPTER II

# DYNAMIC CAPABILITY AND FIRM SCALE: THE DYNAMICS OF ENTERPRISE-LEVEL SEIZING CAPACITIES\*

**Research Summary:** While much is understood about rising industry concentration, a critical element underlying these dynamics, the connection between dynamic capability and firm scale, has been largely overlooked. Through an in-depth multiple case study of two incumbent firms in the global financial services industry, I induct a theoretical framework that explains how the cumulative, evolutionary character of enterprise-level "seizing" capacities attaches to the firm's scale adjustment process. I theorize that success at engendering a virtuous cycle of scale adjustment provides firms a dynamic-isolating mechanism that is particularly difficult to imitate as the committed choices reflected in the adjustment loop are self-reinforcing. Put differently, success breeds success. Overall, I contribute to dynamic-capability theory building by explicating an indirect relationship between enterprise-level sensing and seizing, mediated by scale.

Managerial Summary: The sustainability of competitive advantage depends critically on firms' ability to scale up in the context of a stable basis of competitive advantage. However, gaps remain as to what it takes for a firm to reliably increase its scale of operations. Studying the growth of two incumbent firms in the global financial services industry, I identify four unique drivers by which firms successfully engender a virtuous cycle of scale adjustment: firm scale, pre-emptive innovation capacities, management practices, and the Schumpeterian "between-firm reallocation" effect that moves market share towards the larger, more productive, and more innovative firms. It is likely the collective advantage gained from these four drivers that undergirds the dynamics of enterprise-level "seizing" capacities.

**KEYWORDS** Dynamic capabilities • Firm differences • Industry concentration • Market power • Scale

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#### **1 | INTRODUCTION**

David Solomon: I would say – and in our industry like others – scale and global is gonna *be a competitive* Larry Fink: It is a paradigm. *Tidjane Thiam:* Yes, it is an advantage. David Solomon: It is a paradigm. Unless you are scale and global you can't Larry Fink: You are out. David Solomon: You are out. So, that has to over time - doesn't mean there can't be nichy players – but has to put a lot more pressure on people that aren't scale and global in any particular business they choose to be in. For a long time, finance was a business where you could get adequate returns if you were the 7th, 8th, 9th, 15th player in a particular segment. That's changed. And by the way that is what mature businesses look like. Go find any other industry with a number of 14 player can get a reasonable return on capital—doesn't exist.

> Bloomberg Global Business Forum, New York, September 26, 2018

Strategic management as a field of inquiry does revolve around the central notion of the search for competitive advantage (e.g., Schendel, 1996; Rumelt, Schendel & Teece, 1991). Arguably, the dynamic capabilities perspective has emerged as one of the most influential theoretical lenses in the study of the sources of superior long-run business performance (Teece & Pisano, 1994, Teece et al., 1997, Eisenhardt & Martin, 2000). As Teece (2007: 1320) notes: 'The ambition of the dynamic capabilities framework is nothing less than to explain the sources of enterprise-level competitive advantage over time and provide guidance to managers for avoiding the zero profit condition that results when homogeneous firms compete in perfectly competitive markets.' In this view, the fundamental problem facing firms is the "within-firm" effect that drives down cost-price margins when competition rises. To avoid the "zero-profit trap" of competitive equilibrium, the literature has focused almost exclusively on dynamic capabilities that make organizations adaptable and may facilitate the transition from one basis of

competitive advantage to another (for a recent critic, see Knudsen, Levinthal & Winter, 2014 or Pisano, 2017). It is precisely here, where the current study cuts into the problem.

While I acknowledge the importance of enterprise-level sensing, seizing, and reconfiguring capacities for superior long-run business performance, I take issue with the view that the "within-firm" effect, in fact, describes the fundamental problem facing firms-the "within-firm" effect is regularly offset by the "between-firm reallocation" effect. As Van Reenen (2018: 21) notes: 'For any individual firm a rise in competition will mean its price-cost margin tends to fall (and labor share of value-added rises) when market toughness increases. But offsetting this "within firm" effect is the "between firm reallocation" effect that moves more market share towards the high margin, larger, more productive firms when competition rises.' In this view, a small number of firms gain a very large share of the market by legitimately competing on the merits of their superior productivity (Autor, Dorn, Katz; Patterson & Van Reenen, 2020). Indeed, the evidence of reallocation has been confirmed over and over in several studies (Bagaee & Farhi, 2017; Brennan, 2016; De Loecker & Eeckhout, 2017; Grullon, Larkin & Michaely, 2016; Gutierrez & Philippon, 2017; Hall, 2018; Hartman-Glaser, Lustig & Zhang, 2016). As De Loecker and Eeckhout (2018:10) note: '[A] substantial share of the increase in average weighted markups is due to the reallocation of market share from low to high markup firms.' Accordingly, aggregate markups and industry concentration have been rising across a wide range of markets, including with regard to all six of the US Economic Census sectors (e.g., Autor, Dorn, Katz, Patterson & Van Reenen, 2017, 2020; Criscuolo, 2018; Gabaix & Landier, 2010; Grullon et al., 2016).

To date, dynamic capability theory may have helped us understand the properties that make organisations adaptable, without helping us understand the prescriptive (managerial) problem of "between-firm reallocation". This is particularly worrying as globalization or technological trends appear to advantage the most productive firms so that a small number of firms gain a very large share of the market (Autor et al., 2020; Van Reenen, 2018). Despite important advances, dynamic capability theory tells us next to nothing about the important role played by firm-level "productivity" as a driver of growth in market share, employment, profits, and difficult-to-imitate positive differentiation. The reasoning is likely that the Teecian framework, by taking a heterodox economic approach, rejects the efficiency-based theory of the firm emphasized in mainstream economic theory. As Teece (2019: 2) notes: 'Efficiency-based economic models outline arrangements that, in practice, are relatively easy to imitate and that therefore cannot support durable firm-specific performance advantages even though they might aid productivity.' The assumption here is that heterogeneous productivity rooted in managerial and technological capabilities transfers easily between firms.

This assertion, however, does not stand up to serious analysis. Significant comparative international studies into the productivity differences among firms report that the large (and increasing) differences between firms stem, in the main, from heterogeneous productivity that does *not* transfer easily between firms (Ábrahám & White, 2007; Bloom, Brynjolfsson, Foster, Jarmin, Patnaik, Saporta-Eksten & Van Reenen, 2019; Eaton & Kortum, 2002; Foster, Haltiwanger & Syverson, 2008; Hsieh & Klenow, 2009; Melitz, 2003; Syverson, 2004). As Syverson (2011: 327) notes: '[Economists] have documented, virtually without exception, enormous and persistent measured productivity differences across producers, even within narrowly defined industries. The magnitudes involved are striking.' More recently, Decker, Haltiwanger, Jarmin, and Miranda (2018), as well as Andrews, Criscuolo, and Gal (2015), provide compelling evidence that the productivity gap between "frontier firms" and others is *widening*, i.e. the pace of technological diffusion has slowed. In sum, it seems more natural to think that productivity (not adaptation) and the between-firm reallocation effect (not the within-firm effect)

circumscribe the fundamental problem facing firms. Therefore, I do disagree with the contrafactual Teecian statement that efficiency-based theories of the firm outline arrangements that, in practice, are relatively easy to imitate. And that matters.

While the dynamic capability literature has mounted an enormous effort to understand the properties that make organizations adaptable, the connection between dynamic capability and firm scale has been largely overlooked. To illustrate the significance of this point: The average size of the largest 500 U.S. firms as measured by real sales, between 1972 and 2015, has tripled and grew by a factor of six in terms of real market value (Autor et al., 2020). At the same time, the increases in firm scale have been accompanied by an increasing persistence, i.e. declining turnover, as the probability that a U.S. top 500 firm (by sales) was also in that category five years earlier rose from 66 percent to 80 percent between 2000 and 2015 and the ten-year survival rate of top 500 firms rose from 55 percent in 2005 to 68 percent in 2015 (Autor et al., 2020; Decker et al., 2018). As Van Reenen (2018: 11) notes: 'If anything, firms in the top group in one Census year are increasingly likely to remain there five years later (so-called "persistent dominance").' Arguably, these stylized facts are suggestive evidence that leading firms--once they turn into dominating superstars—often do maintain "evolutionary fitness". In other words, there appears to be a connection between a firm's scale and the strength of its dynamic capabilities. It is, hence, the fact of the persistence of dominant firms across a wide range of markets that requires us to make progress on the fundamental question of how dynamic capabilities shape competitive advantage really.

In so doing, I join forces with Pisano (2019) and Winter (2018) in arguing that dynamic capabilities are likely to be strategically significant only among large firms. As Pisano (2019: 420) notes: 'I want to return to the issue of scale highlighted by Winter. ... After reading his review, I have to concur completely. ... He rightly points out that the capacity

to create new competencies (i.e. dynamic capabilities) matters most for the largest enterprises.' Arguably, the substantial challenge is to understand the distinctive mechanisms through which dynamic capabilities intermediate the relationship between firm scale and (sustainable) competitive advantage. Thus, I ask: *How does operating at the top of the global firm size distribution affect firms' dynamic capability to "seize" potentially profitable opportunities?* 

Given this limited theoretical understanding, I conducted a multiple case theory-building study (Eisenhardt & Graebner, 2007). My setting is the global financial services industry. Using rich field and archival data, I investigated how two high market share firms that operate in the same two-digit industry in finance, as reported by Compustat, maintained "persistent dominance". The sampled firms are direct rivals, operate in similar market segments, serve roughly similar customer value propositions in very similar geographies, and so create a revealing comparison of the importance of scale and its performance impacts.

My key finding is that the cumulative, evolutionary character of enterprise-level "seizing" capacities attaches to the scale adjustment process of the individual firm. Relating my empirical findings to existing theory (Eisenhardt, 1989), a number of extant concepts have "earned their way" into my full conceptual synthesis of opportunity seizing underpinnings (Figure 2.2). I identify that the strength of opportunity seizing capacities depends critically on the collective advantage a firm may capture from longitudinal linkages among four scale adjustment drivers: current firm scale, pre-emptive innovation capacities, management practices, and Schumpeterian between-firm output reallocation. First, my study reveals rich links between firm scale and pre-emptive innovation capacities. Operating at significant scale has been shown to elevate the availability of internal sources of funding and, by allowing for higher risk-bearing capacities, generate

options for growth. Second, my study shows that strong management practices are required to realise latent pre-emptive innovation advantages. Leveraged rigorously, these two levers are likely to promote firm-level productivity, and, through between-firm reallocation, market share gains on behalf of the focal firm.

This final proposition implies that the four inducted drivers of scale adjustment are circular, i.e. "success breeds success". Put differently, firm scale, pre-emptive innovation capacities, management practices and the between-firm component of the Schumpeterian tradition are intimately linked through integration into a self-reinforcing value loop. Interestingly, through continued iteration of the scale adjustment loop, the configuration of scale-adjustment drivers should be expected to provide a dynamic-isolating mechanism that is particularly difficult to imitate as the choices reflected in the scale adjustment process are self-reinforcing (Casadesus-Masanell & Ricart, 2011; Milgrom & Roberts, 1995; Porter & Siggelkow, 2008). In this light, the present study strives to isolate superior productivity in deploying the pre-emptive innovation capacity of the individual firm as a general-purpose management competence underlying difficult-to-imitate positive differentiation. Broadly, my findings are consistent with significant comparative international studies reporting that persistent differences in firm performance—including with regard to productivity, growth, and innovation-do reflect variations in management practices (e.g., Bloom, Brynjolfsson, Foster, Jarmin, Patnaik, Saporta-Eksten & Van Reenen, 2019; Bloom, Eifert, Mahajan, McKenzie & Roberts, 2013; Bloom, Sadun & Van Reenen, 2012, 2017; Bloom & Van Reenen, 2007, 2011; Schmitz, 2005). Similarly, Pisano (2019: 420) notes: '[G]eneral-purpose management competences lie at the heart of the ever-illusive thing called dynamic capabilities.'

Several important theoretical insights emerge from my analysis. First, my study contributes to dynamic capability theory building by explicating the cumulative, evolutionary character of enterprise-level "seizing" capacities. In this respect, I attend to and deal with the fact that many firm capabilities are not simply a scale-free attribute (Levinthal & Wu, 2010) but develop over time through a series of cumulative, coordinated, and committed choices (e.g., Ghemawat, 1991; Nelson & Winter, 1982; Pisano, 2017, 2019; Winter, 2018). My study is the first to suggest that non-scale free characteristics apply not only to "ordinary" but also to "dynamic" capabilities. Second, my study contributes to the evolutionary economics perspective of industry evolution by revealing the dominant firm's capacity to pre-emptively innovate, foreclose existing rivals and exclude entry. Hence, my findings contrast sharply with the "incumbents' curse" perspective postulating an inherent built-in competitive disadvantage of incumbent firms in the face of fast-moving business environments open to global competition (e.g., Henderson & Clark, 1990; Christensen, 1997; Dosi, 1982; Tushman and Anderson, 1986; Benner & Tripsas, 2012). Finally, while the received dynamic capability research often holds the primacy of adaptation for superior long-run business performance, my research contrasts this view by suggesting an important role for upward scale adjustment. Consistent with, among others, Knudsen, Levinthal & Winter (2014) my study reveals that upward scale adjustment substitutes for established ways to compete in environments where the basis of competitive advantage is stable. My research thus begins to develop a more nuanced understanding of upward scale adjustment as a multilevel, interrelated process that is initiated by entrepreneurial choice (Casson, 1982) and maintained through general-purpose management competences (Bloom et al., 2019). In so doing, I refine the concept of dynamic capabilities to include a firm size perspective, add a more dynamic lens to the evolution of "seizing" capacities, and advance reasons for believing that high market share firms are well-positioned to reliably scale up, provided their idiosyncratic pre-emptive innovation capacities join forces with strong management practices.

#### 2 | BACKGROUND

The aim of this section is to briefly review two seminal frameworks in the strategy literature that address the puzzle of persistent intraindustry differential firm performance. I then confront these frameworks with insights from a rapidly growing, highly cited literature in economics around emerging facts on recent changes in intra-industry differential firm performance and their macro-economic implications. In so doing, I aim to provide an update on empirical evidence on firm-level heterogeneity and "set the scene" for a more nuanced view of the causes of heterogenous organizational performance. Informed by this analysis, I derive my research question.

Strategic management as a field of inquiry, broadly construed, examines how managerial choices impact firm performance, with special attention paid to the factors associated with sustained intraindustry profit differentials among firms (Rumelt, Schendel & Teece, 1994). Historically, Schmalensee (1985) was the first to disentangle explanations of persistent firm performance differences into industry effects, market share effects and corporate-parent effects. Building on Schmalensee's findings, Rumelt (1991), McGahan and Porter (1997), and McGahan (1999) identified an even more puzzling finding, business effects were found to be approximately twice as significant as compared to industry effects in explaining performance. Acknowledging this observation, strategy scholars have shifted their initial question from 'Why do firms perform differently?'

Taking an Industrial Organization perspective, Richard Caves and Michael Porter (1977) long ago alerted scholars and managers to believe that sustained intra-industry profit differentials are best viewed in terms of the theory of mobility barriers. Since then it has become widely known across a broad set of industries that the creation of superior strategic positions is foundational to establishment performance and the hallmark of strategy (Caves & Porter, 1977; Porter, 1980, 1985). Subsequent efforts to provide a more dynamic account of how firms attain, and not only perceive, superior market positions have centred, for instance, on the notion of commitment (Caves & Ghemawat, 1992; Ghemawat, 1991). In this view, there are four causal factors of commitment—lock-in, lock-out, lags, and organizational inertia—that underly the constrains that are imposed by past choices on present ones. Overall, the IO school of thought has laid the foundations of *competitive strategy* as a field of inquiry and established a concept of durable conditions that yield excess profits to favourably situated firms that cannot profitably be imitated by their competitors.

This seminal perspective around the importance of strategizing for competitive advantage has lately been challenged, however, by leading scholars in the field of strategic management. As Teece and colleagues (1997: 509) note: '[Dynamic capabilities] are generally more fundamental to private wealth creation than is strategizing, if by strategizing one means engaging in business conduct that keeps competitors off balance, raises rival's costs, and excludes new entrants.' Whereas dynamic capabilities may be usefully thought of as encapsulating enterprise-level sensing, seizing, and reconfiguring capacities (Teece, 2007). This perspective contends that substantial increases in market toughness have eroded the explanatory power of the theory of mobility barriers (Teece et. al, 1997). Whereas increases in market toughness are largely associated with the emergence of (1) regimes of rapid technology change (e.g., Anderson & Tushman, 1990; Christensen, 1997; Christensen & Bower, 1996; Weill & Woerner, 2013), (2) globally dispersed sources of invention, innovation, and manufacturing capability (e.g., Bettis & Hitt, 1995), (3) hypercompetition (e.g., D'Aveni, 1994; D'Aveni et al., 2010; McGrath, 2013; Wiggins & Ruefli, 2005). In fact, Teece (2007: 1319) highlights that the ambition of the dynamic capability's framework is to provide guidance to managers for escaping 'the zero profit tendency associated with operating in markets open to global competition.' It is precisely here, where the recent economics literature on firm heterogeneity cuts into the problem.

In sharp contrast to the asserted "zero profit tendency" that were associated with fastmoving business environments open to global competition, emerging facts on intraindustry differential firm performance demonstrate that differences between firms remain large and, in fact, have been substantially increased in recent decades (e.g., Autor, Dorn, Katz, Patterson & Van Reenen, 2020; Bloom, Guvenen, Price, Song & von Wachter, 2019; Van Reenen, 2018). Firm-level data suggests that this trend has been driven by a relatively small number of so-called "superstar" firms in the upper tail of the global firm size distribution that is able to extract increasingly large markups (e.g., Autor et al., 2020). Associated with these patterns are concerns that product market power has risen substantially which is a potential explanation for current macro-economic phenomena such as the falling labour share of GDP, sluggish productivity growth and declining business dynamism (Grullon et al, 2017; Kleiner & Krueger, 2013). A more nuanced view suggests that product market power may have risen not due to relaxed antitrust rules or rising regulation and associated generalized weakening of competition, but due to a shift in the nature of competition where many industries have become "winner take most/all" due to globalization and new technologies (Autor et al., 2020; Van Reenen, 2018).

Interestingly, it is the Industrial Organization perspective, and not the dynamic capabilities framework, that may explain the discussed firm-level and macroeconomic phenomena. The reasoning here is that the Teecian framework expressly neglects the importance of scale and industry structure so emphasized in neoclassical industrial organization theory. As Teece (2019: 6) highlights: 'Fundamentally, though, the S-C-P paradigm and Porter's Five Forces variant are not widely applicable because any

supracompetitive profits are due to a small number of firms and industry-level structural factors.' Emerging facts on firm heterogeneity, however, side with the S-C-P paradigm and, hence, Porter (e.g., Ramey, 2018; Van Reenen, 2018). It has been confirmed over and over in several studies that "a small number of firms" are able to gain increasingly large supracompetitive profits (e.g., Baqaee & Farhi, 2017; Brennan, 2016; De Loecker & Eeckhout, 2017, 2018; Grullon, Larkin & Michaely, 2016; Gutierrez & Philippon, 2017; Hall, 2018; Hartman-Glaser, Lustig & Zhang, 2016). For instance, focusing on recent trends toward rising markups and industry concentration, Díez, Leigh & Tambunlertchai (2018:16) note: 'Corporate level data suggest that these trends have been driven by a relatively small number of "superstar" firms in the upper tail of the distribution that is able to extract increasingly large markups.'

Hence, caution is warranted when assuming a strong link between core assumptions in dynamic capability theory and emerging facts on firm heterogeneity. Whereas the Teecian framework assumes that increases in market toughness result in the "zero-profit trap" of competitive equilibrium, increases in competition appear to widen (not narrow) performance differences between firms. As Van Reenen (2018: 20, italics in original) notes: 'An important insight from classic debates in Industrial Organization between Bain (1956) and Demsetz (1973) over the Structure-Conduct-Performance paradigm (see Schmalensee, 1987) has been lost in many recent discussions. Increases in market toughness can go hand in hand with many of the trends we have documented. ... Hence, an increase in competition could easily lead to *rising* concentration.' In this respect, the criticism of the conventional Industrial Organization view from a dynamic capabilities-based perspective around the declining importance of strategizing in the face of increasing market toughness seems to have little force, particularly when one is considering some of the emerging facts on firm heterogeneity, especially in terms of recent changes.

One way of reconciling these different theoretical views is to postulate that the process of mobility-barrier-creation is a dynamic capability. This argument builds on two interrelated ideas. First, 'scale is a key entry/mobility barrier, and the cost of replicating scale is often high because competitors must buy share' (Porter, 1985: 112). Second, firms' ability to reliably increase their scale of operations is a dynamic capability (e.g., Winter, 2009; Winter, 2003; Winter & Szulanski, 2001). As Knudsen, Levinthal & Winter (2014: 1582) more recently note: 'While the literature has focused in recent years on dynamic capabilities that may facilitate the transition from one basis of competitive advantage to another, the arguably simpler dynamic capability to scale up in the context of a stable basis of competitive advantage is itself quite critical.' In fact, Knudsen, Levinthal & Winter (2014) demonstrate that upward scale adjustment is an important attribute of competition that puts sustained pressure on rivals and provides firms with what they refer to as a 'dynamic-isolating mechanism.' Recall, the notion of 'isolating mechanisms' defines the essential theoretical concept for explaining the sustainability of rents in the resource-based framework (Rumelt, 1984). The relationship between the static notion of mobility barriers and the dynamic capability framework is clear in that upward scale adjustment is not only a dynamic capability but also a means of building commitment over time. By explicating the dynamic of strategy, the concept of commitment connects naturally with the concerted intellectual efforts of scholarly research on dynamic capabilities to dynamize the evolution of capabilities instead of treating them as fixed factors (Ghemawat & Cassiman, 2007).

Together, these research streams suggest that upward scale adjustment ought to become a managerial priority as globalization and new technologies shift the nature of competition in many industries toward winner take most/all, i.e. there is increasing competition "for the market" rather than "in the market". However, recent research on dynamic capabilities has mounted an enormous effort to understanding organisational adaptation, i.e. the transition from one basis of competitive advantage to another. As Pisano (2017: 747) notes: 'Unfortunately, the literature on dynamic capabilities has become mired in endless debates about definitions and has engaged in an elusive search for properties that make organizations adaptable.' While understanding the capability to adapt seems intriguing, it remains unclear how and why "size matters" in the context of dynamic capabilities. As Winter (2018: 2, italics in original) notes: 'I advance reasons for believing that dynamic capabilities are likely to be strategically significant only among large firms and are primarily important among *very* large firms.' Indeed, the substantial challenge is likely to understand how dynamic capabilities intermediate the relationship between firm size and performance. Thus, I ask: *How does operating at the top of the global firm size distribution affect firms' dynamic capability to seize potentially profitable opportunities?* 

#### 3 | METHODS

Given the limited theory and evidence, I conducted a theory-building, multiple-case study (Eisenhardt & Graebner, 2007). This method is particularly relevant for research questions such as mine that are rooted in the tradition of the "Structure–Conduct–Performance" literature of Bain (1956) and Demsetz (1973). Recall, detailed case studies were the hallmark of that early literature (for a recent emphasis, see Ramey, 2018). Further, qualitative research in strategy is a fertile research method in its own right. As Porter (1991: 99) notes: 'Academic journals have traditionally not accepted or encouraged the deep examination of case studies, but the nature of strategy requires it.'

The research setting is the global financial services industry. This is an appropriate setting for several reasons. First, emerging facts on firm heterogeneity provide compelling evidence that the fraction of total sales accruing to the four largest firms in four-digit industries in finance has followed a remarkably consistent upward trend from 24% to 35% between 1982 to 2012 (Autor et al., 2020). In this light, the global financial services sector represents an intriguing setting for research questions such as mine that address the connections between dynamic capability and firm scale. Second, the financial services industry is a large market. In an interesting paper, Syverson (2004) shows how larger market sizes (and therefore higher competition) accelerate the Schumpeterian "between-firm reallocation" effect that moves output away from less productive firms towards more productive firms. As a consequence, the bottom tail of low productivity firms tends to be weeded out much faster in larger markets. The key point is that the chosen setting allows for the possibility of sustained between-firm output reallocation. Third, the financial services sector is a main driver of macroeconomic growth, employment generation, and an important determinant of dimensions of nation-building. Fourth, the industry is very well-documented by the media.

The current study chose a sample of two firms. Both are listed among the four largest firms (by sales) within two-digit SIC industries for finance as reported by COMPUSTAT. In so doing, I allow for rigorous data collection as these firms, given their large size, are relatively intransparent and less easily studied than smaller firms (e.g., Danneels, 2012; Tripsas & Gavetti, 2000). I tracked these firms from 2015 to 2019. This period captures the chronology of specific choices of firms and their consequences with respect to firm growth particularly well as many financial institutions have had to restructure their business models for sustained growth in the aftermath of the 2008/2009 global financial crisis.

The study chose large firms for four reasons in particular. First, the growth of large firms is a critical element underlying the general pattern of industry dynamics and, as such, an important source of heterogeneity in performance differences among firms (e.g.,

Knudsen, Levinthal & Winter, 2014). Second, there has been an increase in many dimensions of firm heterogeneity, including with regard to firm size, in recent years (e.g., Autor et al., 2020; Bloom, Guvenen, Price, Song & von Wachter, 2019; Van Reenen, 2018). Third, scale is arguably a salient feature of a firm's capability investment behavior (Pisano, 2019; Winter, 2018). Therefore, intellectual efforts, such as mine, to understand how opportunity *seizing* capacities shape competitive advantage most usefully deal with large firms. Fourth, and more generally, large firms and the largest firms, in particular, are those 'to whom society has *de facto* delegated a central responsibility for making significant economic use of the possibilities that the progress of knowledge has revealed' (Winter, 2018: 1181). Put differently, the study of large firms is a fertile research area in its own right.

#### 3.1 | Data Sources:

I used several data sources: (a) semi-structured interviews with focal firm executives, (b) interviews with industry experts, (c) informal follow-up interviews, and (d) archival material (Table 2.1). A particularly valuable archival source is 100 interviews conducted by journalists and analysts with executives between 2015-2019. The focal-firm interview had three sections. The first briefly covered the informant's background and role. The second was a detailed analysis of the specific activities in the value chain where comparative advantage linked to size or volume shape the focal firm's competitive advantage. My goal was to understand the linkages between firm size and competitive advantage and, explicitly, the various environmental contingencies that mediate this relationship. These contingencies included but were not limited to, technology change and globalisation and associated potential shifts in the nature of competition toward winner take most/all. I then tried to explicate the distinctive features of the focal firm's about

(1) the choice of the type of scale to be performed, i.e. determining the direction in which future commitment is set to materialize and (2) the organization of scaling, i.e. the sourcing of the necessary knowledge, resources and capabilities required to carry out the committed choices made.

I took several steps to ensure data validity. First, I attempted to collect more accurate information by using nondirective questioning. Second, I made an effort to capture dynamics by asking informants to walk me through a step-by-step chronology of events, so-called "event-tracking" (Eisenhardt, 1989). Third, I interviewed multiple informants inside each firm and targeted varied functional and hierarchical levels. In so doing, I attempted to bridge potential hierarchical silos or cognitive hierarchies, thereby advancing a potentially more accurate understanding than, for instance, a "board members only" or "middle managers only" approach can provide. Fourth, I also interviewed non-focal firm participants, explicitly senior partners, directors, managing directors, regional leaders as well as numerous global leaders from worldwide management consulting firms to strengthen my data set and allow for more rigorous triangulation. For this reason, I also interviewed informants from an industry where innovation likely plays a pivotal role—the pharmaceutical industry. These interviews were adjusted to fit the informant and allowed me to triangulate insights of focal-firm informants and improve my understanding of the industry and its evolutionary character. Fifth, anonymity encouraged informants to speak openly, yielding more accurate information. Sixth, I collected in-depth archival data including press articles, company press releases, books, conference presentations, and analyst reports for triangulation purposes. Finally, I collected press related to firm executives as well as publicly available interviews with them (e.g., Bloomberg Surveillance).

#### 3.2 | Data Analysis and Theory Building:

I began my analysis by familiarising myself with each case on a stand-alone basis, thereby facilitating the theoretical patterns of each case to emerge (Eisenhardt, 1989). I focused on information that was emphasised by informants and was consistent with my other data sources. Sometimes details were missing, I then attempted to obtain archival information or close information-gaps by conducting follow-up emails or phone calls. I then identified emergent patterns by analysing each case through the lens of my research question revolving around the connection between firm scale and dynamic capabilities. A key challenge was to identify the right level of abstraction to answer my research question. I soon recognized that the concept of opportunity seizing is a very high-level construct that requires, to be addressed, a system-wide perspective. My key insight was that the firm's capacity to seize potentially profitable opportunities cannot be examined independently of industry structure. For instance, the focal firm's opportunity seizing capacity critically depends on its scale relative to rivals.

After completing within-case analysis, I conducted a cross-case analysis using replication logic in which cases serve as discrete experiments and emerging patterns (inducted from within-case analysis) are compared across cases (Eisenhardt & Graebner, 2007). In principle, this could lead to disconfirmation of some, if not all, of the emerging theoretical insights. My inducted model, in turn, proved to be more robust and was generally confirmed across cases. This was mainly due to the fact that the model does reflect a significant degree of abstraction. The difficulty, of course, lies in managing the trade-off between an accurate description of the real world and the development of a simple and traceable model that provides generalisable theoretical insights and that offers a sufficient detachment from the idiosyncratic contingencies of the particular cases at hand. Having considered this trade-off, I concluded that my firm-level findings can essentially be

subsumed in 4 key factors: firm scale, pre-emptive innovation capacities, management practices, and between-firm reallocation. However, an emergent finding also pointed to the importance of industry structure. Thus, I extended my firm-level analysis to also account for three additional factors: exogenous factors, competition, and industry change. This approach naturally derived from my interviews, both with internal and external informants. More often than not my interviewees blended firm-level and industry level as a unit of analysis. For instance, interviewees stressed that industry consolidation is driven by large firm dynamics, thereby revealing the firm's scope for influencing industry structure. I then went back and forth between the emergent theoretical framework and my data to clarify constructs, adjust abstraction, and strengthen the underlying logical arguments that connected constructs.

As my theoretical insights became more refined, I referred to prior literature to compare my findings with existing research, before turning back to the data. Interestingly, my empirical findings almost exclusively let me compare my data with existing research in economics rather than strategy. For instance, my data suggests that there is a shift in the nature of competition toward winner take most, thereby elevating the importance of scale for competitive advantage. I compared these findings to contemporary research in strategic management but was largely left bereft of notable reference points. In sharp contrast, the recent macro market power literature in Industrial Organization provided a most useful basis to anchor my theoretical model. I discovered that many of my emergent theoretical insights were directly speaking to large-scale quantitative evidence documented by this rapidly growing, highly cited literature in economics. For instance, I identified a working paper by Autor, Dorn, Katz, Patterson & Van Reenen (2017) that argued in favour of a shift in the nature of competition toward winner take most. By the time I had completed my study, the paper was forthcoming in the Quarterly Journal of Economics. Because of the match between my data and a highly robust set of emerging facts on firm heterogeneity, I was confident that I had reached data saturation and no further data needed to be collected.

Overall, I attempted to follow a well-developed set of methodological ground rules for case-study based research encapsulating the iterative process of refining insights, building underlying logical arguments, and relating them to existing theory (Eisenhardt, 1989). In this way, a number of first-order concepts have "earned their way" into the data structure graph of my inductive model of opportunity "seizing" underpinnings (Figure 2.1). The general pattern of the figure, including with regard to the use of dynamic capability underpinnings as a second-order theme, has recently been proposed by Zott and Huy (2019).

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# **TABLE 2.1** Data by Cases & Informants

	Sample				Interviews				Are	chival Documents
Cases	Market Capitalisation	<b>Business Description</b>	Board Member	Global Head of Strategy & Managing Director	Regional Head & Managing Director	Director	Head of Department; Team Lead	Total	Number	Examples
Internal Informants								22	1049	
Alpha	> \$40B	Financial Services	-	1	3	7	1	12	550	Business Press; Interviews:
Beta	>\$30B	Financial Services	1	1	2	6	-	10	499	Company Reports; Annual Reports
External Informants: A							1	7	179	
Gamma	> \$15B	Financial Services	1	-	1	1	-	3	61	Business Press;
Delta	> \$90B	Pharmaceuticals	1	-	-	1	-	2	53	Interviews;
Epsilon	>\$200B	Pharmaceuticals	1	-	-	1	-	2	65	Annual Reports
	Sample				Interviews				Are	chival Documents
Cases	Annual Revenue	Business Description	Global Leader & Managing Director & Senior Partner	Regional Leader & Managing Director & Senior Partner	Director & Senior Partner	Senior Partner	Partner	Total	Number	Examples
External Informants: B	_	-						16	102	
Consulting 1	> \$3B	Management Consulting	3	1	1	1	-	6	45	
Consulting 2	>\$3B	Management Consulting	1	2	-	2	-	5	26	Company publications
Consulting 3	>\$3B	Management Consulting	-	2	1	-	2	5	31	

### FIGURE 2.1 Data Structure



#### **4 | EMERGENT THEORETICAL FRAMEWORK**

Recent scholarship in economics provides compelling evidence that a relatively small number of firms in the upper tail of the global firm size distribution are gaining market share, even within narrowly defined industries (e.g., Autor et al., 2020; Criscuolo, 2018; Gabaix & Landier, 2010; Grullon et al., 2017). In the presence of dynamically changing markets laced with volatility, this is suggestive evidence that high-market share firms do have a superior opportunity "seizing" capacity. Consistent with this view, scholarly interest is shifting from examining the characteristics of dynamic capabilities as a source of competitive advantage to understanding the connections between dynamic capability and firm scale (Pisano, 2017, 2019; Winter, 2003, 2018). To obtain a less incomplete understanding of this matter, I induct a theoretical framework clarifying the longitudinal linkages among scale adjustment choices and the cumulative, evolutionary character of enterprise-level "seizing" capacities. I induct the following scale adjustment determinants: firm scale, pre-emptive innovation capacities, management practices, and between-firm output reallocation. Embedding all these issues in a common framework that accounts for competition and industry structure, I clarify the connections between them (Figure 2.2). The pattern of the figure reflects the nature of the synthesis attempted in this section. By grounding the figure's components—and their linkages—in the received literature, I identify and address notable knowledge transfer gaps between the fields of economics and strategy, and so derive a unique synthesis of information in regard to the cumulative, evolutionary character of enterprise-level seizing capacities. The individual theoretical components of the emergent theoretical framework may not be unique, but to the best of my knowledge, the synthesis is. Above all, I find that the dynamics of opportunity "seizing" capacities attach to firms' scale adjustment process.

The reasoning is roughly this: Strategic choice ought to be modelled under liquidity constraints. My findings reveal that success at engendering a virtuous cycle of scale adjustment lifts (at least in part) the liquidity constraints in strategic choice and so activates a dynamic-isolating mechanism that is particularly difficult to imitate as the committed choices reflected in the adjustment loop are self-reinforcing. Following the data structure outlined in figure 2.1, I next introduce the inductive model of opportunity "seizing" underpinnings (Figure 2.2), present my data tables (2.2-2.6), and elaborate the framework's distinctive features with reference to emergent theory and evidence.

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FIGURE 2.2 Inductive Model of Enterprise-Level "Seizing" Underpinnings



<sup>\*</sup> Casadesus-Masanell & Ricart (2010: 104): 'Above all, successful business models generate virtuous cycles, or feedback loops, that are self-reinforcing. This is the most powerful and neglected aspect of the business model.'

<sup>\*\*</sup> Porter (1991: 101): 'The firm's scope for influencing industry structure, and ways of modelling it, are a fruitful area for research.'

### **TABLE 2.2** Business Model Driver

A: Exogenous Business Model Drivers	Underpinning and N	Moderating the Scale	Adjustment Process	at the Individual Firm-Level

Business Model Driver: Zero-Level	Concept Definition	Illustrative Quotes
World Economic Growth	"Economic growth and development are dynamic processes, focusing on how and why output, capital, consumption and population change over time. The study of economic growth and develop- ment therefore necessitates <b>dynamic</b> <b>models</b> ." (Acemoglu, 2007: 38)	"If you look at the world economy from 2006 to 2016, you look at personal financial assets—people who have more than one million dollars—their assets have gone up by 26 trillion dollars, 17 in emerging markets, 9 in developed economies and <b>that drives our strategy</b> . That wealth is the wave we are riding. That is a very long-term structural wave and the way we grow, you know, it is a derivative of that wealth creation. So, our scale is going to come over time I really think that if we are riding a secular wave that compounded organic growth that is enormous The power of 15 percent per annum. If you can grow at 15 percent per annum, you double every four years The power of exponentiation and compounding is enormous. And that is, I think, <b>how you get to scale</b> . That is what I did at [firm x]. We multiplied the company by five. We can do the same thing at [Beta]." (CEO at Beta)
Business Model Driver: Higher-Order	Concept Definition	Illustrative Quotes
Economic Policy "T Uncertainty ec aff po (B Ro	"The payoffs associated with private economic decisions are increasingly affected by <b>government activities and</b> <b>policies</b> that are subject to change." (Baker, Bloom, Canes-Wrone, Davis & Rodden, 2014: 57)	"Economic growth and all the underlying secular trends supporting wealth creation around the globe are still intact. Having said that, when you look at some <b>geopolitical and geo-economic tensions</b> are re-con- verging into a potential cocktail that can destabilize short term market conditions." (CEO at Alpha) "What keeps me awake at night is <b>geo-political risks</b> at the moment Those are issues that could come to the fore and have a big market impact anytime soon Markets are used to accounting and trading risks—hedging it—but markets are not good at predicting political outcomes. So, politics will be at the forefront of what drives the growth, the world economy." (Chairman at Alpha) "I am afraid to say its politics. Running a country has become a more challenging job than ever before.
		There is a lot of thinking on how business will be disrupted by technology—impact of technology by sector—I am not certain that there has been the same level of thinking about how <b>politics would be disrupted by technology</b> . And the examples around are many. We see them around us. And this is a new world we all have to adjust to." (CEO at Beta)
		"We are all living in a world now where social media not only is impacting companies and how we operate but is certainly <b>impacting governments and how they perform</b> . And I actually believe companies have proven to be more adapt in navigating around social media (). Countries and governments are having a harder time adapting." (Larry Fink, Chairman & CEO at Blackrock)

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# **TABLE 2.3** Firm Scale

A: Strategic Positioning and Firm Scale					
Firm Scale: Static	Concept Definition	Illustrative Quotes			
Structural Position	"All firms following the same strategy are not necessarily equally positioned from a structural perspective, specifically a firm's structural position may be affected by its scale relative to others in its strategic group." (Porter 1980: 143)	"What you have seen banks do is go back to the areas that they believe they have got a competitive advantage. And that <b>competitive advantage is oftentimes steeped in scale</b> . In today's age of slow growth and more regulation, if you don't have scale; the odds are you can't buy it. You don't see big banks get bigger through acquisitions. You have got to build it. And in slower growth that is tougher to do. And, so, what we have seen is the industry pull back to areas of strength, areas of scale, and you have ended up with very different business models." (Michael Corbat, CEO at Citigroup)			
Firm Scale: Dynamic	Concept Definition	Illustrative Quotes			
Position Deepening	"Empirical research in strategic manage- ment has tended to ignore an obvious alternative for accounting profits as a measure of firm performance over time:	"We are having a good run and corporate mergers tie you down for years to come. For us, we can grow because we are a strong bank in the US, and we are a strong bank in Asia. So that is what we are focusing on— <b>growth in our strong areas</b> ." (Chairman at Alpha)			
	<b>growth in firm size</b> Herein lies a large opportunity for empirical research in strategic management to investigate the link between dynamic capabilities and firm performance in terms of growth "	"Over the last few years we have had between 40 and 50 billion net new money in each and every year. And that is kind of in our medium to long-term plan. So, we expect to grow sizeably. And if you compare that over a five years, we actually <b>grow by the size of a normal mid-sized wealth manager organically</b> rather than through acquisitions. And that is the focus of what we are doing." (Chairman at Alpha)			
	(Winter, 2009: 100)	"I think the most important thing in every business—in the end—is growth." (CEO at Beta)			
		"This was a very good quarter for [Beta]. You saw 1,3 billion of profit, you saw positive net new asset which is very important for us at 23,5 billion. If you add the asset management which is another 17 billion, we actually have 40 billion in the first half. That is the <b>size of a medium sized bank</b> that we			

billion, we actually have 40 billion in the first half. That is the **size of a medium s** added to the bank in the last six months." (CEO at Beta)

## **TABLE 2.3** (continued)

B: Firm Scale and Supra-Normal Profits					
Firm Scale & Competitive Adva	Concept Definition ntage	Illustrative Quotes			
Cost	"Competitive advantage can be divided into two basic types: <b>lower cost</b> than rivals, or the ability to command a <b>premium</b> <b>price</b> that exceeds the extra cost of doing so." (Porter, 1991: 101)	"There is an economic case which relates to the concept of economies of scale and fixed cost. And I strongly feel that our industry is undergoing a lot of change where the <b>percentage of fixed costs is increasing by the day</b> . Historically, banking has been pretty much a variable cost business. If you wanna get more business you hire more people, you rent more office space, but in the end its all pretty variable, including the larger part of compensation. As the industry proliferates and technology is getting more important—as the regulatory requirements are getting more important—an ever-larger part of our cost base is shifting from variable into fixed and that gives you an actual <b>scale advantage</b> ." (Head of Group Strategy at Alpha)			
Price		"I mean the bigger your market share is, the <b>easier it is for you to set the price</b> in any given market. We are seeing that in [country x] where it is easier for us to increasing our pricing level without huge danger of loss of market share as opposed to other markets where we have a more marginal market share." (Head of Group Strategy at Alpha)			
		"When you become bigger [as a client] and you have more complex needs, both in terms of the investment sideas well as how to structure it—so you are running a trust or family office—then automatically banking with a player that has <b>global capabilities</b> and can provide you with more complex solutions, more bespoke solutions, and can cover you around the clock in a seamless way across different booking centers—that is where the biggest advantage is." (Head of Strategy, APAC region at Alpha)			
Options for Growth	"In the absence of growth, firms can improve their performance only by reducing costs or raising prices. Market forces and technological constraints often limit how much firms can do either in a sustained manner for more than a	"I mean, first of all [scale] affects your <b>risk-bearing capability</b> . The bigger you are the smaller are big risks on a relative scale. Which is particularly an issue in investment banking and large corporate business. To illustrate that point. If you are a hundred billion equity bank it is easier for you to underwrite a 50 billion pitch loan or acquisition finance facility for corporate clients as opposed to being a 20 billion capital company." (Head of Group Strategy at Alpha)			
	few years. Instead, <b>firms seek growth</b> " (Winter, 2009: 100)	"Our cost structure is roughly we have 60 fix and for the sake of argument 40 percent variable. Which means that we can deploy additional sales force and generate additional business at roughly 40 percent of our total cost/income ratio stands at 60 percent. So, we can <b>print business</b> probably at 20 or 25 percent marginal cost/income ratio and that gives us an edge over competitors that are smaller." (Head of Group Strategy at Alpha)			

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### **TABLE 2.3** (continued)

B: (continued)				
Firm Scale & Concept Definition Competitive Advantage	Illustrative Quotes			
Options for Growth	"For us, scale has proven to be over and over again to be <b>a real competitive advantage</b> . So, what do I mean by that. One is in buying assets. You know, if you think about it in public markets, if you wanna buy a million dollars of stock and I wanna buy a billion dollars of stock, I have a competitive advantage because <b>I can move the market</b> So scale for us across our platform really matters. It also gives us <b>all sorts of information</b> . So, if you think about our portfolio company what we are seeing on the ground around the world, again that allows us to do more and there are all sorts of adjacencies against our scale. So the reason why we have been able to move into Europe, into Asia, the reason why we have been able expand private equity into energy, into core private equity; all these activities is because <b>we have this large base and we grow off that</b> . So, for us scale is really important. We will continue to emphasize that in our investing and again it helps us driver higher returns which is really the essence of our business." (Jonathan D. Grey, President and Chief Operating Officer at Blackstone Group)			
	"We are in multiple disease areas (). And so I think that diversity enables us to manoeuvre on different time-lines based on how these molecules are being developed. [This] <b>gives us more flexibility and manoeuvrability than say a smaller company has</b> that maybe has a couple of molecules in their portfolio and maybe in only one disease area. [Because] if that doesn't manifest, quite honestly, the company goes away (). So, I think, diversification—given our size—enables us to <b>mitigate risks</b> ." (Board Member at Epsilon)			
	"I think most large pharmaceutical companies only have one research and development organization. In [Epsilon] we have three plus a late stage. So, we almost have innovation times three. Most organizations have only one research and development leader or maybe even only one research and development that covers early stage and late stage and so a lot then depends on what's the view of that one leader and we have decided to kind of <b>spread our bets</b> , you know, more so." (Board Member at Epsilon)			

# **TABLE 2.4** Pre-Emptive Innovation Capacity

A: Supra-Normal profits and Pre-Emptive Innovation Capacity					
Structural Determinants of "Persistent Dominance"	Concept Definition	Illustrative Quotes			
Financial Markets	"A traditional interpretation of the innovation-market power correlation is that <b>failures in</b> <b>financial markets</b> force firms to rely on their own supra-normal profits to finance the search for innovation." (Blundell, Griffith & Van Reenen, 1999: 530)	<ul> <li>"The best source of capital is to operate profitably. If you can generate profits from organic growth and growth of profits, then you are in a virtuous cycle." (CEO at Beta)</li> <li>"The binding constraint is capital only. If you look at how many millionaires, billionaires you have in Asia. There we don't talk about millions. And when you then look at a client and you have a share of wallet of let's say 25 percent and you can increase that 25 percent to 50 percent then you do not need more people. There you need a different approach or a different offering. So the opportunities to grow are not 1:1 dependent on relationship managers or whatever. We are not in retail. It is really different. And ultimately it is really so that there are sufficient clients, there are sufficient business opportunities. The difficulty really is how much capital can you deploy, how much money can you pass on through lending. Many of the ultra-high net worth clients, they need cash. They have wealth but invested in companies, in real estate in whatever. They need cash. Lending is a major topic. Therefore, that is ultimately the limiting factor: capital." (Board Member at Beta)</li> <li>"You still have an investor perspective where stability, no fines, no surprises, simplicity of story of the overall operating model that is still very, very important." (Head of Corporate Development at Beta)</li> <li>"The investors, of course, are another constraint. Which is, even if managers want to go beyond their experience—especially in the U.S.—investors will not allow them to do so unless they build a track</li> </ul>			
		record of innovation. Because the stock which is set is essentially a bond: has no permission to keep and reinvest the cash. (Global Leader, Senior Partner & Managing Director at Consulting 2) "The reality is 8% of companies are able to make the transition from a mediocre level of profitability to a higher level of profitability. Those 8% are all backed by the market because they were not bought up. So the market does support long-term bets, they just don't support all companies and that is rational for the market because only 8% of companies do. Could the 8% become 16%? Maybe, or could it become 24%? But then the market would still be selective. So, I think, <b>the market is damn selective</b> at who they support in long-term bets, but they are not at all not supporting long-term bets." (Global Leader & Senior Partner at Consulting 1)			

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# TABLE 2.5 Management Practices

A: Deploying the	<b>Pre-Emptive</b>	Innovation	Capacities o	f the	<b>Individual Firm</b>

Managerial Discretion	Concept Definition	Illustrative Quotes
Management Practices	"Management practices account for more than 20 percent of the variation in <b>productivity</b> , a similar, or greater, percentage as that accounted for by R&D, ICT, or human capital."	"The so-called <b>"beta factor</b> " that we can't control—interest rates, market development—can be offset by managerial actions in tapping to new markets and new clients In our case, it is about 50 percent is based on " <b>alpha factor</b> "—things that management can control—like gaining share of wallet, gaining market share, and penetration of mandates, penetration of lending." (CEO at Alpha)
	(Bloom, Brynjolfsson, Foster, Jarmin, Patnaik, Saporta-Eksten & Van Reenen 2019: 1648)	"Of course, we take <b>tactical actions</b> to mitigate some of the headwinds we are observing in terms of "beta factors" affecting, while also thinking about different ways to <b>capture market share</b> in a challenging market environment." (CEO at Alpha)
	"It may well be the case that such general-purpose management com- petences also provide firms <b>paths into</b> <b>new markets</b> (i.e., that general-purpose	"We do have a mindset which drives a permanent crisis modus insofar as you <b>keep all options open</b> until the very last moment and make [capital allocation] decisions at the latest point in time possible." (Board Member at Beta)
	management competences lie at the heart of the ever-illusive thing called dynamic capabilities)." (Pisano, 2019: 420)	"I think for a few years in the past we used to <b>run extremely aggressive goals</b> in terms of clients and targets. And when you start developing enough scale then the point around that means you have resources, you have resources you can also develop the capabilities that you need." (Head of Strategy, APAC at Alpha)
# **TABLE 2.6** "Between-Firm Reallocation" Effect

A: Competition		
Channel of Output Reallocation	Concept Definition	Illustrative Quotes
Intensive Margin	"[T]he Schumpeterian tradition has long emphasized the between-firm component. Much of aggregate productivity growth is from the reallocation of output away from less productive firms and towards more productive firms. This reallocation can also take place on the <i>intensive</i> <i>margin</i> as <b>market share get</b> <b>reallocated among incumbents</b> away from the least efficient and	<ul> <li>"Now, finally, it is clear that the debate is no longer "too big to fail" but is rather "too small to survive" for many European peers." (CEO at Alpha)</li> <li>"I have been saying repeatedly over the last half year that the one thing that matters in banking—now that we see a lot of regulation and additional cost—is size." (Chairman at Alpha)</li> <li>"And that is why you see players like [incumbent firm x] who had essentially to sell off their businesses here in APAC because you need a minimum scale of 30 to 40 billion [in AuM] before you start making money." (Head of Strategy at Alpha, APAC region)</li> </ul>
	towards the more efficient firms." (Van Reenen, 2018: 6)	External Informants
	"To understand competition in a market economy, analysis of growth is as important as analysis of profits. A	"I think the issue is today it is really hard to imagine not being a bank at <b>scale</b> ." (Mary Callahan Erdoes, J.P. Morgan Asset Management CEO)
	market economy in which firms that receive abnormally high returns simply receive them passively (or in which returns move randomly) differs vastly from an economy in which such <b>firms</b> <b>grow and put sustained pressure on</b> <b>others</b> . Hence, growth persistence is a critical attribute of competition." (Winter, 2009: 103)	"That has to <b>put a lot more pressure on people that aren't scale and global</b> in any particular business they choose to be in. For a long time, finance was a business where you could get adequate returns if you were the 7 <sup>th</sup> , 8 <sup>th</sup> , 9 <sup>th</sup> , 15 <sup>th</sup> player in a particular segment. That's changed." (David Solomon, Chairman & CEO at Goldman Sachs)

#### 4.1 | Business Model Drivers

For the purpose of this article, I term the implications of sustained world economic growth over long periods of time as "zero-level" business model drivers. Discontinuous changes in the economic environment that affect zero-level drivers are termed, higher-order drivers.

### 4.1.1 | Zero-Level Business Model Driver

Workhorse models of dynamic macroeconomic analysis, such as the Solow growth model or the neoclassical growth model, are based upon the concept of highly patterned, persistent, repetitive, conform, and secular trends underlying world economic growth (for an excellent review, see Acemoglu, 2007). While stylized facts of economic growth suggest that sustained growth has started some 200 years ago (Acemoglu, 2007), my empirical findings consider a shorter period of time. The importance of steady economic growth for firm-level strategizing, however, shall not be affected thereby. As the CEO of Beta explained in an interview with Bloomberg:

If you look at the world economy from 2006 to 2016,... personal financial assets ... have gone up by 26 trillion dollars, 17 in emerging markets, 9 in developed economies. And that drives our strategy. That wealth is the wave we are riding. That is a very long-term, structural wave. And the way we grow, you know, ... it is a derivative of that wealth creation. So, our scale is going to come over time.

Insofar, my findings point to long-term, secular trends underlying world economic growth as quintessential business model drivers. Arguably, strategic choice at the individual firm level does depend upon how output, capital, consumption and population change over time—the dynamics of world economic growth. The connection between strategic choice and the business model concept is clear in that the firm's "realized strategy", i.e. how it does business at the system level, circumscribes the business model in academic language (Casadesus-Masanell & Ricart, 2010)<sup>17</sup>. Echoing Winter (2003), I term these drivers "zero-level" because they are repetitive and conform and can be dealt with routinely.

### 4.1.2 | Higher-Order Driver

However, the way how firms do business is not only subject to long-term world economic growth but also affected by discontinuous shocks in the external environment. My empirical data suggest that short-run macroeconomic phenomena are dominated by the pervasive ties between the political and economic system. As the CEO of Alpha highlights in regard to the critical role played by politically driven uncertainty in today's fast-moving business environment:

Economic growth and all the underlying secular trends supporting wealth creation around the globe are still intact. Having said that, when you look at some geopolitical and geo-economic tensions are re-converging into a potential cocktail that can destabilize short term market conditions.

This observation is consistent with a rapidly growing, highly cited literature in economics that investigates the link between uncertainty and economic performance (e.g., Ramey & Ramey, 1995). For instance, Baker et al., (2014: 57) note that: "In summary, secular growth in government spending and taxes relative to GDP and the greater scale and complexity of both government regulations and the tax code are likely contributors to the rise in policy-related economic growth and short-run macroeconomic phenomena define the business model drivers affecting strategy making, including with regard to scale adjustment choices, at the individual firm-level (for a similar argument, see Casson

<sup>&</sup>lt;sup>17</sup> Similarly, Markides (2015: 140) puts it starkly: "[T]here is no reason to expect that the process of developing a new *business model* is any different from the process of developing a new *strategy*. Both describe (in varying degrees of detail) how the firm operates in its market, and ideas for changes in both could come about via numerous routes, including analysis, trial and error, intuition, luck, questioning of existing mental models, analogical thinking, creative segmentation, exploring customer gaps and so on."

(1996)). In sum, the economic environment is continuously disturbed by policy shocks of a higher-order whereas "zero-level drivers" define trends that are repetitive and conform. The framework derived in this section is based upon the joint consideration of these two business model drivers.

### 4.2 | Firm Scale

Given that some business model drivers are repetitive and conform, they can be dealt with through the organisation of the firm. In this section, I explicate the role firm scale plays in determining how firms do business vis-à-vis competitors, suppliers, and buyers.

### 4.2.1 | Strategic Positioning and Firm Scale

While the choice of a particular generic strategy, such as low cost or differentiation, is helpful in defining the broad contours of a firm's product market position, firms do have a much more granular positioning tool at their disposal so as to alter the way they do business vis-à-vis competitors, suppliers and buyers—the scale of their activities. As Porter (1980: 143) notes: 'All firms following the same strategy are not necessarily equally positioned from a structural standpoint, specifically a firm's structural position may be affected by its scale relative to others in its strategic group.' This general logic suggests that 'A firm should manage its activities to maximize their sensitivity to the type of scale in which it has the greatest advantage over its competitors' (Porter, 1980: 143). Further, the relative importance of scale must be considered in regard to alternative sources of mobility barriers such as the experience curve. In this regard, Porter (1980: 155) notes: 'Experience is a more ethereal entry barrier than scale because the mere presence of an experience curve does not insure an entry barrier.' I argue that this

perspective with its focus on scale as a key entry/mobility barrier<sup>18</sup>, source of competitive advantage, and driver of industry dynamics over time that most closely connects with my empirical findings. Indeed, the similarities between Porter's view and my data are rather striking as the following quote from the CEO of Citigroup, Michael Corbat, shall illustrate:

What you have seen banks do ... is go back to the areas that they believe they have got a competitive advantage. And that competitive advantage is oftentimes steeped in scale. In today's age of slow growth and more regulation, if you don't have scale; the odds are you can't buy it. You don't see big banks get bigger through acquisitions. You've got to build it. And in slower growth that is tougher to do. And, so, what we have seen is the industry ... pull back to areas of strength, areas of scale, and you have ended up with very different business models.

In common parlance with Porter (1980), Michael Corbat emphasizes the key role of scale for competitive positioning. This is consistent with the view that business model design is intimately linked to activity system scale choices.<sup>19</sup> In what follows, I reveal a rationale for the central proposition that "competitive advantage is oftentimes steeped in scale".

# 4.3 | Firm Scale and Supra-Normal Profits

The firm's markup, i.e. the size of the price-marginal-cost gap at the firm's profitmaximizing output, is the most theoretically direct measure of firms' product market power. Syverson (2019) recently develops an interesting empirical discipline on measuring markups at the firm-level, namely that substantial increases in markups must go hand in hand with an increase in profit shares, scale elasticities, or both. Markup ( $\mu$ ), pure profit's share of revenue ( $s_{\pi}$ ), and scale elasticity (v) can be expressed as:

<sup>&</sup>lt;sup>18</sup> Caves & Ghemawat (1992:1): 'Some readers may prefer terms other than mobility barriers, e.g. isolating mechanisms, for the same concept of durable conditions that yield excess profits to favorably situated firms and that cannot profitably be imitated by their competitors.'

<sup>&</sup>lt;sup>19</sup> I discuss the role of activity system scale for business model design at greater detail in my companion paper entitled: "Profiting From Business Model Innovation."

$$\mu = \frac{1}{1 - s_{\pi}} v$$

Put differently, if a firm sees significant changes in scale elasticities this must have implications for markup levels. The scale elasticity is defined by the average costmarginal cost ratio  $\left(\frac{AC}{MC}\right)$ . If MC < AC, there are economies of scale and average costs are falling in quantity. Conversely, if MC > AC, there are diseconomies of scale and average costs are rising in quantity. This is not just a theoretical curiosity. Hortaçsu & Syverson (2015) show empirically that the transformation of the US retail sector over the past several decades is inextricably linked to scale economies having reduced marginal costs. Hence, changes in scale elasticities can have significant implications for the dynamics of industry evolution. As Syverson (2019: 27/8) notes: 'Changes in production technologies that increase scale economies can also raise concentration. ... Increased scale economies may come from reductions in marginal cost that reduce the amount of inputs necessary to produce output-an efficiency enhancement. ... Fixed costs may have grown, or the output product mix may have shifted in composition toward products with lower marginal costs (like software and pharmaceuticals).' With this in mind, I next turn to my case-study based research into how firm-level scale economies (if at all) have changed in the financial services industry.

### 4.3.1 | Cost

Substantial changes in scale elasticities must imply something about average costs, marginal costs, or both. In the marginal cost space, my findings strongly suggest that, in fact, marginal costs have declined and, moreover, they are expected to further diminish going forward. As the Chief of Staff to the President of Alpha's headquarter region and Member of the Group Executive Board explained to me:

The angle why we are going into more of a scale game, and why I am absolutely convinced that we will see more industry consolidation, is because we are actually increasing our fixed cost base. We are probably gonna be able to produce the marginal costs in a way converging to zero over time. So that's actually the driver, right.... There is no people involved. Nothing. It's all straight through automated, nobody in the back office doing any sort of paper stapling or whatever, copying, scanning, signing, nobody does that anymore in the back office. So, the marginal cost of every additional client will be zero in a way. ... So while today each additional client costs some sort of money to maintain but when we move to the model that we have marginal cost of zero but we have very high technology stack, very high investments in technology-truly higher than today-we need to grow our client base in order to grow our profitability. ... In the past, we had a significant coverage cost for that client or branch network etc. which are then partly fixed but to a large extent also variable and going forward that will be almost all will be fixed and marginal cost of the client will be zero. So, it's a different scale game. That's why everybody tries to grow on client base even harder than we tried before because everybody knows it is a race: win all or lose all over time.

The key point is that there is a shift in the nature of competition toward "winner take most" due to the rise of new technologies that, once adopted, substantially increase firmlevel scale elasticities by reducing marginal costs and increasing fixed costs. My findings suggest that the forces underlying such a shift remain exogenous to the firm and are to be found in technological advances. A more subtle question relates to identifying changes in average costs. If marginal costs are converging to zero, average costs necessarily fall too. However, the degree to which this is the case depends critically on the evolution of firms' fixed costs. For assessing the impact that reductions in marginal costs may have on scale elasticities it is, hence, important to note that my findings suggest declines in marginal costs are accompanied by rising fixed costs. This must not necessarily be the case. Variable and fixed costs may jointly decline. In the latter case, the impact of reductions in marginal costs on scale elasticities is more ambiguous. But my interviewees strongly emphasize that the total cost base (despite decreasing variable costs) is unlikely to decline. As the Head of Group Strategy at Alpha explained to me:

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There is an economic case that relates back to the concept of economies of scale and fixed cost. And I strongly feel that our industry is undergoing a lot of change where the percentage of fixed costs is increasing by the day. Historically, banking has been pretty much a variable cost business. If you wanna get more business you hire more people, you rent more office space, but in the end, it's all pretty variable, including the larger part of compensation. As the industry proliferates and technology is getting more important—as the regulatory requirements are getting more important—an ever-larger part of our cost base is shifting from variable into fixed and that gives you an actual scale advantage.

Similarly, the Chief of Staff at Alpha further notes:

Total cost base is not gonna go down for our distribution network but it's gonna be moved from people and physical infrastructure to technology and based on that shift and the technology investments we will be able to produce at marginal cost converging to zero. So, every additional client is not going to cost any variable costs anymore.

Ultimately, the Chairman of Alpha unambiguously highlights:

I have been saying repeatedly over the last half-year that the one thing that matters in banking—now that we see a lot of regulation and additional cost—is size.

In triangulating this key insight across multiple data sources, I have attempted to identify

further drivers that may increase firms' fixed overhead costs. Addressing exactly this

issue, Mary Callahan Erdoes, J.P. Morgan Asset Management CEO, emphasizes that

cyber protection, the rise of artificial intelligence, and Big Data represent key levers:

I think the issue is today it is really hard to imagine not being a bank at scale. I can't imagine having to figure out how to protect yourself from a cyber perspective or technology perspective. We spend ten billion dollars a year on technology with 50.000 technologists. That is the size of like most firms in total. We spend threequarters of billion dollars just on cyber protection. And so to keep up with that is really, really hard ... all the "AI" we have, all the "Big Data" ... if you don't have scale and you don't have the ability to do that, it's just gonna be a really, really hard slog.

In sum, it is widely known that the evolution of demand and technology fundamentals critically determines an industry's extent of competition and the degree of concentration.

My case-study based analysis suggests that technology fundamentals in financial services are increasingly shifting the behavior of marginal cost to decline, while fixed overhead costs are seeing substantial increases. As a consequence, the scale elasticity substantially increases which, in turn, induces a "winner take most" feature. One may not be surprised that in a market like this a small number of firms may capture a very large share of the market. Hence, my findings are consistent with the macro market power literature highlighting concentration trends across many industries, including with regard to financial services, and recent scholarship postulating that industries are increasingly characterized by a "winner take most" feature due to globalisation and new technologies (e.g., Autor et al., 2019; Van Reenen, 2018).

### 4.3.2 | Price

The previous section has focused, explicitly, on how changing technology fundamentals alter the competitive landscape. In this section, I direct attention to demand fundamentals to complement the analysis. To preview my findings, the forces of globalisation appear to alter the demand side in ways that put a premium on global scale and the associated ability to provide global client coverage. In fact, larger scale can be a source of difficultto-imitate positive differentiation, provided that scale increases consumer accessibility, convenience or allows value activities to be performed in unique ways (Porter, 1985). My findings suggest that global scale indeed enables firms to perform critical value activities in unique ways. As the Managing Director, Head of Strategy & Resource Optimisation and Head of the Europe, Middle East, and Africa Office at Alpha explained to me:

When you [as a client] become bigger and you have more complex needs, both in terms of the investment side—what kinds of products, what kind of asset allocation as well as how to structure it—so you are running a trust or family office. Then, automatically, banking with a player that has global capabilities and can provide you with more complex solutions, more bespoke solutions, and can cover you around the clock in a seamless way across different booking centers—that is where

the biggest advantage is. ... You need to have global scale to provide global execution. So, if you are covering an institution in equity most likely you benefit from the fact that you are providing global coverage. For example, there are very few banks that are successful globally without being successful in the [United] States because it is such a huge market.

Globalisation is widely argued to increase the complexity of business operations. From a financial service-based perspective this is likely to increase both the complexity and geographic scope of clients' needs. In order to execute against a potentially unique and valuable customer value propositions, global capabilities are required to deliver global execution and meet global client needs. Similarly, David Solomon, Chairman & CEO at Goldman Sachs, emphasizes:

I would say—and in our industry like others—scale and global is gonna be a competitive [advantage]. ... It's a paradigm. Unless you are scale and global you can't ...—you are out.

Taken together, these findings suggest that both demand and technology fundamentals appear to be shifting in ways that increase the importance of scale for designing sustainable advantages at the individual firm-level. The exogenous drivers are globalisation and new technologies.

# 4.3.3 | Options for Growth

Despite the force of the above findings—this is not the whole story. My findings reveal that there are important additional adjacencies that further strengthen the case for scale. The key finding in this section is that firm scale provides significant options for growth. First, my findings reveal a connection between firm scale and risk-bearing capacities. Firms operating at a significant scale are likely to attain the ability to survive and persist within a variable environment by recovering strength even after a large perturbation. Indeed, my informants appear to manage their firms not only for productivity or stability,

but they also manage for resilience. For instance, the Head of Group Strategy at Alpha emphasized to me:

First of all, it affects your risk-bearing capacity. The bigger you are the smaller are big risks on a relative scale. Which is particularly an issue in investment banking and large corporate business.

In triangulating this insight, I studied an industry where innovation likely plays a key

role-the pharmaceutical industry. Arguably, risk-bearing capacities are of the essence if

firms are to navigate the drug discovery and development process. My data suggests that,

like in financial services, larger scale critically conditions firms' ability to mitigate risks.

As a Board Member from a large, incumbent pharmaceutical company explained to me:

We are in multiple disease areas (...). And so, I think, that diversity enables us ... to manoeuvre on different timelines based on how these molecules are being developed. [This] gives us more flexibility and manoeuvrability than say a smaller company has that maybe has a couple of molecules in their portfolio and maybe in only one disease area. [Because] if that doesn't manifest, quite honestly, the company goes away (...). So, I think, diversification—given our size—enables us to mitigate risks.

Similarly, the divisional CEO of another large, incumbent pharmaceutical company explained to me why global scale matters when one faces risks associated with tendering

procedures:

If you have markets where it comes to a tender, then you can win or lose that tender. And when you lose then you have spent two years developing that vaccine and if you lose you find yourself sitting on that vaccine that you cannot sell in that country. That is to say, you have to be able to sell that vaccine somewhere else because otherwise, you throw it away. And that, of course, is a major issue because then you have depreciations and that, of course, destroys all your margin. It doesn't work. Therefore, you literally have to have a global reach. That is to say, if you have a diversified country presence, then you can have more success, more volume, and, at the same time, of course, absorb more shocks.

Finally, my findings point to a connection between firm scale and asymmetry of information. Whereas larger firms house large information bases, smaller rivals do much

less so. In this view, large firms can either collect, process or synthesis more information or acquire new information at lower cost. The information advantages associated with larger scale may allow managers to make a speculative gain as they get 'in the know' and buy up resources that have become more valuable as a result of new information (Barney, 1986). In this view, the creation of an organisation with a significant scale is likely a necessary condition for the entrepreneur to attain a long-run comparative advantage in decision-making. In fact, I find that the information being collected and processed by the organization critically affect the quality of top management decision making. For instance, the COO at Blackstone, Jonathan Grey, notes:

[Scale] also gives us all sorts of information. So, if you think about ... what we are seeing on the ground around the world, again, that allows us to do more and there are all sorts of adjacencies against our scale.

In this view, larger-scale may provide at least a latent, long-run comparative advantage in collecting and processing information. Arguably, such an advantage should be expected to improve the quality of managerial choice. Consistent with this logic, Casson (1996: 61) suggests that 'The capacity for acquiring trade-related information preeminates as the basis for the long-run comparative advantage of the firm.' My findings reveal that firm scale conditions precisely this latter capacity for acquiring trade-related information. It is likely the collective advantage gained from risk-bearing capacities and information advantages that undergirds firms' options for growth.

In essence, my findings in this section reveal that the importance of scale may cut across all possible dimensions of competitive advantage, i.e. cost, price, and growth. Due to globalisation and digitalisation trends, demand and technology fundamentals appear to be shifting in ways that induce a "winner take most" feature. My findings highlight that scale elasticities are likely to increase over time as fixed costs rise and marginal costs converge toward zero. As a consequence, recent changes in the market structure in financial services (sales concentration in particular) can be explained by time-specific changes in a small number of key factors, most notably scale elasticities.

However, a high level of concentration does not necessarily imply that there is also inertia associated with these changes at the firm-level. For instance, in neo-Schumpeterian models of creative destruction, dominant firms swiftly replace one another (e.g., Aghion & Howitt, 1992). Emerging facts on firm heterogeneity, in turn, suggest that recent concentration trends are associated with more persistent dominance rather than greater creative destruction (e.g., Andrews et al., 2015; Autor et al., 2020; Decker et al., 2018). Despite the importance of the key factors discussed in this section, this appears not to be the whole story. The evidence indicates that there must be an incumbent advantage for high market share firms that explains the declines in turnover or churn rates. Addressing exactly this issue, in the next section, I detail the insights that my explorative case study reveals.

### 4.4 | Pre-Emptive Innovation Capacity

My key insight is that the two firms in my sample exercise what may be called a "preemptive innovation" capacity to exclude entry and counter the forces of creative destruction. This capacity deters entry through exercising preemptive strategic investments. A second key finding is that the "threat" arising from new entry may simply be absent. I begin with the latter finding because it is the most prevalent in my data, yet, the two findings are intimately linked. Please see below an extract from my discussion with the Head of Group Strategy at Alpha over the threats arising from new entrants: It is a threat to our economics that may well be that it will drive down pricing further in some areas and will lead to a shift of economic value from producers to consumers. But ultimately, given that there is, again, nothing these guys can which we can't as an incumbent and given that branding and client loyalty—particularly in a regulated industry —is a big advantage, I am pretty relaxed. If you look at the numbers. I mean, look at the digital wealth managers, robo advisers as they may be called, as well a company like Betterment in the US. After almost ten years they have got 7 billion under management, while we are printing 35 net new money every year. So, I wouldn't call that a big threat.

Along similar lines, the past CEO at Deutsche Bank, John Cryan, has recently argued:

It is very interesting. We meet a lot of fintechs and they will come in, for instance, in trade finance they will say: There is a lot of inefficiency and friction in trade finance, we can take it all out. And then you look at what they are proposing and what they do is they take out all the profit as well. You could do what they suggest but it wouldn't remunerate them and it wouldn't address the fact that it takes a long time to ship something from A to B, physically. When it is somebody actually delivering credit over a period of time, there is no substitute for what we do and there are different ways of delivering it, you can deliver it in a digital fashion, but it's still extending credit.

Noticeably, the view that the problem of entry may not be a critical one, as indicated by the quotes above, is also a key finding of the macro market power literature (see also Bloom, Jones, Van Reenen & Webb, 2020). In a recent AER article, Decker, Haltiwanger, Jarmin & Miranda (2017) summarize the evidence documenting the declines in high-growth young firm activity. Connecting these findings to the previous discussion on scale elasticities and, in particular, the documented rise of fixed overhead costs suggests that substantial increases in scale economies also require market power for firms to pay fixed costs and production costs. As Van Reenen (2018: 25) notes: 'It may be that there has also been a rise in fixed overhead costs. If this is the case, higher margins are necessary for firms to stay in business over the longer run.' In other words, the break-even condition is becoming harder to attain when fixed costs are rising. This is particularly an issue for smaller firms that find it difficult to amortize fixed costs over a large revenue base.

However, the evidence suggests "merely" that there is a declining high-growth young firm activity. The evidence does not suggest that there is no such activity at all. Hence, there must be a role for preemptive strategic investments by incumbents. My case-study based findings on this topic are scarce. The reasoning is mainly that the events where a new entrant, in fact, attains scale whilst competing head-to-head with an existing big player are so rare. On this topic, Alpha's Head of Group Strategy further explains:

Let's assume [a new entrant] would gain traction in which case we and other incumbents would respond by lowering our price model, but we certainly not gonna do that as a first mover, but rather as a fast follower. And all other things equal, people would always still prefer to work with an incumbent. And again, building on that example, because it is at the core of our business model: That is what you are seeing right now. JP Morgan offers its own digital wealth manager and that is probably the end of Betterment and other fintechs competing in this segment of the market.

This exemplifies the pre-emptive innovation capacity of a high market share firm. Note that JP Morgan Chase is the largest bank (by revenues) in the United States. A related pre-emptive innovation capacity defines the high market share firms' ability to purchase possible future disruptors. Schoar (2018) demonstrates empirically that 95% of start-up exits across all fields of fintech are via acquisitions to existing large companies. In view of this data, the Past Chief Economist and Past Director of Research at the International Monetary Fund, notes (Rajan, 2018: 477/8): "The data on slowing entry is a concern, especially the data on young companies being bought out ... such activity is also curbing lending or financing by venture capitalists, who talk about a "kill zone" where a product gets too close to the existing big players. They would not finance anything in the kill zone because there's no prospect for growth there." This clearly implies a role for the deterrence to new competition through pre-emptive innovation. In this view, incumbents are more likely to innovate than entrants, like in Gilbert & Newbery's (1982) auction model of R&D. The general logic of that model is similar to an auction market in which

the firm that bids the most wins the prize. This reasoning, in turn, creates incumbent advantages for high market share firms and connects directly with the emerging stylized facts on firm heterogeneity that document more "persistent dominance". My empirical findings are consistent with the view that firms are often forced to rely on their own supranormal profits to finance the search for innovation. As a Board Member from Beta explained to me:

The binding constraint is capital only. ... [to increase market share] you need a different approach or a different offering ... Therefore, that is ultimately the limiting factor: capital.

A traditional interpretation of the superior performance of dominant firms in innovating is that liquidity constraints bind. Contrary to small firms, large firms have higher cash flows, so-called "deep pockets", from which they can finance their innovation activities (e.g., Evans & Jovanovic, 1989; Knight, 1921; LeRoy & Singell, 1987). This line of thought connects naturally with my findings in the previous section on the link between firm scale and supra-normal profits. Thus, my inductive model of opportunity "seizing" underpinnings builds on a consideration of strategic or entrepreneurial choice under liquidity constraints. Principally, there are two different sources of capital to finance the search for innovation: (1) a firm's own supra-normal profits or (2) external funding. Internal sources of funding, however, do have a major advantage over external sources as valuable information on the firm's innovation projects may not need to be shared with investors. Such information sharing is a potential source of industrial espionage as rivals may attempt to acquire important information on the innovation activities of the focal firm by contacting its investors. In fact, there are reasons for believing that internal and external capital are not perfect substitutes so that a firm's investment decisions are not independent of its financial conditions (e.g., Fazarri, Hubbard & Petersen, 1988). Liquidity constraints bind. Put differently, there is a "financing hierarchy" in the sense that new debt or equity finance often comes with a cost disadvantage vis-à-vis internal sources of funding. The magnitude of these internal sources of funding, in turn, is likely a function of the firm's size. In this way, the firm builds scale so as to lift the liquidity constrains ubiquitous in entrepreneurial choice. Consistent with this logic the CEO of Beta notes:

The best source of capital is to operate profitably. If you can generate profits from organic growth and growth of profits, then you are in a virtuous cycle.

This view postulates that there are failures in financial markets that force firms to rely on their pure profit's share of revenues to fund the search for innovation. The Global Head of Corporate Development at Beta confirmed to me that investors continue to be reluctant to provide funding for more innovative ways of doing business:

You still have an investor perspective where stability, no fines, no surprises, simplicity of models, simplicity of story of the overall operating model that is still very, very important.

Overall, this section addresses the empirical regularity that rising industry concentration is associated with more "persistent dominance" rather than greater "creative destruction". Consistent with large-scale empirical findings in the economics literature, my data suggest that the disruptive potential often attributed to new entrants is hard to demonstrate empirically. Further, I provide suggestive evidence that pre-emptive innovation capacities possessed by existing, incumbent players complement the case for more persistent dominance.

### 4.5 | Management Practices

Persistent dominance could also be explained in terms of the fact that there is a unique multinational capability that involves the management and organization of the global business operations. In this view, only a limited number of firms may have a critical mass of managers that are of appropriate calibre to successfully manage their global activities and these firms have effectively absorbed other firms that may have developed promising products but lack the route to global markets. These big multinational firms may have effectively become the custodians to global markets because they have unique and valuable management skills. In an attempt toward a general theory of the global industry, Casson (2019, italics in original) recently concludes: "The post-war dynamics of globalisation may be understood, in part, as the replacement of a multiplicity of national niche producers operating behind barriers to trade and local product standards by a range of global mass-producers. ... A *hierarchy* of firms (in terms of growth and profitability) will tend to emerge in each global industry, dictated mainly by the quality of the teams employed." Using quadratic team production functions, Casson shows mathematically that industry output is maximised when (1) workers with broadly similar quality work together in teams, i.e. there is a quality matching among team members rather than quality compensation where high-quality workers team up with low-quality workers, and (2) industry structure is characterised by a strict hierarchy of firms, where firms are ranked according to average employee quality.

Echoing Casson's rationale, significant comparative international studies document large changes in worker composition between firms (see in particular Bloom et al., 2019a). These studies demonstrate that high-wage workers are increasingly likely to work at high-wage firms (so-called "employee sorting") and that there is a clustering of highly paid

employees in high wage firms (so-called "employee segregation"). Low-paid workers, in contrast, cluster in other firms. As a result, the between-firm inequality rises and a hierarchy of firms (in Casson's parlance) emerges. These phenomena seem to be happening globally and have been confirmed empirically for Brazil, Germany, Sweden, Japan, United Kingdom, and the United States (e.g., Card, Heining & Kline, 2013). In further support, management practices have been shown to play a pivotal role in explaining the large and persistent productivity differences at the individual firm-level (Bloom et al., 2019b; Bloom et al., 2013; Bloom et al. 2012; Schmitz, 2005; Syverson, 2011; Bloom & Van Reenen, 2010; Bloom & Van Reenen, 2006).

Building incrementally on these insights, I have attempted to shed more light on the specificities of what may be called a multinational management capability. In other words, the descriptive managerial problems that high-quality teams appear to manage more productively compared to less qualified teams. Echoing section 4.1., the latter capability can be dichotomized into (1) mitigating higher-order business model drivers (so-called "beta factors"), and (2) initiating pre-emptive innovation to seize potentially profitable zero-level opportunities (so-called "alpha factors"). As the CEO of Alpha notes:

The so-called "beta factor" that we can't control—interest rates, market development—can be offset by managerial actions in tapping to new markets and new clients. ... In our case, it is about 50 percent is based on "alpha factor"—things that management can control—like gaining share of wallet, gaining market share, and penetration of mandates, penetration of lending. ... Of course, we take tactical actions to mitigate some of the headwinds we are observing in terms of "beta factors" affecting, while also thinking about different ways to capture market share in a challenging market environment.

In terms of mitigating higher-order business model drivers, the United Kingdom's notification of its intention to leave the EU provides a quasi-experimental shock in point.

Many large firms have decided to navigate the Brexit uncertainty by taking tactical actions. As the Chairman of Alpha explains:

Banks need to create optionality that in case we do not have market access from the UK to the European markets—which is my work in assumption. We have created a European entity... in Frankfurt and so we do have optionality to move people around onshore into the EU from the UK.

In terms of pre-emptively seizing zero-level drivers, my findings provide insights into the complexity of the prescriptive managerial problem at hand and illuminate a key role for entrepreneurship. Note that the "opening up of a new market" is the third type of Schumpeterian innovation. As the Managing Director, Head of Strategy & Resource Optimisation and Head of the Europe, Middle East, and Africa Office at Alpha explained to me:

So the question is always how do you generate more scale in the markets where you already have scale and again that's why you think about Hongkong, you think about Singapore—our big hubs—and you have large growth programs whether organically or thinking about some other inorganic things. Again, it is really a portfolio. You cannot say it is just one thing because when you are running so many markets with so many fee pool sizes and stages of development that you need to think about. It is a portfolio strategy, right. Then ultimately you want to achieve a growth trajectory that is well balanced between the short term, and the mid-term, and the long-term bets. Which is balanced across businesses and definitely for us ... you can clearly see wealth management is taking a bigger share of the total profitability. Asset management is growing, Investment Banking is growing less strongly; that is the business mix element. And then you have the market element. So making sure you get the right exposure to China as I mentioned, India is another big economy that we currently have exposure to—limited—everybody says that India is gonna be the next China so also there it is a matter of *keeping the eyes open* and understanding when and how the big opportunities will arise and making sure that you can increase your exposure at the right time. South East Asia and then Hongkong and Singapore, Japan how do you increase market share again with local players, growing faster, hiring the kind of stuff. Again, it is really trying to balance your resources across all these markets.

A key insight is that opportunity recognition, a key feature of entrepreneurship, appears to play a pivotal role in successfully balancing the firm's resources across its global operations. Similarly, Casson (1996: 7) notes: 'The role of the entrepreneur is to monitor a volatile environment for shocks ... Shocks emanate from both supply and demand, and information on both needs to be synthesised in a special way in order to optimise the firm's response to them.' It is this perspective with its focus on pre-emptive innovation initiated by teams of managers with complementary entrepreneurial skills that connects with my findings in this section.

Yet, my contribution is to put this insight into a broader context by highlighting that the execution of complementary entrepreneurial skills ought to be modelled under liquidity constraints. The presence of superior entrepreneurial judgment, without the capacity to execute upon it, is not particularly helpful. This is the key insight derived in the previous section on the pre-emptive innovation capacity. The general logic is underpinned by the Gilbert & Newbery (1982) model where firms, both large and small, express the maximum amount they are willing to spend to patent a new innovation in a bidding game. With "deep pockets", the incumbent player will then enter a slightly higher bid so as to preempt the patent competition. The insights derived can be synthesised. Scale can be thought of as a critical enabler to unleashing the power of managers' entrepreneurial skills. But to provide a truly holistic picture requires to consider a final step, namely the competitive implications. The next section shall illustrate.

## 4.6 | Schumpeterian Between-Firm Reallocation

In oligopoly theory, competitive implications are often referred to as the "market stealing" factor that describes by how much firms can take away market share from rivals. In fact, the Schumpeterian tradition has long emphasized the "between-firm reallocation" effect that moves market share away from the less efficient firms and towards the more efficient and innovative firms (e.g., Melitz, 2003; Asplund & Nocke, 2006; Melitz &

Ottaviano, 2008; Foster, Haltiwanger & Syverson, 2008). The evidence on this point is clear. While in 1997 the top 4 firms (by sales) in a 4-digit industry in finance captured about 23% of the market, in 2015 this number has grown to 35% (Autor et al., 2019). My data are consistent with these findings, yet, the foregoing analysis provides a simple and traceable rationale: In environments where the basis of competitive advantage is stable, upward scale adjustment is the competitive weapon of choice. Echoing this conclusion, the CEO of Alpha emphasizes:

Now, finally, it is clear that the debate is no longer "too big to fail" but is rather "too small to survive" for many European peers.

My findings reaffirm that the Schumpeterian "between-firm reallocation" effect is both powerful and pervasive. As the Head of Strategy for the Asia Pacific region of Alpha emphasized to me:

And that is why you see players like [incumbent firm x] who had essentially to sell off their businesses here because you need a minimum scale of 30, 40 billion [in AuM] before you start making money.

In the long run, this strategy is expected to cause rising concentration, as my interviewee

further explained:

Just look at the beer industry. ... the industry over the last 25 years has seen a huge consolidation from a market structure that was very similar to [our industry] into a market that is dominated by less than ten global breweries.

#### 5 | DISCUSSION

I began my research with the question of how operating at the top of the global firm size distribution (if at all) affects firms' capacity to seize potentially profitable opportunities. My review of the literature suggested that a firm's capacity to scale up likely determines its scope for influencing industry structure (e.g., Knudsen, Levinthal & Winter, 2014). In fact, scale is a key entry/mobility barriers/isolating mechanism (Caves & Porter, 1977; Porter, 1980: 143). My inductively derived framework (Figure 2.2) reveals a multilevel, interrelated process by which the dynamics of enterprise-level seizing capacities attach to the scale adjustment process of the individual firm. Relating my empirical findings to existing theory (Eisenhardt, 1989), this paper is the first to provide a partial synthesis of the following concepts: firm scale, pre-emptive innovation capacities, management practices, and Schumpeterian between-firm reallocation. In so doing, an effort is made to separate the micro foundations of dynamic capabilities, that is the proposed conceptual synthesis, from the capability itself, that is opportunity seizing. In theoretical terms, my findings are consistent with a "superstar firm" hypothesis (Autor et al., 2020) that relates the persistence of dominant firms to superior managerial or technological performance (Stigler, 1968). In empirical terms, my emerging theoretical framework is consistent with large-scale empirical inquiry demonstrating the rich links between management practices and firm performance (e.g., Bloom et al., 2019), the connections between rising industry concentration and the persistence of innovation (e.g., Autor et al., 2020, Bessen, 2017), as well as the quantitative importance of market share reallocation from low to high markup firms (e.g., Syverson, 2004a, 2004b; Goldmanis, Hortaçsu, Syverson & Emre, 2010). Next, I address some contributions to the literature that appear worth highlighting.

### 5.1 | The Dynamics of Enterprise-Level Seizing Capacities

Understanding the dynamics of resource accumulation at the individual firm level is likely of paramount importance to unravelling the sources of heterogeneity in performance differences among firms. In fact, interest in this topic dates back at least to Penrose (1959). As Levinthal and Wu (2010: 781) note, 'there is an important line of inquiry running from Uzawa (1969), Chandler (1969; 1977), Rubin (1973), Slater (1980), and Teece (1982) that takes onboard Penrose's (1959) concern for the dynamics of resource accumulation by the firm.' While existing research on a "capabilities-based" approach to strategy emphasizes the cumulative, evolutionary character of "zero-level" capability development, this study is the first to address the existence of cumulative causal processes underlying the evolution of higher-order capabilities. In this respect, I attempt to broaden the discussion around "non-scale free" ordinary capabilities (Levinthal & Wu, 2010) to include higher-order dynamic capabilities—such as opportunity seizing capacities.

It is precisely here, where the current study cuts into the problem. By examining the longitudinal—rather than cross-sectional—linkages among firm-level choices, my inductive model of enterprise-level "seizing" underpinnings explores the links between dynamic capability and upward scale adjustment. Perhaps, the most distinctive feature of my inductive model of large firm dynamics is the consideration of the dominant firm's scope for influencing industry structure. In the short run, it is sensible to treat the structure of a given industry as a datum. In the long run, however, the degree of industry concentration must itself be endogenous (Dasgupta & Stiglitz, 1980). In this sense, exploring the connections between dynamic capability and firm scale necessitates the consideration of industry structure. The reasoning is that the rate of scale adjustment that

firms can realize is a critical element underlying the general pattern of industry dynamics (e.g., Knudsen, Levinthal & Winter, 2014).

The channel through which industry structure is affected in my emerging theoretical framework is the intensive margin of Schumpeterian "between-firm reallocation." As market shares get reallocated among incumbents-away from the least efficient and towards the more efficient and innovative firms-the degree of industry concentration changes accordingly. Interestingly, scale has been shown to play a pivotal role in determining both a firm's capacity to pre-emptively innovate (e.g., Schumpeter, 1939; Scherer, 1967) as well as its strategic incentives to doing so (e.g., Blundell, Griffith & Van Reenen, 1999; Gilbert & Newbery, 1982; Gilbert & Vives, 1986). As Blundell, Griffith and Van Reenen (1999: 551) note: 'It is often asserted that the superior performance of large firms in innovating is because they have higher cash flows from which to finance investment in R&D. Our findings suggest that this is not the whole story - dominant firms innovate because they have a relatively greater incentive to do so. Firms with high market shares who innovate get a higher valuation on the stock market.' Therefore, the consideration of market share reallocation ought to play a pivotal role in the study of enterprise-level seizing capacities. My emerging theoretical framework is consistent with this logic.

The primary force underlying Schumpeterian "between-firm reallocation" of market share is productivity (e.g., Asplund & Nocke, 2006; Bailey, Hulten & Campbell, 1992; Ericson & Pakes, 1995; Hopenhayn, 1992; Jovanovic, 1982; Melitz, 2003; Petrin, White & Reiter, 2010). Potential sources of the large and persistent productivity differences among firms are many and they are widely discussed (e.g., Syverson, 2011). According to Porter (1991), however, the presence of resources within the firm that is productivity yielding is likely to reflect past managerial choices. Consistent with this logic, significant comparative international studies into the productivity differences across businesses provide compelling evidence that persistent differences in productivity at the firm and the national level reflect variations in *management practices* (e.g., Bloom et al., 2019).

In this respect, the distinctive feature of winning upward scale adjustment strategies is superior productivity in deploying the pre-emptive innovation capacity of the individual firm. In other words, my research suggests that management practices represent the missing link between the latent pre-emptive innovation capacity of the high market share firm and the well-documented reallocation of market share among incumbents away from the least efficient and towards the more efficient firms. Finally, while prior research asserts that scale is a key entry/mobility barrier (e.g., Caves & Porter, 1977; Porter, 1980, 1985, 1996), my analysis here suggests this view should be tempered. It is only if the pre-emptive innovation capacity of the high market share firm joins forces with strong management practices that firm size meets with evolutionary fitness.

## 5.2 | Incumbent's Curse Versus Superstar Firm

My theoretical framework has important implications for scholarship on how incumbents manage change (e.g., Cooper & Schendel, 1976; Hill & Rothaermel, 2003; Tushman & Anderson, 1986). A common perception in academic and popular accounts is that large, incumbent firms rarely introduce radical product innovations. Conventional wisdom on "creative destruction" appears to suggest that nimble start-ups may easily render existing incumbents irrelevant. My inducted model, in contrast, is consistent with emerging facts on firm heterogeneity and suggests that there is a case for caution before assuming as fact a size-able, across-the-board churn through the continuous entry and exit of firms. It is

likely the connection between dynamic capability and firm scale that explains why dominant firms do have the ability to stand in the way of possibly disruptive innovation, foreclose existing rivals, and exclude entry<sup>20</sup>. This view, in fact, seems to be more in line with the emerging facts on firm heterogeneity that report secular declines in firm entry rates (e.g., Decker et al., 2017; Karahan et al., 2019; Gourio et al., 2014), secular declines in the economic share of young firms (e.g., Criscuolo et al., 2014, Binjens & Konings, 2018; Decker et al. 2017; Furman & Orszag, 2018), rising average age per firm (e.g., Davis & Haltiwanger, 2014), and rising concentration across a wide range of markets—including with regard to all six of the US Economic Census sectors (e.g., Autor et al., 2017, 2020; Criscuolo, 2018; Gabaix & Landier, 2010; Grullon et al., 2016).

The increasing dominance of high market share firms across a wide range of markets is likely an important insight for strategy scholars postulating the incumbent's curse, though less novel a notion for antitrust researchers. One of the latter research streams argues that the persistence of dominant firms is a normal condition as the forces of natural selection ensure that only firms with superior managerial or technological capabilities survive industry shakeout (Stigler, 1968). Others have argued that dominant firms may be able to attain and protect their positions merely due to market imperfections and chance events (Williamson, 1977). Addressing this controversy, Gilbert & Newbery (1982: 524) note: 'We do not disagree with Williamson's arguments that market imperfections contribute to the persistence of dominant firms. We do disagree with the contrafactual statement that in the absence of market imperfections potential competition would eliminate dominant firms.'

<sup>&</sup>lt;sup>20</sup> Note that potential (not actual) entry always benefits the consumer (Davis, Murphy & Topel, 2004).

Notable empirical evidence stands with Stigler (1968) and Gilbert and Newbery (1982). For instance, Autor et al, (2020: 38) note: '[T]his "rigged economy" view seems unlikely as a complete explanation since the industries where concentration has grown are those that have been increasing their innovation most rapidly.' Hence, there are strong reasons for believing that leading firms are able to gain a large share of the market not due to a generalized weakening of competition but due to a rise in competition, a rise that weeds out unproductive firms competing in the marketplace. Consistent with this view, recent scholarship in economics reports major pro-competitive shocks to the OECD markets by China's Accession to the WTO (e.g., Autor, Dorn & Hanson, 2013) or the falling of nontariff trade barriers with "deep" regional integration, the falling of ICT costs (e.g., Karabarbounis & Neiman, 2013) or the emergence of digital platform competition—to name but a few. In this light, Van Reenen (2018: 20) stresses that "It may seem more natural to think that these new technologies and globalization trends would make markets more competitive, rather than less competitive." And that matters. It is this logic that is foundational to the construct validity of my emerging theoretical framework, a framework that demonstrates the high market share firm's ability to pre-emptively innovate.

In contrast, the incumbent's curse perspective suggests that established firms are likely to suffer from an inherent built-in disadvantage to innovate in dynamically changing markets laced with deep uncertainty (e.g., Cooper & Schendel, 1976; Foster, 1986; Utterback, 1994). Contrasting this view, my cases suggest and explain the mechanisms by which high market share firms leverage their opportunity seizing capacities so as to maintain evolutionary fitness (read better, "persistent dominance").

### 5.3 | Organizational Adaptation Versus Organizational Scaling

Finally, while existing dynamic capability research holds adaptation as the main driver of superior long-run business performance, my research contrasts this view by suggesting an important role for upward scale adjustment. My findings are consistent with emerging facts on firm heterogeneity providing compelling evidence that 'growth persistence' is a salient feature of dominant firms across a wide range of markets. Similarly, Winter (2009: 105) explains: 'In addition to theoretical reasons to expect persistence rather than randomness in firm growth, there are at least two well-documented empirical regularities that imply that firm growth rates are likely to persist over time. The first regularity is the industry lifecycle. The second is the experience curve.' Accordingly, a core insight is that upward scale adjustment likely substitutes for established ways to compete in environments where the basis of competitive advantage is stable. In fact, we have no reason to believe that economic systems, such as markets, are particularly unstable. Most of the evidence points to the fact that markets are chosen as a mechanism because they are stable. They may not be in equilibrium, but they are normally adjusting from the status quo towards the equilibrium. Even if the equilibrium is never reached, the direction of travel is made clear.

This logic conflicts with research advertising the primacy of adaptation for competitive advantage, i.e. the ability to transition from one basis of competitive advantage to another. At the core of this issue is, perhaps, an underlying assumption in dynamic capability theory postulating a "zero profit tendency" among firms operating in markets open to global competition. In this view, firms are required to constantly adapt to and shape business ecosystems to survive in an open economy with rapid innovation and that superior long-run business performance requires firms to (constantly) jump from one basis of competitive advantage to another (e.g., Teece et al., 1997). However, an insufficient account of the role of industry structure for firm performance—so emphasized in the Industrial Organization school of Bain and Demsetz—appears to have led the dynamic capability literature to engage in an elusive search for properties that make organizations adaptable. Regrettably, the importance of market share reallocation and industry structure for firm performance has been lost in many recent discussions on dynamic capability.

Addressing this gap in the existing dynamic capability literature, the present study is the first attempt to broaden dynamic capability theory building to include a "between-firm reallocation" perspective. While the dynamic capability literature has focused in recent years on the "within-firm" effect that describes the fall of price-cost margins when competition rises (the zero-profit tendency), scholars have neglected that the "within-firm" effect is offset by the between-firm reallocation effect. As a consequence, the dynamic capability literature wrongly holds that there is a zero profit tendency associated with operating in markets open to global competition—such a view clouds the quantitative importance of between firm reallocation (e.g., Syverson, 2004a, 2004b; Goldmanis, Hortaçsu, Syverson & Emre, 2010). In this light, it seems more natural to think that firms do compete on the rate of productivity (not adaptation per se).

Overall, my findings show that the continuous incorporation of pre-emptive innovations is not at all inconsistent with having a consistent strategic position steeped in scale. On the contrary, scale is a salient feature of a firm's capability investment behavior (Pisano, 2017, 2019) and dynamic capability investments likely in the opportunity set of large firms only (Winter, 2003, 2018). Much rather, I think that we do not pay proper account of what adaptation can cost. As Michael Porter (1998: xvi) notes in the preface of the republished edition of his 1985 classic book on "Competitive Advantage: Creating and Sustaining Superior Performance":

Staying flexible in strategic terms renders competitive advantage almost unobtainable. Jumping from strategy to strategy makes it impossible to be good at implementing any of them. Continuous incorporation of new ideas is important to maintaining operational effectiveness. But this is surely not at all inconsistent with having a consistent strategic position.

Chronic adaptation can result in a renewal trap where 'organizations are turned into frenzies of experimentation, change, and innovation by a dynamic of failure' (Levinthal & March 1993: 105/6). It is left to future research to shed light on the value-destroying effects of adaptation and the associated dynamic capabilities.

# 6 | CONCLUSION

A core assumption of dynamic capability theory is that there is a "zero-profit tendency" associated with operating in markets open to global competition, i.e. that there is a "within-firm" effect in the sense that cost-price margins fall when competition rises. In sharp contrast, emerging facts on firm heterogeneity report rising concentration and apparent increases in aggregate markups across a wide range of markets (e.g., Autor et al., 2017, 2020; Criscuolo, 2018; Gabaix & Landier, 2010; Grullon et al., 2016; Van Reenen, 2018). What explains this gap between theory and empiricism? My review of the literature suggested that the "within-firm" effect—so emphasized in dynamic capability theory—can be offset by the "between firm reallocation" effect. Given the large and persistent productivity differences between firms (for a review, see Syverson, 2011), the reallocation effect dominates the within-firm effect and market shares move along the intensive margin away from less productive firms towards more productive firms (e.g., Melitz, 2003; Asplund & Nocke, 2006; Melitz & Ottaviano, 2008; Foster, Haltiwanger &

Syverson, 2008). As a consequence, leading firms turn into dominating "superstars" (Autor et al., 2017; 2020), industries concentrate, and aggregate/industry markups increase when competition rises (e.g., Baqaee & Farhi, 2017, 2019; Brennan, 2016; De Loecker and Eeckhout, 2017). Importantly, firms in the upper tail of the global firm size distribution appear to be able to legitimately entrench their commanding positions on the merits of maintaining evolutionary fitness. In this light, I took issue with the view that the dynamic capability to seize potentially profitable opportunities was allocated to firms independent of their size. While notable recent contributions by Winter (2018) and Pisano (2017, 2019) postulate that dynamic capabilities are likely to be strategically significant only among large firms, these studies remain disconnected from considerations of between-firm reallocation. To obtain a less incomplete understanding of this matter, I inducted a theoretical framework offering a partial synthesis of the theory of mobility barriers and dynamic capability theory. Broadly, the framework suggests that there are important longitudinal linkages between a firm's scale adjustment choices, linkages that cut across four scale adjustment drivers in particular: firm scale, pre-emptive innovation capacities, management practices, and between-firm output reallocation. In this view, "success breeds success" and the cumulative, evolutionary character of enterprise-level seizing capacities attaches to the scale adjustment process of the individual firm. In theoretical terms, the dynamic capability to scale up in the context of a stable basis of competitive advantage provides a key entry/mobility barrier that insulates the focal firm--once it operates at a significant scale-from new competition. Overall, my study showcases the value of integrating rival theories of competitive advantage, notably dynamic capability theory (e.g., Teece, Pisano & Shuen, 1997) and the theory of mobility barriers (e.g., Caves & Porter, 1977). Put differently, my analysis reveals that dynamic capabilities are likely to undergird the process of mobility-barrier-creation, i.e. dynamic capabilities are micro-foundations of mobility barriers. I hope that my findings and reflections in this paper will spur further research on the rich links between dynamic capability theory and a (dynamic) theory of mobility barriers and that they will encourage scholars to build further bridges between these fundamental strategic concepts—the quantitative importance of between-firm output reallocation requires it.

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# **APPENDIX A: DETAILS OF THE INTERVIEW GUIDE**

# **General Principles:**

I asked respondents to articulate concrete behaviours (concrete illustrative actions and outcomes) to elaborate what they mean when general words are used, such as competitive advantage, innovation, resources, capabilities, competitive dynamics, etc. I also focused on concrete (even if mediating outcomes) such as: So what happens next? What result did you get? What did you learn from this experience? In what ways did you apply this learning to your next attempt? In so doing, I attempted to focus on observable, objective, verifiable outcomes.

# **Strategy Formulation Related Questions:**

- 1. Where are the places, if any, where scale and comparative advantage linked to size or volume give you a competitive edge?
- 2. What are the most pressing challenges that you have been dealing with when designing and implementing strategies for growth? To what extent does your growth strategy incorporate a portfolio logic?
  - How do you create your new cash cows and replenish your portfolio of privileged market? (Where privileged market refers to revenues earned in markets where you are the obvious choice)
  - How much to invest in new market opportunities? How do you ensure that you invest in unfamiliar propositions to replace potential decline in the core business at a level of sufficiency?
  - How long will you anticipate these new markets to take to become profitable?
  - What happens if they are not profitable? How to cope with failure in the initiatives portfolio?
  - What are the reasons why you are going to win in those markets? How do your capabilities support that?

# **Strategy Execution Related Questions:**

- 3. What are the main challenges your firm faces in terms of sourcing the necessary knowledge, resources, and capabilities required to carry out your chosen growth strategy?
- 4. How do you free up resources and fund growth opportunities at a level of sufficiency?
- 5. Taking an HR perspective. In your experience, what is the difference between growth talent on the one hand and maintain or execute talent on the other hand?
- 6. What kind of Key Performance Indicators (KPIs) would you use to track growth?

# **Closing Questions:**

- 7. Is there any question or issue that you feel is important for me to ask you but I haven't?
- 8. What questions do you wish you had an answer for?
- 9. How do you feel about the interview process? How can I improve it?

# CHAPTER III

# **OPTIONALITY AS A DYNAMIC CAPABILITY:** MANAGING LOCK-OUT TO NAVIGATE A RANGE OF POSSIBLE FUTURE SCENARIOS\*

**Research Summary:** The evolutionary economics perspective of industry evolution stresses that entrants' survival in nascent markets is contingent on the complementarity of their ordinary capabilities at entry. I suggest broadening this view to also include differences in entrants' dynamic capabilities at entry. Through an in-depth multiple case study of two incumbent firms in the global auto industry, I induct a theoretical framework that clarifies a viable nascent market strategy by which diversifiers attain optionality to navigate a range of possible future market entry scenarios. Optionality refers to the smallest set of sunk-cost commitments firms maintain to avert lock-out from strategically important alternatives. Overall, I shed light on the pre-entry capability-performance relationship by explicating an indirect relationship between pre-entry capabilities and firm performance, mediated by dynamic capabilities.

**Managerial Summary:** The sustainability of competitive advantage depends critically on firms' ability to transition from one basis of competitive advantage to another. But how firms select a new basis of competitive advantage in environments where there are numerous strategically important alternatives vying for dominance is unclear. In this article, I conduct an in-depth multiple-case study of two incumbent firms in the global carmaker industry to examine how firms successfully hedge their commitments to existing capabilities against the emergence of potentially disruptive market segments. My theoretical framework also provides guidance to managers for mitigating the risk of being committed to hyped market segments that prove to be of limited value. Critical to this strategy is to avert lock-out from strategically important alternatives, without blundering into irreversible lock-in.

**KEYWORDS** Commitment • Dynamic capability • Industry evolution • Multiple scenario development • Pre-entry capabilities • Uncertainty

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#### **1 | INTRODUCTION**

'I am concerned about the volatility in markets and about the politically driven uncertainty that will dominate markets' development. For me, that is going to be the key number one uncertainty. This means as an investor you cannot focus on your main scenario but you need to have diversified strategies and focus on alternatives because those alternatives are too likely to ignore. And that is going to mean that corporates will not drive optimal strategy, they will drive risk-minimizing strategies which means much less proactive decision making, more cautious decision approaches, and not putting all your eggs in one basket. That is, optionality is going to be the name of the game.'

— Axel A. Weber, Chairman of UBS Group, 2017

At many points during the lifecycle of an industry the technology or state of business practice shifts so that existing firms must decide whether to enter a new market segment in which they do not now participate in (Nelson & Winter, 1982; Nelson, 1991; Dosi et al., 2000; Helfat & Lieberman, 2002). As Helfat & Lieberman (2002: 728) note: "Industries often undergo new growth phases associated with shifts in business practices or technological development, and these shifts may provide the basis for the creation of new market segments." It is the potentially disruptive force of this industry-level phenomenon that elevates managerial interest into potential strategic responses at the firm-level.

Arguably, if large firms are to cope with the emergence of new market segments in their industry, they must consider diversification into the new market niche. A particularly prominent explanation of the success or failure of diversifying firms' entry into new market segments is premised on the evolutionary economics pre-entry capabilities perspective (Agarwal & Bayus, 2002; Agarwal & Gort, 1996; Bayus & Agarwal, 2007; Furr & Kapoor, 2018; Helfat & Lieberman, 2002; Klepper, 1996, 1997, 2002). Here, the central question is how the pre-entry resources and capabilities of established firms affect their post-entry performance. This work emphasizes that diversifiers have a survival advantage over start-ups as start-ups may bring founder experience and skills to a new

market niche but not organizational capabilities. Pre-entry capabilities have been usefully disaggregated into corporate-level integrative capabilities and function-level complementary assets (Helfat & Lieberman, 2002; Helfat & Raubitschek, 2000; Moeen, 2017; Qian et al., 2012). The key point is that this work defines pre-entry capabilities as operational or "ordinary" (Winter, 2003).

To me, this seems too narrow to represent the full range of pre-entry capabilities firms might possess. Large, established firms can also invest in dynamic capabilities to hedge their commitments to ordinary capabilities against the revealed challenges associated with the next growth phase in a particular industry. While the literature stream in evolutionary economics has generated valuable insights with respect to the important role of pre-entry capabilities, there is no explicit consideration of differences in firms' dynamic capabilities at entry. Absent this consideration, it is unclear how diversifying firms leverage their pre-entry capabilities in the face of the revealed inertial forces endemic to large, established firms. Thus, I ask: *How do large, established firms hedge their sunk cost commitments to ordinary capabilities against new industry growth phases associated with shifts in business practices or technological developments*?

Given this limited theoretical understanding, I conducted a multiple case theory-building study (Eisenhardt & Graebner, 2007). My setting is the global carmaker industry. Using rich field and archival data, I examined how two incumbent original equipment manufacturers (OEMs) attend to and deal with emerging market niches that are likely to reshape the auto industry: electrification, autonomous driving, connectivity and shared services (Perkins & Muhrman, 2018; Teece, 2018). Hence, my research setting is characterised by a new industry growth phase inducing a range of alternative scenarios. Both companies classify as high-market share firms, significantly exceed EUR 80 billion

in annual sales, operate in similar geographic regions, face similar market uncertainties, and so create a revealing comparison of strategies for hedging against various environmental contingencies.

The present study contributes at the intersection of dynamic capabilities and the pre-entry capabilities-performance relationship. My primary contribution is to clarify a viable nascent market strategy by which high market share firms hedge their sunk cost commitments to ordinary capabilities against various environmental contingencies-the threat of new entry in particular. Accordingly, I offer a new explanation for the highly robust finding in the literature that diversifiers have a survival advantage over start-ups (Helfat & Lieberman, 2002), an explanation that is premised on the high market share firm's ability to pre-emptively innovate, foreclose existing rivals and exclude entry (e.g., Gilbert & Newbery, 1982; Gilbert & Vives, 1986). While Gilbert & Newbery (1982) focus on the persistent dominance of a monopolist, Gilbert & Vives (1986) focus on the more realistic setting of the persistent dominance of oligopolists playing a noncooperative game. Consistent with the predictions of these models, my inducted framework explains how and why large, incumbent firms must take the preventive action of investing in dynamic capabilities before they can leverage and use their ordinary pre-entry capabilities in exclusionary conduct towards new entrants. In this view, high market share firms maintain difficult-to-imitate positive differentiation through pre-empting R&D competition. The framework outlines a viable nascent market strategy that creates incumbent advantages for high market share firms and generates persistent dominance. The latter strategy necessitates investments in a particular class of dynamic capabilities, capabilities that enable the focal firm to leverage and use its existing pre-entry capabilities geared toward the mainstream market to also scale up and consolidate an adjacent basis of competitive advantage. The framework explains how incumbent firms develop the preparedness needed to respond swiftly in the event that a start-up entrant creates a potentially disruptive market segment. As a consequence, the successful entrant quickly finds itself competing head-to-head with an incumbent player bringing to the table a magnitude of organizational capabilities it can neither afford to build nor maintain. In this way, incumbent firms get to keep their commanding positions by throwing more organizational competencies (dynamic or other) at an R&D problem than a rush of new entrants can afford to build and maintain (collectively or individually). The formal logic here is similar to an *auction market* in which the firm that bids the most wins the prize, as in the Gilbert & Newbery (1982) model.

The empirical implications of my inducted theoretical framework are consistent with a rapidly growing, highly cited literature in economics reporting several stylized facts on firm heterogeneity. Most notably:

- secular declines in firm entry rates (e.g., Decker, Haltiwanger, Jarmin, & Miranda, 2017; Karahan, Pugsley & Aysegül, 2019; Gourio, Messer & Siemer, 2014)
- secular declines in the economic share of young firms (e.g., Binjens & Konings, 2018; Criscuolo, Gal & Menon, 2015; Decker et al. 2017; Furman & Orszag, 2018)
- rising average age per firm (e.g., Davis & Haltiwanger, 2014)
- rising concentration and markups across a wide range of markets—including with regard to all six of the US Economic Census sectors (e.g., Autor, Dorn, Katz, Patterson & Van Reenen, 2017, 2020; Criscuolo, 2018; Gabaix & Landier, 2010; Grullon, Larkin & Michaely, 2017).
- "persistent dominance" of a relatively small number of firms in the upper tail of the global firm size distribution (e.g., Autor et al., 2017, 2020; Van Reenen, 2018)

To illustrate the significance of some recent changes in firm-level dynamics: The ten-year survival rate of the largest 500 U.S. based firms in Compustat (by worldwide sales) rose

from 55 percent in 2005 to 68 percent in 2015 and the probability that a firm in the top 500 was also in that category five years earlier rose from 66 percent to 80 percent between 2000 and 2015 (Autor et al., 2020). Importantly, these changes in aggregates do have significant implications for firm-level theorizing because the origins of aggregate fluctuations can be traced back to "large firm dynamics" (Carvalho & Grassi, 2019). Focusing on these large firm dynamics, Autor et al., (2017, 2020) develop a "superstar firm" theory bolstering an efficiency-enhancing mode of industry concentration. My findings are consistent with these emerging facts on firm heterogeneity, yet, extend this view by suggesting an important role for dynamic capabilities.

Arguably, the increasing persistence of the same firms among the U.S. top 500 (by sales) is suggestive evidence that these firms (and superstar firms in other geographies) do maintain "evolutionary fitness". Despite important advances, the evolutionary economics pre-entry capability perspective tells us next to nothing about how and why firms in the upper tail of the global firm size distribution can leverage and use their pre-entry capabilities so as to maintain difficult-to-imitate positive differentiation in today's dynamically changing markets laced with deep uncertainty. The profession has been slow to explain how pre-entry capabilities are employed, and how value is captured. While much is understood about the rise of "superstar firms" across a wide range of markets, a potential explanation underlying some of these large firm dynamics, the superstar firm's capacity to manage a range of possible future scenarios, has been largely overlooked.

Relating my empirical findings to existing theory (Eisenhardt, 1989a), my emergent theoretical framework is the first to provide a partial synthesis of multiple scenario development (Schoemaker, 1993), the four causal factors of commitment (Ghemawat, 1991), and dynamic capability (Teece & Pisano, 1994; Teece et al., 1997; Teece, 2007;

Winter, 2003). This new view postulates, at its core, a more nuanced understanding of the connections between enterprise-level sensing and seizing. My framework explains how and why opportunity sensing and seizing are mediated by (1) opportunity binding and (2) opportunity management. Opportunity binding is necessary to collapse market uncertainty into a small number of scenarios. Opportunity management is necessary to avert strategic "lock-out" from scenarios of such kinds. The notion of lock-out itself refers to the difficulty of regaining a discarded opportunity on the original terms and depicts one of the four causal factors of commitment introduced by Ghemawat (1991). As Ghemawat (1991: 19) notes: '[Lock-out] can create commitment because of the difficulty of recalling discarded opportunities on the original terms. ... No company, however, can be sure of recovering lost ground quite so easily. To regain its position, a company may have to spend a good deal more than if it had made the investment when first proposed.' In the presence of lock-out, firms are excluded from scenarios of particular kinds. In the absence of lock-out, firms are "in the game". Taken together, opportunity binding and management yield "optionality". My analysis leads me to define optionality as 'the smallest set of sunk-cost commitments firms maintain to avert lock-out from strategically important alternatives'. The notion of optionality acknowledges uncertainty and prioritizes figuring out what to do; the actual execution of activity, i.e. managing lock-in, is of secondary importance. The general logic here is that only those firms with "optionality" are prepared to attain a long-run comparative advantage in opportunity seizing because managing lock-out reduces the difficulty of recalling opportunities on the original terms.

Given the importance of opportunity seizing for superior long-run business performance (e.g., Teece, 2007), it is likely the capacity for managing "lock-out" which is pre-eminent as the basis for navigating environments where there is deep uncertainty—such as new

industry growth phases. Echoing prior discussion of dynamic capability as a hedge against market uncertainty (e.g., Teece, Peteraf & Leih, 2016; Winter, 2003, 2018), it is theorised that excellence in managing lock-out undergirds a particular class of an enterprise's dynamic capabilities. Put differently, an effort is made to separate the micro-foundations of dynamic capabilities, that is managing lock-out, from the capability itself, that is optionality. On a conceptual level, the present study strives to isolate the creation of "optionality" as a general-purpose management competence providing firms paths into new markets. This analysis is consistent with highly robust empirical findings reporting the importance of general-purpose management competencies for explaining persistent heterogeneity in productivity, innovation and growth at the individual firm level (e.g., Bloom, Brynjolfsson, Foster, Jarmin, Patnaik, Saporta-Eksten & Van Reenen, 2019; Bloom, Eifert, Mahajan, McKenzie & Roberts, 2013; Bloom, Sadun & Van Reenen, 2012, 2017; Bloom & Van Reenen, 2007, 2011; Schmitz, 2005).

However, competence in dealing with change does not generate revenues in the short run, it is an overhead cost burden (Winter, 2003). It is precisely here, where the importance of pre-entry capabilities returns to the stage. Because of its overhead costs, the use of optionality as a simple hedge against change is necessarily limited and a realistic option only for large firms, firms that capture significant value by employing sizable pre-entry capabilities. The reasoning is roughly this: Entrepreneurial choice ought to be modelled under liquidity constraints (e.g., Evans & Jovanovic, 1989; Knight, 1921; LeRoy & Singell, 1987). Firms operating at significant scale usually have favourable credit ratings and higher cash flows from which to finance investments of various kinds. Thus, financing a continuing flow of dynamic capability overhead investments, on a scale big enough to matter, is likely in the opportunity set of large firms only (Pisano, 2017, 2019; Winter, 2003, 2018). As Winter (2018: 1182, italics in original) notes: 'I advance reasons

for believing that dynamic capabilities are likely to be strategically significant only among large firms and are primarily important among *very* large firms.'

Several important theoretical insights emerge from my analysis. First, my research showcases the value of integrating the evolutionary economics' pre-entry capability perspective and the dynamic capability paradigm by revealing how large, established firms preserve the value of their ordinary pre-entry capabilities by creating "optionality" for fundamentally different futures. My analysis reveals that future preparedness of this type is shown to be a manifestation of excellence in managing lock-out over time, a capacity that is intimately linked to the availability of abundant sources of internal funding (so-called "deep pockets"). Second, my analysis sheds light on the genesis and metamorphosis of business model reconfiguration among firms with a high market share. In line with the "superstar firm" theory (Autor et al., 2017, 2020) and contrary to the "incumbent's curse" perspective (e.g., Henderson & Clark, 1990; Christensen, 1997; Dosi, 1982; Tushman & Anderson, 1986; Benner & Tripsas, 2012), my study advances understanding of how the multinational corporation can be 're-founded'. My research extends this view by suggesting an important interplay of multiple scenario development, commitment, and dynamic capability. Finally, my research contributes to dynamic capability theory building by moving beyond analysing the role of dynamic capabilities for competitive advantage to revealing the connections between dynamic capability and firm scale. My research thus begins to develop a more nuanced understanding of the preentry capability-performance relationship by explicating an indirect relationship between pre-entry capabilities and firm performance, mediated by dynamic capabilities.

#### 2 | BACKGROUND

Economic organizations do have various sorts of competence in dealing with change. Dynamic capability is a particular sort of such competence (Teece & Pisano, 1994; Teece et al., 1997; Eisenhardt & Martin, 2000). In addressing many well-known conceptual and linguistic difficulties in dynamic capability theory building (Peteraf et al., 2013; Arndt & Pierce, 2018), recent scholarship has begun to disaggregate DCs into the capacity (1) to sense and shape opportunities and threats, (2) to seize opportunities, and (3) to reconfigure the firm's physical and human asset structures when necessary (Teece, 2007). With regard to the latter class of DCs, Teece (2007: 1335) notes: 'Reconfiguration is needed to maintain evolutionary fitness and, if necessary, to try and escape from unfavourable path dependencies.' It is precisely here where the current study cuts into the problem.

Arguably, if firms are to successfully escape from unfavourable path dependencies, they must shape their future potential market entry options. The underlying rationale of this argument builds on prior discussion of dynamic capability (Winter, 2003, 2018). In this view, '... investing in dynamic capabilities (of whatever order) can be a partial hedge against the obsolescence of existing capability, ...' (Winter, 2003: 994). In the adaptive application, firms can hedge their commitments to existing capabilities against various environmental contingencies by investing in future potential market entry options. In so doing, firms create latitude to pursue alternative product market strategies by liberating themselves from many of the well-known constraints that are imposed by past choices on present ones (Ghemawat, 1991). This view is consistent with Porter (1991) who stresses that firms cannot be seen only as optimizing within tight constrains, but as having the potential to shift the constrains through creative strategy choices. Market entry options are strategically important because they shape a firm's future potential market entry

moves. The relationship between market entry options and dynamic capabilities is clear in that "dynamic capabilities create options to invest in different types of competences" (Pisano, 2017: 750). *Different* types of competencies, in turn, may not help companies to "make a living today" but may help them to do well in markets they are not now participating in. The key point is that firms may invest in market entry options, or for that matter in dynamic capabilities, to escape from unfavourable path dependencies.

This leads to a key insight that has been lost in many recent discussions of dynamic capability, "to have a dynamic capability and find no occasion for change is merely to carry a cost burden" (Winter, 2003: 993). The capacity to escape from path dependencies can be a source of competitive advantage only if change is *necessary*. Ultimately central to any empirical assessment of change 'necessity' is the consideration of market creation (Casson, 1982, 2005). As Eckhardt & Shane (2003: 339) note, 'only reliable confirmation that a previously unseen or unknown valuable opportunity in fact exists occurs when a market has been created for the new item.' In fact, the primary concern for many entrepreneurs is not new technology creation but the uncertainty surrounding market reception (Christensen, 1997). It is widely known that the emergence of new industries (read better market creation) is governed by elevated levels of uncertainty (e.g., Aldrich & Fiol, 1994; Kaplan & Tripsas, 2008; Rindova & Fombrun, 2001; Porac, Ventresca & Mishina, 2002). As Santos and Eisenhardt (2009: 64) summarize, "Nascent markets constitute unstructured settings with extreme ambiguity." These ambiguities make it difficult for established firms to assess ex-ante if a future change will be necessary and investments in dynamic capabilities will pay off. We are left with a somewhat troubling accepted view that large, established firms can invest in market entry options as a partial hedge against the obsolescence of their existing capabilities, but that the value of these investments might well diminish as market creation efforts fail to materialize. Seen in this light, incumbent firms might endeavour to accomplish change without reliance on dynamic capability but by leveraging their pre-entry experiences (Helfat & Lieberman, 2002; Klepper & Simons, 2000). Therefore, I next briefly review the relevant literature on the pre-entry experience-performance relationship, with a focus on whether pre-entry experiences may usefully substitute for dynamic capabilities.

Pre-entry capabilities have been identified as a particularly powerful sort of competence at dealing with change (Helfat & Lieberman, 2002). Diversifiers' advantages over startups are premised, among others, on economies of scope as diversifying firms usually have substantial financial means and the capacity to spread their technological and marketing capabilities across multiple markets (Helfat & Lieberman, 2002; Klepper & Simons, 2000; Carroll et al., 1996; Mitchell, 1991). Moreover, they are able to leverage their existing commitments to ordinary capabilities to accelerate the development and commercialization of innovations in the new industry.

However, diversifiers also face disadvantages compared to entrepreneurial start-ups. Diversifying firms must deal with structural inertia (Hannan & Freeman, 1984). In fact, incumbent failure in the face of change has been subject of repeated empirical inquiry (Cooper & Schendel, 1976; Hill & Rothaermel, 2003; Tushman & Anderson, 1986; Christensen, 2006; Rosenbloom, 2000; Taylor & Helfat, 2009; Tripsas & Gavetti, 2000). A frequent misconception is that incumbents fail to invest in technology change (Christensen & Bower, 1996; Gilbert, 2005; Sull et al., 1997; Tripsas & Gavetti, 2000). Building on this insight, Kapoor and Klueter (2015) demonstrate that well-intended initial research investments can, nonetheless, become voided by organizational inertia during the later stages of development and commercialization. While diversifying firms might have superior access to resources in the short-term, long-term performance consequences

of initial firm characteristics are less clear in the light of sustained inertial pressures, as was evidenced by large, established firms such as Kodak, National Cash Register, Smith Corona, and Polaroid (e.g., Christensen, 2006; Danneels, 2012; Rosenbloom, 2000; Taylor & Helfat, 2009; Tripsas & Gavetti, 2000). In conclusion, 'the "main effect" of preentry experience is ambiguous, particularly when one is examining long-term consequences on performance' (Ganco & Agarwal, 2009: 229).

Together, these research streams suggest that stress on pre-entry capabilities must complement, not substitute for, stress on dynamic capabilities. While the literature stream in evolutionary economics has generated valuable insights with respect to the important role of pre-entry capabilities, there is no explicit consideration of differences in firms' dynamic capabilities at entry. Absent this consideration, it is unclear how diversifying firms leverage their pre-entry capabilities in the face of the revealed inertial forces endemic to large, established firms. Thus, I ask: *How do large, established firms hedge their sunk cost commitments to ordinary capabilities against new industry growth phases associated with shifts in business practices or technological developments?* 

#### 3 | METHODS

Given the limited theory and evidence, I conducted a theory-building, multiple-case study (Eisenhardt & Graebner, 2007). This method is particularly relevant for complex, dynamic, large-scale resource allocation questions such as mine (for a recent emphasis, see Pisano, 2017: 759). The research setting is the global auto industry. This is an appropriate setting for several reasons. First, the global automotive is arguably undergoing a new growth phase associated with new entrants and many new, potentially disruptive changes in technology and business models (Perkins & Muhrman, 2018;

Teece, 2018). Thus, the global auto industry connects in particular affinity with the prescriptive managerial problem under consideration in this study: How to hedge ordinary pre-entry capabilities against market uncertainty? Second, despite controlling various "ordinary" pre-entry capabilities at scale (Jacobides, MacDuffie & Tae, 2016; Jacobides & MacDuffie, 2013; MacDuffie, 2018), many carmakers respond to the revealed challenges by current market uncertainty by investing in preparedness for various environmental contingencies, as was evidenced by numerous multi-billion dollar investments in connectivity, autonomy, shared services and electrification (e.g., McKinsey, 2019). This allows me to examine incumbents' nascent market strategies, i.e. their strategic responses. (3) The automotive sector is a main driver of macroeconomic growth and employment generation in both developed and developing economies. By spanning many adjacent industries, the core automotive industry gives rise to multiplier effects for growth, economic development and dimensions of nation-building. (4) Fourth, the industry is very well-documented by the media.

The current study chose a sample of two firms. Both are listed among the four largest firms (by sales) within four-digit industries for automotive as reported by COMPUSTAT. Importantly, the chosen number of two cases allows for rigorous data collection as incumbent firms, given their large size, are relatively intransparent and less easily studied than smaller firms (e.g., Danneels, 2012; Tripsas & Gavetti, 2000). I tracked these firms from 2015 to 2019. This period captures the chronology of specific actions of firms with respect to investments in future preparedness particularly well as many firms have placed sunk cost commitments to new market segments during this time.

The study chose large firms for four reasons in particular. Above all, a rich understanding of the large (and increasing) differences between firms requires taking into account

macro-economic phenomena (e.g., Van Reenen, 2018). The reasoning is that today, 'A small number of firms accounts for a substantial share of aggregate economic activity. This opens the possibility of doing away with aggregate shocks, instead tracing back the origins of aggregate fluctuations to large firm dynamics' (Carvalho & Grassi, 2019: 1401). For the present context, the most relevant fluctuations in aggregates are probably secular declines in firm entry rates (Decker et al., 2017; Karahan et al., 2019; Gourio et al., 2014) as well as secular declines in the economic share of young firms (e.g., Criscuolo et al., 2014; Binjens & Konings, 2018; Decker et al. 2017; Furman & Orszag, 2018). It is the linking of high market share firm activities to these phenomena in aggregates that lies at the heart of the present study. Second, large firms usually possess outsized pre-entry capabilities tailored to their legacy business model. Those pre-entry or 'ordinary' capabilities may be usefully thought of as spanning a continuum from highly "marketspecific capabilities" (e.g., compact car design, R&D, product architecture development, setting specifications for components) to highly "general-purpose capabilities" (e.g., management practices, mechanical engineering, assembly manufacturing, financial management, system integration, distribution). Both dimensions resonate with the evolutionary economics pre-entry capability perspective of industry evolution. Hence, the chosen research setting enables me to contribute to this literature. Third, recent scholarship in economics provides compelling evidence that there is a relatively small number of firms in the upper tail of the global firm size distribution that is able to extract increasingly large markups across a wide range of markets, including with regard to the automotive sector (Autor et al., 2020). This is suggestive evidence that firms operating at the top of the global firm size distribution are able to cope with today's fast-moving business environments open to global competition better than rivals that are smaller. Therefore, intellectual efforts—such as mine—to broaden the evolutionary economics

pre-entry capability perspective to also include dynamic capabilities may usefully focus on large firms. Fourth, as anchor tenants of every developed economy, large firms influence not only current economic output but, through innovation (Gompers, Lerner & Scharfstein, 2003; Hiltzik, 1999), also dimensions of nation-building. In other words, the study of large firms is a fertile research setting in its own right.

#### 3.1 | Data Sources:

I used several data sources: (a) semi-structured interviews with focal and non-focal firm executives, (b) interviews with industry experts, (c) informal follow-up interviews, and (d) archival material (Table 3.1). A particularly valuable source is 100 interviews conducted by journalists and analysts with executives between 2015-2019. The focalfirm interview had three sections. The first briefly covered the informant's background and role. The second was a detailed narrative of the focal firm's response to shifts in the technology and regulatory landscape that may provide the basis for the creation of new market segments. My goal was to understand major decisions (firms' sunk cost commitments to future preparedness), various environmental contingencies considered (strategically important alternatives), as well as the evolution of committed choices (the dynamics of future preparedness). The third section explored topics that arose in the interview or in archival data. Where necessary to fill gaps, I used follow-up interviews and emails. I also interviewed non-focal firm participants in the financial services sector. By comparing my findings across industries, i.e. automotive and finance, I enhanced both the external validity of my findings and my understanding of the role of start-ups and the competitive dynamics between start-ups and incumbent firms.

# TABLE 3.1 Data by Cases & Informants

	Sample				Interviews				Archiv	al Documents
Cases	Annual Revenue	Industry	Board Member	Global Head (e.g. Strategic planning, HR strategy)	Director (e.g. Strategist)	Senior/Vice President	Team Lead or Project Leader	Total	Number	Examples
Internal Informants								20	997	
Alpha	>\$80B	Automotive	-	2	2	1	4	9	467	
Beta	> \$80B	Automotive	1	1	3	5	1	11	530	Business Press; Interviews:
External Informants						I	-	22	1049	Company
Gamma	> \$20B	Financial Services	-	1	3	7	1	12	550	Reports; Annual Reports
Delta	>\$20B	Financial Services	1	1	2	6	-	10	499	

	Sample				Interviews				Arch	val Documents
Cases	Annual Revenue	Industry	Global Leader & Managing Director & Senior Partner	Regional Leader & Managing Director & Senior Partner	Director & Senior Partner	Partner	Project Leader	Total	Number	Examples
External Informants								11	301	
Consulting 1	> \$3B	Management Consulting	1	-	1	1	-	3	69	
Consulting 2	> \$3B		1	-	-	-	1	2	82	Company
Consulting 3	> \$3B		-	-	-	5	-	5	85	publications
Consulting 4	> \$1B		-	-	-	1	-	1	65	

Ultimately, I also interviewed senior partners, directors, managing directors, regional leaders as well as two global leaders from worldwide management consulting firms. Such triangulation likely strengthens my inductive model. As Eisenhardt (1989: 537) emphasizes: 'That is, the triangulation made possible by multiple data collection methods provides stronger substantiation of constructs and hypotheses.'

I took several steps to ensure data validity. First, I used interviewing techniques such as nondirective questioning, which are likely to yield accurate information. Second, I used event-tracking, in which informants walk through a step-by-step chronology of events (Eisenhardt, 1989). Third, I interviewed multiple informants inside each firm, and from varied functional and hierarchical levels (although my focus was clearly geared towards the senior-most managerial levels). This creates a more accurate understanding than single informants can provide. Fourth, anonymity encouraged informants to speak with candor. I collected in-depth archival data including press articles, company press releases, conference presentations, and annual reports. Finally, I collected press related to firm executives as well as publicly available interviews with them (e.g., Bloomberg Surveillance). Given the prominence of my cases and some of their executives, the latter source was particularly abundant.

#### 3.2 | Data Analysis and Theory Building:

I began my analysis by enhancing my familiarity with each case on a stand-alone basis (Eisenhardt, 1989). This facilitates the unique patterns of each case to emerge. I focused on information that could be substantiated from multiple data sources and was highlighted by informants. When details were missing, I obtained added archival information or conducted follow-up emails or phone calls. I then identified emergent patterns by analysing each case through the lens of my research question. In particular, I was interested in the strategic investments that firms engaged in to hedge their market positions against various environmental contingencies and how these investments unfold. Using tables and charts, I listed tentative theoretical constructs, such as incumbency advantage, multiple scenario development, and commitment.

After completing within-case analysis, I conducted a cross-case analysis using replication logic in which emergent patterns are confirmed or disconfirmed across cases (Eisenhardt & Graebner, 2007). Here I cycled between emergent theory (Figure 3.2) and data (Table 3.1) to clarify constructs, adjust abstraction, and strengthen the underlying logical arguments that connected constructs. In this step, cases are treated as a series of experiments to test the generalisability of the emergent constructs and relationships identified in the within-case analysis. As Eisenhardt (1989: 542) notes: 'In replication logic, cases which confirm emergent relationships enhance confidence in the validity of the relationships.' My cross-case analysis clearly confirmed the logic of my emergent theoretical framework and the relevance of the specific aspects abstracted for detailed analysis. For me, this was also a useful indicator of having achieved a reasonable level of data saturation. The latter is an often-raised concern in qualitative research, sometimes governed by an elusive search for the optimal number of interviewees. To further strengthen the inherent force of my replication logic, I attempted to proxy for the largescale N-firm replication by consulting a powerful panel of external informants. These external informants, mostly very senior consultants, allowed me to check my results against a holistic industry perspective. The views of my external informants were in line with the views expressed by my elite panel of internal informants.

As my theoretical insights had reached such level of refinement, I referred to prior literature to compare with existing research, before turning back to the data. The strategy literature-most notably, Schoemaker (1993) and Ghemawat (1991)-provided an intuitive basis for anchoring my theoretical framework. As my findings around incumbent advantages were concerned, this process was more challenging. In contrast to certain parts of contemporary strategy and entrepreneurship scholarship, my data clearly pointed to firms' ability to persistently control a market, even in the face of change. Much of the strategy literature, however, appears to assume as fact a substantial disadvantage of incumbent firms in the face of change, largely due to inertial forces (e.g., Abernathy & Utterback, 1978; Christensen, 1997; Cooper & Schendel, 1976; Foster, 1986; Henderson & Clark, 1990; Rosenbloom & Christensen, 1998; Tripsas & Gavetti, 2000; Tushman & Anderson, 1986; Utterback, 1994). My emergent framework, in contrast, suggests that incumbent firms do have the ability and incentives to pre-emptively innovate. This tension pushed my hand toward recent scholarship in economics (Autor et al., 2020; Brynjolfsson et al., 2008; Carvalho & Grassi, 2019; Van Reenen, 2018) and also required to go back in time (e.g., Gilbert & Newbery, 1982; Gilbert & Vives, 1986) until more secure foundations for my inductive model were found. In common parlance with my inducted framework, the latter literature suggests that there are incumbent advantages for high market share firms, such that a few firms can remain dominant in an industry over significant periods by maintaining their output in the face of entry.

Interestingly, this perspective speaks directly to emerging facts on firm heterogeneity.<sup>21</sup> For the purpose of the present study, a notable stylized fact is the slowing of firm entry rates (e.g., Decker et al., 2017). In fact, if incumbent firms indeed do have the ability to

<sup>&</sup>lt;sup>21</sup> Syverson (2019: 41): 'The macro market power literature has offered an immense service by documenting and emphasizing the potential connections between several trends: labor's declining share of income, increasing corporate profits, increasing margins, increasing concentration, slower productivity growth, decreasing firm entry and dynamism, and reduced investment rates. ... The fact that these changes are so noticeable and have been trending for so long (each for over a decade at a minimum, some approaching four decades now)—often in contrast to very different patterns before—creates an inherent interest and importance.'

navigate a range of possible future scenarios, as suggested by my inducted model, one would expect to see low levels of measured firm entry rates. My emergent theoretical framework, hence, connects to large-scale quantitative evidence reporting decreasing firm entry and dynamism, thereby pointing to the external validity of my findings.

Overall, I attempted to follow a well-developed set of methodological ground rules for qualitative research encapsulating the iterative process of refining insights, building underlying logical arguments, and relating them to existing theory and evidence (Eisenhardt, 1989). In this way, a number of first-order concepts have earned their way into the data structure graph of my inductive model of enterprise-level reconfiguration underpinnings (Figure 3.1). The general pattern of the figure, including with regard to the use of dynamic managerial capabilities as a second-order theme, has recently been proposed by Zott and Huy (2019).<sup>22</sup>

<sup>&</sup>lt;sup>22</sup> Note that dynamic managerial capabilities are viewed to guide firms in managing lock-out and the "escaping" from unfavourable path dependencies.

# FIGURE 3.1 Data Structure



#### **4 | EMERGENT THEORETICAL FRAMEWORK**

Recent scholarship in economics reports that a small number of superstar firms at the top of the global firm size distribution are gaining market share (e.g., Autor et al., 2020; Brynjolfsson et al., 2008; Carvalho & Grassi, 2019; Van Reenen, 2018). This is suggestive evidence that high-market share firms do have capabilities of particular kinds to survive and thrive in today's fast-moving business environments open to global competition. A particular sort of such competence, the dominant firms' capacity to hedge their commitments to existing capabilities against a range of possible future scenarios, has been largely overlooked. To obtain a less incomplete understanding of this matter, rival theories of superior long-run business performance are integrated using the concepts of multiple scenario development, strategy as commitment, and dynamic capability. This section sets out a general framework within which several key questions at the intersection of uncertainty, choice, and commitment can be brought together and discussed at once. The range of different issues discussed is summarized in Figure 3.2. The pattern of the figure reflects the nature of the synthesis attempted in this section. Broadly, the framework suggests that a long-run comparative advantage in enterpriselevel seizing is underpinned by strong dynamic managerial capabilities of two types: (1) Overcoming corporate or individual blind spots through multiple scenario development and (2) managing lock-out from strategically important alternatives. I next present my data tables (3.2-3.4), introduce the inductive model of dynamic managerial capability underpinnings (Figure 3.2), and elaborate its distinctive features with reference to theory and evidence.

## FIGURE 3.2 Inductive Model of Enterprise-Level Reconfiguration Underpinnings



<sup>\*</sup> Knight (1921: 268): 'With uncertainty present, doing things, the actual execution of activity, becomes in a real sense a secondary part of life; the primary problem or function is deciding what to do and how to do it.'

## **TABLE 3.2** Growth Persistence

Persistent Dominance	Concept Definition/Evidence	Illustrative Quotes			
Superstar Firm Theory	'Growing concentration could be consistent with greater churn among <b>the largest 500</b> <b>firms</b> ("creative destruction") or decreasing churn ("persistent dominance") So increasing inequality between firms seems to be accompanied by <b>more persistent</b> <b>dominance</b> rather than greater creative destruction.' (Autor et al., 2020: 71)	'I would say it is <b>super easy to copy Tesla</b> . I just need to build an attractive electric car It is not possible for everyone to build cars—what you can clearly recognize. Apart from that it is all about getting into volume. There is so much attached to building a car. I need a network, I need service, I need to launch new products on an ongoing basis. So whoever claims that car-building is easy these days simply has absolutely no idea One cannot simply conclude—by looking at a few start-ups—that it is easy to build a car We have an <b>enormous advantage over Tesla</b> . We do have a worldwide network. We do have established logistic chains. We do have established production sites etc. That is to say we don't have any of the problems they face. We do have a huge customer base.' (Board Member at Beta)			
	'The <b>share of young firms in economic</b> activity has been on a <b>secular decline</b> since the early 1980s, as highlighted by Decker et al., (2016) and Furman and Orszag (2018). Interestingly, other studies have shown that similar trends are present in several other advanced economies as well [e.g., Criscuolo et al. (2014), Binjens and Konings (2018)].' (Akcigit & Ates, 2019: 10)	'So in economic terms nobody missed out on anything. So, the business case for electromobility exists as of the year 2020. Until then there won't be a mass BEV [Battery Electric Vehicle] market due to a business logic. () The industry is going to massively increase its offering as of 2020. So there is <b>nobody who has slept through</b> and building an electric car is relatively close to conventional car-building. So, the capabilities will be built up. The topic electric mobility is capabilities wise, in my view, not a problem. There <b>won't be any bottlenecks</b> .' (Head of Strategic Planning at Alpha)			
		'All OEMs are able to develop these cars. Obviously, there are new technologies that you need to learn but <b>this is not magic</b> the new carmakers in China like Byton, Wey or Neo are all quite risky. Most of these teams have not thought through how much it actually costs to bring these			

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vehicles to market when you see how difficult it is for Tesla to scale up. So, if you put one billion dollars behind a project you by no means have a vehicle on the market. It won't be enough. We are talking about multiple billion dollars to make it work. (Senior Partner, Past Head of Consulting 2's Automotive Practices in Greater China)'

-----Academic Expert-----

'Tesla is a sustaining innovation, trying to compete against BMW and Porsche and so on. God bless them if they think they can beat the best at this game of cars.' (Clayton Christensen, 2019)

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# **TABLE 3.3** Sensing & Binding Opportunities

From New Industry Growth Phase to Multiple Scenario Development				
Source of Market Uncertainty	Concept Definition	Illustrative Quotes		
Economic Policy Uncertainty	'The payoffs associated with private economic decisions are increasingly affected by government activities and policies that are <b>subject to change</b> .' (Baker, Bloom, Canes-Wrone, Davis & Rodden, 2014: 57)	'I would say the greatest challenge is—in my view—that increasingly we are facing a total decoupling of political, societal, and customer discussions. That is, the political discussion takes place in the absence of a societal consensus, the societal discussion takes place regardless of political or economic needs, and the <b>customer acts completely different when being asked as a consumer</b> . So, there is no broad societal consensus about the issue where the economy, politics, and legislation should be heading towards. That is increasingly the biggest danger that we see in democratic systems in particular. () This has not even something to do with competitive disadvantages. We are collectively running our known, beloved, political, social, economic structure into a brick wall and, in fact, with eyes wide open. It is a catastrophe what's going in. People go on holidays, they go celebrating. Everyone believes that this is going to turn out just fine. What's currently happening is a really big disaster This is really a great mess that is much worse than what happened in 2008/2009.' (Board Member at Beta)		
Firm-Level Response	Concept Definition	Illustrative Quotes		
Multiple Scenario Development	'Note that scenarios are not states of nature nor statistical predictions. The focus is not on single-line forecasting nor fully estimating probability distributions, but rather on <b>bounding</b> <b>and better understanding future</b> <b>uncertainties</b> .' (Schoemaker, 1993: 196)	'The customer doesn't want to own an electric car. The customer doesn't want to own an autonomous car. A few people want to own electric cars but not the wide population simply because the infrastructure is absent, because the constrains are enormous and, and, and At some point in time the interests will crash; between environmental associations, between politicians, and in the end the consumers. And then the question is what decisions will be made. Are we going back, or do we ban mobility? These are all completely indeterminate boundary conditions. Therefore, <b>you need to be flexible</b> . That is the only chance going forward. <b>The direction, obviously, is out of our control</b> . We simply need to have traditional products, electric cars, we need to invest it all and hope that in the end we will sell enough to survive as an economic player.' (Board Member at Beta)		
		'In general terms, with a more and more unpredictable future for the world altogether and for our industry as well, <b>flexibility is the name of the game</b> The only thing you can do is to establish a business system which is as flexible as ever possible.' (Dr. Dieter Zetsche, Former CEO at Daimler)		

# **TABLE 3.4** Managing Opportunities

## Moving From Scenarios to Strategies

Managing Lock-out	Concept Definition	Illustrative Quotes
Creating Optionality	'By the time knowledge is needed, it is too late to gain it; before knowledge is needed it is hard to specify precisely what knowledge might be required or useful. It is necessary to create <b>inventories of competencies</b> that might be used later without knowing precisely what future demands will be.' (Levinthal & March 1993: 103)	'So you invest in many things or you invest in a few areas but <b>by participating you discover the winner</b> and that is the one you scale up. That for me is the growth model for a new segment. If you ask venture capitalists do they know who will be the winner in their portfolio next year, they think they know and when they do the statistics they don't. When you ask them which one will you kill next year, they know which one to kill. They get skill in what is bad, they actually don't get skill in what is good. Ans I fundamentally believe that. It is the same thing in M&A. When people do M&A deals three are winners, four are okay, and three are disasters. You risk manage the disasters, you scale the winners, the net result of that performance is a positive contribution from M&A. But it is not that you could pick the winner with foresight.' (Global Leader at Consulting 1)
		Internal Informant
		'The difficulty is that we cannot sense the future development anymore and therefore of course <b>we invest</b> in many directions that will eventually turn out to be completely wrong.' (Board Member at Beta)
		External Informants
		'It is a very fluent situation right now and it is hard to predict. We have the approach to basically have a <b>foot in the door</b> to potentially play a role in whatever concept comes up at the end of the day.' (Dieter May, SVP, Digital Services & Business Models at BMW Group)
		'We are going to be doing and selling Robo-taxis with partners and we are going to do it by ourselves also. Which means we are <b>absolutely not eliminating any path</b> to the development of the driverless cars.' (Carlos Ghosn, Former Chairman & CEO at Nissan-Renault-Mitsubishi)
		'I think many OEMs, car manufactures, have both invested in some kind of technology start-ups or service start-ups in the mobility field and at the same time prepared their own solutions to just <b>be save on both tracks</b> I think they have prepared themselves like in a portfolio strategy to <b>be prepared for whatever development will come</b> .' (Partner at Consulting 4)
		'I think every client I worked for has pilots which take <b>enabling measures or option preserving measures</b> , especially on the biggest issues of the day.' (Global Leader at Consulting 2)
		'By striking partnerships with ride-booking groups while also developing new technology in-house, <b>many carmakers have so far dodged making a choice</b> .' (Financial Times, April 2018)

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# **TABLE 3.4** Continued

#### Moving From Scenarios to Strategies

Managing Lock-out	Concept Definition	Illustrative Quotes
Boundary Conditions	'Survival, even in the short term even for a large firm, depends on good choices regarding things to attend to, and to try to stay abreast of. Otherwise,	'Certainly it is a capex matter. Logically. The more options I have to finance, the more financial means I have to put to work. It is <b>brutally a matter of costs</b> and in this regard, we are miles away from what we actually need.' (Board member at Beta)
	there is the potential of an <b>indefinitely</b> <b>large cost burden</b> for organizational "thinking", which can easily outpace the current net revenue stream for organizational "doing". (Winter, 2018: 1184)	'The focus will be on the capex plan. This is a <b>battle for resources</b> . The initiatives are clear. They need to develop a battery strategy, they need to decide which plant is gonna be prepared to produce batteries, what is your supplier strategy, the development of the cars. Are they gonna do one, two, three, four cars at the same time? This is all relatively clear. Where it will become Painful is if the budget cannot be met, if the resources are too small so you cannot do both and you have to make trade-offs." (Senior Partner at Consulting 3)

#### 4.1 | Growth Persistence

A large body of work reports incumbent failure during episodes of changes in the competitive environment such as new industry growth phases. This stream of research provides reasons for believing that incumbent firms suffer from an inherent built-in disadvantage to adapt, the so-called "incumbent's curse" (e.g., Henderson & Clark, 1990; Christensen, 1997; Dosi, 1982; Tushman & Anderson, 1986; Benner & Tripsas, 2012). In this view, there is little established firms can do to navigate a possible future change, let alone a range of possible future scenarios (Hannan & Freeman, 1977).

If true, this conclusion would imply that the growth trajectories of high market share firms are indistinguishable from a series of random shocks. Such a claim appears to pose a serious challenge not only to my inductive model but also to any other theory featuring persistent heterogeneity in firm traits, including with regard to industrial organization theory or evolutionary theory. In fact, if firm growth is a purely random process, then the present study's emerging theoretical framework is normatively irrelevant. Hence, a null hypothesis must first be evaluated. Is firm growth rooted in random factors and determined invariably by prior history or does management have discretion, for instance, in navigating environments where there is deep uncertainty (see also Pisano, 2017)? I, therefore, ask whether the evidence, in fact, shows that new entrants continuously disrupt the growth trajectories of established firms or whether other patterns consistent with industrial organization theory or evolutionary theory explain the data. The latter would imply that firm growth rates tend to persist over time and that established firms indeed do have a capacity to persist and thrive during episodes of changes in the competitive environment (so-called "evolutionary fitness" or "persistent dominance").

In what follows, I review some of the emerging facts on firm heterogeneity especially in terms of recent changes and reveal their consistency with my primary data. In this respect, a rapidly growing, highly cited literature in economics reports dramatically declining rates of firm entry across a wide range of markets (e.g., Decker et al., 2017; Karahan et al., 2019; Gourio et al., 2014).



*Figure 3.3 Firm Entry Rates in the United States Source: Akcigit &Ates' (2019) calculations from BDS database [see also Decker et al. (2017)]* 

This evidence poses a stark challenge to theoretical attempts to attach any general disruptive potential to privately-owned or venture-backed start-ups. Arguably, even the disruptors of the future must first enter to disrupt, but market entry rates are falling. If anything, the data show that start-ups are increasingly unlikely to gain traction in existing markets, their chance of successful entry is tiny. Accordingly, the economic share of young firms has been on a secular decline since the early 1980s (e.g., Criscuolo et al., 2014; Binjens & Konings, 2018; Decker et al. 2017; Furman & Orszag, 2018).



*Figure 3.4* U.S. *Employment Share of <5-Year Old Firms Source: Decker et al. 2017, American Economic Review* 

Consistent with emerging facts on firm heterogeneity (Criscuolo et al., 2014, Binjens & Konings, 2018; Decker et al. 2017; Furman & Orszag, 2018; Karahan et al., 2019; Gourio et al., 2014), my interview-based data is in tension with the "incumbent's curse" perspective. Rather my findings suggest that there are incumbent advantages for high market share firms, that markets are not perfectly contestable, and that entry barriers play a key role. As a board member from Beta explained to me:

I would say it is super easy to copy Tesla. I just need to build an attractive electric car. ... I can tell you I assume at some point in time they will fix their problems but the question is what is their USP? They don't have a USP. ... And, therefore, it is one thing to get the manufacturing under control, the other thing is to globally orchestrate your network so as to deliver smoothly running services. ... It is not possible for everyone to build cars—what you can clearly recognize. Apart from that, it is all about getting into volume. There is so much attached to building a car. I need a network, I need service, I need to launch new products on an ongoing basis. So, whoever claims that car building is easy today simply has absolutely no idea. ... One cannot simply conclude by looking at a few start-ups that it is easy to build a car. ... We have an enormous advantage over Tesla. We do have a worldwide network. We do have established logistic chains. We do have established production sites etc. That is to say, we don't have any of the problems they face. We do have a huge customer base.

In triangulating these findings, I studied the competitive interactions between large, established firms and new entrants in the financial service industry. Elaborating on the

disruptive potential of new entrants, the Head of Group Strategy of a high-market share

firm in finance (Gamma) explained to me:

Not at all. It is a threat to our economics that may well be; that it will drive down pricing further in some areas and will lead to a shift of economic value from producers to consumers. But ultimately given that there is again nothing these guys can which we can't as an incumbent and given that branding and client loyalty— particularly in a regulated industry—is a big advantage, I am pretty relaxed.

Echoing these remarks, the Global Head of Corporate Development at Delta explained to me:

It is an interesting discussion because it is such a buzzword digitalization, fintech how does that drive revenue or is that actually about cost and is digitalization actually automation. I think the large banks ... the overarching generic statement is that most if not all of the large banks actually do not grow revenue so much by digitalization and fintech but they actually grow profit and they grow productivity and they reduce cost.

Consistent with these findings, recent research categorizes rapid advances in technologies, such as systems using artificial intelligence, as embodying the characteristics of general-purpose technologies (GPTs) (e.g., Agrawal, Gans & Goldfarb, 2018; Brynjolfsson, Rock & Syverson, 2017; Chockburn, Henderson & Stern, 2018). Importantly, by allowing for augmenting or automating existing tasks and processes, GPTs primarily relate to operational effectiveness (e.g., Dreyer & Davenport, 2018; Davenport, 2017; Bean & Davenport, 2017; Davenport, 2016), but not strategy (e.g., Porter, 1996). In contrast to market-specific technologies, GPTs do have a broad, pervasive potential application (e.g., Bresnahan & Trajtenberg, 1996). And that matters. Rather than defining a scarce resource in the hands of technologically ready start-ups, GPTs to a large extent represent large-scale fix cost overhead investments that are difficult to meet by small ventures. As Van Reenen (2018: 2) notes: 'Even in lower tech markets like retail and wholesale, rapid falls in quality-adjusted ICT prices (information and communication technologies) may give larger firms - who can invest heavily in
developing proprietary software - major advantages in logistics and inventory control management.'

In sum, start-up rates have been falling and the formation of new firms is slowing. In the light of accelerating figures of venture capital (VC) investments, this is suggestive evidence that exit strategies have changed. Whereas previously VCs would aim for an initial public offering (IPO), today the exit strategy, in many ways, is to be taken over by an established firm that operates at a significant scale (Rajan, 2018; Schoar, 2018). For instance, Schoar (2018) stresses that more than 95% of exits across all fields of fintech are via acquisitions to existing large companies. Increasingly, what we see is that when start-ups begin to scale up, they actually become part of larger companies rather than decide to compete head-to-head as self-formed entities. The potential disruptors of the future, rather than becoming disruptors, appear to end up just being absorbed by the current incumbents. Echoing the foregoing analysis, Scott-Morton et al. (2019: 54) put it starkly: 'Incumbents have the incentive and ability to stand in the way of possibly disruptive innovation. With deep pockets, they can purchase possible future disruptors in order to align the path of innovation with their strategies or otherwise control it.'

In fact, firm growth is *not* a random walk. Firm performance, measured as growth in firm size, tends to persist over time (e.g., Rumelt, Schendel & Teece, 1994). As Winter (2009: 105) notes: 'In addition to theoretical reasons to expect persistence rather than randomness in firm growth, there are at least two well-documented empirical regularities that imply that firm growth rates are likely to persist over time. The first regularity is the industry lifecycle. The second is the experience curve.' Consistent with both the industry lifecycle (for a review, see Klepper, 1997) and the experience curve (e.g., Argote, 1999; Ghemawat, 1985), a rapidly growing, highly cited literature in economics provides compelling evidence that sales concentrations and aggregate markups have increased

sharply across a wide range of markets (e.g., Autor et al., 2017, 2020; Criscuolo, 2018; Gabaix & Landier, 2010; Grullon et al., 2016). In fact, the average age per firm has risen substantially in recent decades (e.g., Davis & Haltiwanger, 2014). As Van Reenen (2018: 11) notes: 'If anything, firms in the top group in one Census year are increasingly likely to remain there five years later (so-called "persistent dominance").'

In a widely discussed paper, Autor et al., (2020) develop a "superstar firm" theory to explain recent concentration trends, apparent increases in aggregate markups as well as the fall in the labor share of GDP. As Autor et al. (2017) note: 'Our hypothesis is that technology or market conditions—or their interaction—have evolved to increasingly concentrate sales among firms with superior products or higher productivity, thereby enabling the most successful firms to control a larger market share.' Consistent with this "superstar firm" view, Pisano (2017, 2019) and Winter (2018) recently advance reasons for believing that dynamic capability and firm scale are much more closely connected strategically than we normally think.

### 4.2 | Dynamic Capabilities and Their Building Blocks

While much is understood about the rise of "superstar firms" across a wide range of markets, a critical element underlying these dynamics, the dominant firm's capacity to manage a range of possible future scenarios, has been largely overlooked. In the light of emerging facts on firm heterogeneity documenting more persistent dominance, my findings here are interpreted through the lens of a "superstar firm" theory (e.g., Autor et al., 2020; Bessen, 2018; Blundell, Griffith & Van Reenen, 1999; Gilbert & Newbery, 1982). In contrast to the "incumbent's curse" perspective (e.g., Henderson & Clark, 1990; Christensen, 1997; Dosi, 1982; Tushman & Anderson, 1986; Benner & Tripsas, 2012), the "superstar firm" theory postulates that high market share firms are much more capable at 'dealing with change' than oftentimes asserted.

Key empirical observations made by strategy case research further guide my interpretation of the data. In fact, a careful reading of some of the most prominent case studies reveals that high market share firms oftentimes do not have difficulty in innovating amid changing environmental conditions. For instance, having devoted 42 percent of R&D dollars to exploring a broad range of digital imaging technologies, the Polaroid Corporation was initially well-positioned to lead the ongoing shift from analogue to digital imaging with a number of clear advantages over competitors by 1989 (Tripsas & Gavetti, 2000). Similarly, Christensen (1997) shows that Seagate Technology's development engineers, having shipped a working prototype to customers for review by 1985, were not oblivious to the coming of the revolutionary 3,5-inch drive. A full two years later, however, industry newcomer Conner Peripherals was the first to introduce these drives to the market. Or consider the 35 technology spinoffs, a few of which subsequently became very valuable multinational corporations, that originated from Xerox's R&D system (Chesbrough, 2003, 2010).

Importantly, the mass of available empirical evidence suggests that the source of incumbent failure in the face of change is oftentimes *not* to be found in the domain of innovation per se but at the senior executive level (e.g., Casson, 1982; Chesbrough, 2003, 2010; Penrose, 1959; Gavetti, 2004; Starbuck, 1965; Tripsas & Gavetti, 2000). More recently, Barney et al. (2018) reaffirm the important role senior management plays in the opportunity formation process of established firms. As Casson (1996: 55) notes: 'Competitive advantage is shown to be a short run manifestation of a long-run comparative advantage in decision-making possessed by the successful entrepreneur and embodied in the organisation of the firm.' This logic suggests that incumbent failure occurs when senior managers underestimate the difficulty that occurs—presumably through lock–out (Ghemawat, 1991)—when they attempt to regain a discarded market

entry opportunity on the original terms. In this view, the persistence of dominant firms may well be linked to dynamic managerial capabilities (Adner & Helfat, 2003; Helfat & Martin, 2015).

In fact, significant comparative international studies into the productivity differences across businesses provide compelling evidence that persistent differences in productivity at the firm and the national level reflect variations in management practices (Bloom et al., 2019; Bloom et al., 2013; Bloom et al. 2012; Schmitz, 2005; Syverson, 2011; Bloom & Van Reenen, 2010; Bloom & Van Reenen, 2006). This work also demonstrates the critical role played by management practices for a wide range of performance measures, such as profitability, growth, survival rates, and innovation (Bloom et al., 2019). As Bloom et al., (2017: 3) highlight: 'These management practices also have a highly significant predictive power for future growth and firm survival up to three years ahead (the current limit of our data after the MOPS survey).' Referencing the latter research, Pisano (2019: 420) notes that 'it may well be the case that such general-purpose management competencies also provide firms paths into new markets (i.e., that general-purpose management competencies lie at the heart of the ever-illusive thing called dynamic capabilities).' Exploring ways of managing paths into new markets, in turn, is the primary objective of the present study. Therefore, examining the building blocks of dynamic capabilities likely requires taking into account management practices of particular kinds. But what these management practices are and how they provide firms paths into new markets is less clear. Addressing exactly this issue, I next explicate my findings on the role management practices play in creating options for investing in different types of competences.

#### 4.2.1 | Sensing & Binding Opportunities

My data suggest that sensing and binding opportunities are critical management practices. While some emerging marketplace trajectories are easily recognized, most emerging trajectories are hard to discern. Indeed, numerous behavioural studies report that managerial overconfidence often results in poorly calibrated subjective probability judgments (e.g., Lichtenstein, Fischhoff & Phillips, 1982; Russo & Schoemaker, 1993). These probability judgment errors render it difficult for executives to scan, encode, update and understand the future as it unfolds. As a consequence, some incumbent firms lack the dynamic enterprise-level capacity to reconfigure when they need it the most (Teece, 2007), as was evidenced by incumbent failures such as Xerox, Kodak, National Cash Register, Smith Corona, or Polaroid (e.g., Christensen, 2006; Danneels, 2012; Rosenbloom, 2000; Taylor & Helfat, 2009; Tripsas & Gavetti, 2000).

In environments where there is deep uncertainty, filtering is necessary so that attention is not diverted to every opportunity and threat (e.g., Teece, 2007). In the adaptive application, new industry growth phases may usefully be collapsed into a small number of scenarios. Scenario development likely plays a pivotal role in overcoming corporate or individual blind spots (Russo & Schoemaker, 1993). The reasoning is that scenarios do not aim to predict the future, but rather to bind it. As Schoemaker (1993: 200) notes: 'The presumption is that scenarios reduce overconfidence (Lichtenstein *et al.*, 1982) by making available to the mind futures not yet considered (Koriat, Lichtenstein, and Fischhoff, 1980) as well as by challenging those presumed likely (see Mason and Mitroff, 1981).' My findings reveal that scenario development is deeply embedded in decision-making at the senior-most managerial levels. As a board member from Beta explained to me:

The customer doesn't want to own an electric car. The customer doesn't want to own an autonomous car. A few people want to own electric cars but not the wide population simply because the infrastructure is absent, because the constrains are enormous and, and, and. ... At some point in time the interests will crash; between environmental associations, between politicians, and in the end the consumers. And then the question is what decisions will be made. Are we going back, or do we ban mobility? ... These are all completely indeterminate boundary conditions. Therefore, you need to be flexible. That is the only chance going forward. The direction, obviously, is out of our control. We simply need to have traditional products, electric cars, we need to invest it all and hope that, in the end, we will sell enough to survive as an economic player.

The contentions of my interviewee prove several valuable points: (i) a new industry growth phase induces strategic issues that are unlikely to resolve themselves but require firm-level responses of particular kinds, (ii) in the absence of superior foresight, there is no "optimal" strategic response favouring one particular scenario, (iii) multiple (competing) scenarios must be pursued and funded simultaneously. In sum, sensing and binding of opportunities yield a multiple scenario rather than single-scenario or no-scenario approach. The revealed market ambiguities render it difficult for executives to encode the future as the direction is "out of our control". As a consequence, pursuing numerous strategically important alternatives is "the only chance going forward". Put differently, market uncertainties impose constrains on firms in regard to driving "optimal" strategy and require investments in various environmental contingencies.

Importantly, pursuing multiple scenarios likely yields flexibility. By highlighting the importance of flexibility value, my interviewee stresses that the development of new strategic assets is usefully underpinned by an abundant store of potentially valuable revision possibilities. These revision possibilities provide management with flexibility in dealing with future uncertainties by postponing large-scale, costly-to-reverse commitments to durable, specialized, untradeable assets. Revision possibilities provide management with strategic options. The relationship between flexibility and strategic options is clear in that, 'The *flexibility value* of a strategic option is defined as the extra value expected from being able to take advantage of the revision possibilities it offers as opposed to persisting with it through thick and thin' (Ghemawat, 1991: 129, italics in

original). In so doing, firms may capture the flexibility value options usually carry in the presence of uncertainty. Highlighting the importance of flexibility value for management practice in general and today's automotive industry in particular, Dieter Zetsche (2017), the long-serving CEO of Daimler, notes:

In general terms, with a more and more unpredictable future for the world altogether and for our industry as well, flexibility is the name of the game. ... The only thing you can do is to establish a business system ... which is as flexible as ever possible.

## 4.2.2 | Managing Opportunities

Further, my data suggests that strong management practices are required to sustain "flexibility" over time. The previous section stresses the critical role played by management practices in cognitively sensing/binding opportunities so as to tap into the flexibility value of long-term market entry options. In this section, I focus on the managerial subtlety of managing these market entry options over time.

Contingent on the availability of internal and external sources of funding, multiple (competing) investment paths are possible for a firm to hedge against market uncertainty. Importantly, investments of this kind oftentimes involve sunk costs and require commitment as the forces of irreversibility and co-specialization are at work (Ghemawat, 1991). Further, pursuing numerous investment paths simultaneously is a means to acquire both the information on which to base a superior judgment and the flexibility to execute on it. This idea is consistent with the "learn to burn" ratio introduced by Ghemawat (1991, p. 132). The "learn" rate, in the numerator, is the rate at which "useful" information is received. The denominator of this measure is the "burn rate", which is the rate at which commitment to a course of action is made. A high ratio implies that the information received is useful and flexibility should be favoured over commitment. Important as this general logic is, it shifts the problem to defining "useful".

As Levinthal and March (1993:103) note: '[B]efore knowledge is needed, it is hard to specify precisely what knowledge might be required or useful.'

Based on my analysis of the data, to navigate environments where there are deep uncertainties firms must reach a level of commitment to strategically important environmental contingencies equivalent to "participation" but not leadership. In this sense, useful information is defined as the information required to participate in but not lead the creation of new market segments. This is consistent with Markides and Geroski (2005) who note: 'Surely, the advice we should be giving companies is how to scale-up and consolidate new markets, not how to create them.' This statement is underpinned by a fast literature on profiting from innovation and "fast-second strategies". For the present context, the most relevant cite is probably Teece (1986). The profiting from innovation literature addresses the fact that innovating firms often fail to capture significant value from their innovations, while competitors/imitators benefit. In this light, the rate at which "useful" information is received may be interpreted in terms of useful for participation but not useful for attaining leadership. As a current Global Leader and Past Global Leader of the Strategy Practices of Consulting 1 explained to me:

So, you invest in many things or you invest in a few areas but by participating you discover the winner and that is the one you scale up. That for me is the growth model for a new segment. If you ask venture capitalists, do they know who will be the winner in their portfolio next year they think they know and when they do the statistics they don't. When you ask them which one will you kill next year, they know which one to kill. They get skill in what is bad, they actually don't get skill in what is good. And I fundamentally believe that. It is the same thing in M&A. When people do M&A deals three are winners, four are okay, and three are disasters. You risk manage the disasters, you scale the winners, the net result of that performance is a positive contribution from M&A. But it is not that you could pick the winners with foresight.

The foregoing analysis is woefully consistent with my empirical findings, i.e. within cases, across cases, my information gathered from external informants, as well as further

manually collected secondary data. Next, I present some of my data that appear worth

highlighting. As a board member from Beta explained to me:

The difficulty is that we cannot sense the future development anymore and therefore, of course, we invest in many directions that will eventually turn out to be completely wrong.

Reaffirming the importance of pursuing multiple (competing) investment paths

simultaneously, Carlos Ghosn, Former Chairman and CEO of the Renault-Nissan-

Mitsubishi alliance, stressed in an interview with Bloomberg:

We are going to be doing and selling Robo-Taxis with partners and we are going to do it by ourselves also. Which means, we are absolutely not eliminating any path to the development of the driverless cars.

Similarly, Dieter May, Senior Vice President Digital Services and Business Models at

BMW Group, notes:

It is a very fluent situation right now and it is hard to predict. We have the approach to basically have a foot in the door to potentially play a role in whatever concept comes up at the end of the day.

Consistent with these strategic responses made by carmakers, a partner from Consulting

4 concluded:

I think they have prepared themselves to account for the uncertainty as regards where the development is going, not only where it is going but also how fast it is developing. They have prepared themselves like in a portfolio strategy to be prepared for whatever development will come.

Confirming this view but speaking more broadly, a Global Leader from consulting 2 explained to me:

I think every client I worked for has pilots which take enabling measures or option preserving measures, especially on the biggest issues of the day.

My analysis suggests that these statements express managerial attempts to avert lock-out from strategically important alternatives rather than proactively striving for market leadership and engaging in large-scale commitments. The consideration of lock-out, in turn, connects naturally with the foregoing analysis of the tensions between flexibility and commitment. The reasoning is that lock-out defines one of the four causal factors of commitment, according to Ghemawat (1991). The notion of lock-out echoes an important insight from research on organizational learning, namely that by the time knowledge is needed, it is often too late to gain it. Therefore, firms ought to assemble reserves of sticky factors that provide a partial hedge against the obsolescence of existing capabilities (Winter, 2003). Similarly, Levinthal and March (1993: 103) highlight: 'It is necessary to create inventories of competencies that might be used later without knowing precisely what future demands will be.' The notion of lock-out defines the boundary conditions of these inventories of competencies, boundaries that provide guidance to managers to avoid engaging in an indefinitely large cost burden for organizational "thinking". In sum, managing lock-out pre-emanates as the basis for navigating environments where there are multiple scenarios vying for dominance. Managing lock-out defines a particular sort of competence at dealing with change, a competence that attends to and deals with creating inventories of competencies for fundamentally different futures.

However, while inventories of nascent competencies may result in a greater ability to adapt to changes, they are less likely to have immediate pay-off results. Competence is overhead. The most relevant cite is probably Winter (2003). Echoing this analysis, a board member from Beta explained to me:

Certainly, it is a Capex matter. Logically. The more options I have to finance, the more financial means I have to put to work. ... It is brutally a matter of costs and in this regard, we are miles away from what we actually need. Reaffirming this analysis, a senior partner at consulting 3 and former regional leader of

the automotive practices in China at consulting 2, explained to me:

The focus will be on the Capex plan. This is a battle for resources. The initiatives are clear. They need to develop a battery strategy, they need to decide which plant is gonna be prepared to produce batteries, what is your supplier strategy, the development of the cars, are they gonna do one, two, three, four cars at the same time, this is all relatively clear. Where it will become painful is if the budget cannot be met, if the resources are too small so you cannot do both and you have to make trade-offs.

This discussion shifts the analysis to a fundamental problem facing firms: 'How to sustain a continuing flow of capability overhead investments over time?' It is precisely here, where the issue of scale returns to the stage. As Pisano (2019: 420) notes:

I want to return to the issue of scale highlighted by Winter. After reading his review, I have to concur completely. I don't think I fully recognized it at the time I wrote the piece, but scale is a salient feature of a firm's capability investment behavior. He rightly points out that the capacity to create new competences (i.e. dynamic capabilities) matters most for the largest enterprises.

The exchange between Pisano (2017), Winter (2018), and Pisano (2019) echoes a longstanding dispute between Frank Knight (1921) and Joseph Schumpeter (1934, 1950) over the nature of entrepreneurship. Whereas Knight suggests that entrepreneurs must finance themselves and bear the risk of failure, Schumpeter argues that entrepreneurs usually find a capitalist to bear the risks for him. Pisano and Winter side with Knight: Liquidity constraints bind. Whereas larger firms have higher cash-flows from which to finance the search for innovation, smaller firms are excluded from such investments by *force majeure*, i.e. because they "couldn't possibly" (e.g., Winter, 2018). In other words, "deep pockets" are required to sustain a continuing flow of capability investments (dynamic or other). Hence, managing lock-out is likely in the opportunity set of large firms only.

While the empirical constraints of the present study, with its focus on two large firms, limit the scope for drawing detailed distinctions between large and small firms in creating optionality, my analysis is woefully consistent with compelling empirical evidence reporting that the structure of young ventures often persist for long periods of time-socalled "imprinting" (e.g., Beckman & Burton, 2008; Chesbrough & Rosenbloom, 2002; Marquis & Tilcsik, 2013; Siggelkow, 2002; Snihur & Zott, 2019; Stinchcombe, 1965). The latter research stream suggests that young ventures may have some optionality during the sensitive period of early founding, but that resource constrains force entrepreneurs to give up on optionality and turn to short-term strategy execution. Similarly, Fink, Ghemawat & Reeves (2017: 278) recently note: 'Resource-constrained firms tend to favour impatient strategy and immediately reap the value of new components, whereas wealthier firms likely favor a farsighted strategy, and, after a stagnant period assembling needed components, expect to achieve greater growth as the value of those components kicks in.' The notion of optionality addresses precisely this latter, more farsighted approach to strategy, an approach that is more likely in the opportunity set of wealthier firms only. In this sense, the present study, rather than attempting to replicate existing knowledge, builds incrementally on the imprinting perspective of entrepreneurship. Hence, my research on optionality is informed by and embedded into a broader conversation between entrepreneurship and strategy.

#### 4.3 | Managing Lock-in & Business Model Reconfiguration as 'Planned Emergence'

To provide a more holistic account of optionality requires moving beyond consideration of managing lock-out to consider managing lock-in. Just like lock-out, lock-in depicts a causal factor of commitment, according to Ghemawat (1991). In fact, optionality not only allows firms to observe the market reception of industry-level shifts in business practices or technology development but also to pivot from risk hedging towards risk-taking strategies. Once a substantial portion of exogenous uncertainty about the viability of a particular market opportunity/scenario has been resolved, firms may then proactively steer and embrace change and shape the environment in their favour. In this respect, optionality is an enabling measure underlying the genesis and metamorphosis of business model reconfiguration in large, established companies. Surely, the latter, more commitment intense activities are beyond the scope of risk hedging strategies, such as optionality, and require a complementary dose of risk-taking. This, however, does not alter the fact that high market share firms may be able to accomplish Teecian reconfiguration if—and only if—they are not excluded from such competitive contests through lock-out.

## 4.4 | Towards a Formal Definition of Optionality

Superior long-run business performance may usefully leverage the set of strategic assets the firm already possesses while at the same time create new sets of strategic assets needed for future success in a world of uncertainty (Amit & Schoemaker, 1993). But how companies systematically orchestrate the latter process is less clear. Addressing this issue, my analysis so far leads to the definition of optionality as: '*The smallest set of sunk cost commitments firms maintain to avert lock-out from strategically important alternatives.*' Next, I further explain the definition's conceptual underpinnings.

The proposed notion of "optionality" rests on three theoretical pillars that are not independent but function as a set of intertwined decision areas that define the dominant firm's holistic nascent market strategy. First, the focus on *'sunk cost commitments'* links the concept of optionality to competitive advantage. The reasoning is that sunk cost commitments are inextricably bound with the notion of immobility (Lippman et al., 1991). "Immobility [in turn] is a necessary condition for, and perhaps the most fundamental determinant of, competitive advantage" (Foss & Knudsen, 2003: 303). Second, the notion of *'lock-out'* marries the resource-based notion of sunk cost-commitments with Porterian industry positioning by disciplining the analysis of the value

of sticky factors by how they allow firms to perform activities that create advantages in particular markets. Thus, the notion of lock-out is externally orientated rather than inward-looking and requires managerial cognitive judgment about the value of alternative future potential strategic positions and their associated product/market strategies. These potentially viable strategic positions define the strategically important alternatives that, to be pursued, require firms to maintain certain minimal reserves of sticky factors. The notion of optionality stresses that it is excellence in managing these minimal reserves of sticky factors that undergird enterprises' capacity to sustain competitive advantage and maintain evolutionary fitness.

Third, a focus on '*the smallest set*' of sunk cost commitments adds a dynamic lens to the conceptualization of optionality. In fact, the concrete manifestation of the smallest set of sunk cost commitments is likely subject to continuous alteration as the environment keeps shifting and changing. To attain optionality, managers need to constantly accumulate feedback and sense when it is important to reconfigure the firm's current smallest set of sunk cost commitments, so as to fit the firm more particularly for existence under shifting environmental conditions. As a dynamic capability, optionality is also *not* a detailed guide (or plan) but one that is boiled down to its most essential committed choices. In this sense, optionality is "minimal with maximal effect". This view is consistent with a formal definition of strategy as "the smallest set of choices to optimally guide (or force) other choices" (Van den Steen, 2017: 2616). In this view, optionality refers to the smallest set of committed decisions that need to be decided to reliably create new sets of strategic assets needed for future success in a world of uncertainty. Broadly, creating optionality is about maintaining a coherent mix of policy and commitment that is robust to a wide range of eventual outcomes.

The notion of optionality is distinct from real options theory because it addresses a strategic problem where the potential paths a stage-setting investment may take are inherently unrestricted or unlimited. The real options logic, in turn, requires a high degree of discipline in pursuing well-specified investments (Adner & Levinthal, 2004; Klingbiel & Adner, 2015; McGrath, 1997, 1999; McGrath, Ferrier & Mendelow, 2004; Trigeorgis & Reuer, 2017). In fact, the real options logic is lost as one encounters less structured opportunities where implicit real option assumptions about termination regularly shift in the face of feedback received. As Adner & Levinthal (2004: 75) note: 'We show that the greater the extent to which initiatives are open-ended, the more problematic the application of real option investments.' Hence, the notion of optionality addresses precisely a setting where the real options logic is the weakest. With a focus on nascent markets, optionality attends to and deals with an unstructured setting characterised by extreme ambiguity. As nascent markets harbour a wide set of possible technical solutions and market applications, they force explorative initiatives to be open-ended rather than highly specifiable ex-ante. Therefore, the concept of optionality is distinct from real options theory.

## **5 | DISCUSSION**

I began my research with the question of how large, established firms (if at all) hedge their commitments to existing capabilities against new industry growth phases. My review of the literature suggested that stress on pre-entry capabilities must complement, not substitute for, stress on dynamic capabilities. My inductively derived framework (Figure 3.2) reveals a systematic way by which firms—with "deep pockets"—can control possibly disruptive innovation. Relating my empirical findings to existing theory (Eisenhardt, 1989), this paper is the first to provide a partial synthesis of multiple scenario development (Schoemaker, 1993), the four causal factors of commitment (Ghemawat, 1991), and dynamic capability (Teece & Pisano, 1994; Teece et al., 1997; Teece, 2007; Winter, 2003). In the adaptive application, the model explains how opportunity sensing and seizing are mediated by (1) opportunity binding and (2) opportunity management. Pursued rigorously, opportunity binding and management yield "optionality". Optionality refers to the smallest set of sunk-cost commitments firms maintain to avert lock-out from strategically important alternatives. Successful opportunity binding ensures overcoming corporate or individual blind spots. Successful opportunity management, i.e. lock-out management is shown to be a necessary condition for enterprise-level seizing. My findings are consistent with a "superstar firm" theory (e.g., Autor et al., 2020; Van Reenen, 2018) and address the connections between dynamic capability and firm scale (Pisano, 2017, 2019; Winter, 2018). Overall, my study sheds light on the genesis and metamorphosis of business model reconfiguration in two high market share firms, especially when one defines the business model as a set of committed choices (e.g., Casadesus-Masanell & Zhu, 2010; Casadesus-Masanell & Ricart, 2008, 2010, 2011). Next, I address some contributions to the literature that appear worth highlighting.

#### 5.1 | Optionality as a Dynamic Capability

My theoretical framework has important implications for the evolutionary economics perspective of industry evolution. First, my study clarifies a viable nascent market strategy by which large, established firms hedge their commitments to existing capabilities against various environmental contingencies, including with regard to new industry growth phases. The dynamic managerial capability to create optionality, by managing lock-out, pre-emanates as the basis for navigating a range of possible future scenarios and sustaining superior enterprise performance in environments where there is deep uncertainty. In contrast, the received pre-entry capability literature stresses the important role played by ordinary capabilities at entry (Bayus & Agarwal, 2007; Helfat & Lieberman, 2002; Klepper, 2002) or technology entry choices (Abernathy & Utterback, 1978; Christensen, Suarez, & Utterback, 1998; Suarez & Utterback, 1995). Broadening the existing pre-entry capability literature to including a dynamic capability-based perspective, the inducted framework explains how large, established firms preserve the value of their ordinary pre-entry capabilities in the face of various environmental contingencies. Critical to the inducted nascent market strategy is to avert lock-out from strategically important alternatives, without blundering into irreversible lock-in. In so doing, diversifying firms also avoid making unnecessary commitments to new market segments that prove to be of limited value.

Second, the concept of optionality reveals how pre-entry capabilities can be leveraged and used once the chances of successful entry are preserved. Leveraging and using preentry capabilities involves opportunity seizing and, hence, managing lock-in. In the presence of lock-out, however, managing lock-in is rendered impossible (Ghemawat, 1991). The concept of optionality, therefore, clarifies the link between opportunity sensing and opportunity seizing. In fact, the link between enterprise-level sensing and seizing is neither trivial nor self-evident. The reasoning is that liquidity constrains crucially condition the scope of entrepreneurial choice (Evans & Jovanovic, 1989). Dynamic capability is a particular sort of competence at dealing with change and competence per se is an overhead cost burden (Winter, 2003). Because of its overhead costs, the use of dynamic capability as a simple hedge against change is necessarily limited and a realistic option only for large firms (Pisano, 2017, 2019; Winter, 2018). The same logic applies to optionality (because optionality is a dynamic capability). Optionality involves sunk costs and the capacity for sustaining a continuous flow of such overhead investments, on a scale big enough to avert lock-out, is likely in the opportunity set of large, incumbent firms only. Echoing this analysis, a large number of empirical studies reports superior performance of dominant firms in innovating (e.g., Scherer, 1967). Reaffirming these findings, recent scholarship in economics provides compelling evidence that 'the industries where concentration has grown are those that have been increasing their innovation most rapidly as indicated by patents' (Autor et al., 2017: 26). But why does market dominance enable firms to be more innovative? A traditional interpretation of the innovation-market power correlation suggests that dominant firms have higher cash flows from which to finance the search for innovation. In this view, liquidity constraints tend to exclude those with insufficient funds from innovating (e.g., Evans & Jovanovic, 1989). Others point to the strategic incentives arising from current and expected product market power as fuelling the dominant firm's innovation engine (Blundell, Griffith & Van Reenen, 1999; Gilbert & Newbery, 1982). In sum, the ability to leverage and use pre-entry capabilities is conditioned by the firm's ability to create optionality, which itself depends critically on the availability of internal sources of funding ("deep pockets") and the strategic incentives to doing so.

Third, the concept of optionality adds a corporate level perspective. The literature on preentry capabilities often implicitly or explicitly portrays the emergence of new industries as if: (1) the very "emergence" of the particular industry at hand was certain and just the diversifier's survival in that industry was uncertain; and, (2) incumbent firms were intrinsically motivated to diversify into a particular market niche or a set of market niches, for instance, to purposefully execute against their growth strategy. In sharp contrast, large firms often diversify into emerging market niches not to seek growth but to hedge against change (Winter, 2018; Pisano, 2017; Winter, 2003) and many "emerging" industries, in fact, do not emerge but disappear as unexpectedly as they appeared (Markides & Geroski, 2005; Aldrich & Fiol, 1994). By making entrants' survival in an emerging industry the primary unit of analysis, scholarship in this area is placing the cart before the horse. The capacity to survive during industry shakeout, without the capacity to choose among alternative future potential market entry moves, is not particularly helpful. A firm's choice to diversify into a potentially "emerging" industry is logically prior to a consideration of the dynamics of its survival in that very industry. Managing lock-out is logically prior to managing lock-in. Stress on diversifiers' survival must complement, not substitute for, stress on diversifiers' entry choices.

Addressing these issues, the concept of optionality attempts to restore the grounding of the discussion on entrants' survival in an emerging industry in fundamental issues of strategic choice. In fact, firms have to decide: (1) which alternative future potential strategic positions to consider in a potentially emerging industry or set of emerging industries; and, (2) what are the consequences of these positioning choices for the set of committed choices that is robust to a wide range of eventual outcomes. In the absence of this consideration, it is unclear how large, established firms navigate unstructured settings with extreme ambiguity, such as nascent markets. Therefore, the research program on the evolutionary economics pre-entry capability perspective needs to be reset, at least in part, around the fundamental strategic problem facing firms: *How to identify and commit to nascent markets that lead to sustained growth and profits?* 

#### 5.2 | Genesis and Metamorphosis of Business Model Reconfiguration

My study also contributes to the business model innovation literature. First, diversification into new market niches requires engaging in innovations of activity system content, structure or governance (Amit & Zott, 2015; Sheehan & Foss, 2017; Zott & Amit, 2010). However, our understanding of BMI emergence is limited, especially when one considers established companies (Foss & Saebi, 2017). Further, the business models of established firms are often portrayed as path-dependent or imprinted (Stinchcombe, 1965) in

ways that render established business models difficult to change (Gilbert, 2005; Tripsas & Gavetti, 2000). If anything, business model innovation is a realistic option only during the sensitive period of early founding (Chesbrough & Rosenbloom, 2002; Siggelkow, 2002), that is, before early choices at founding lead to rigid consequences (Beckman & Burton, 2008; Marquis & Tilcsik, 2013). Echoing this view, Snihur & Zott (2019: 37) conclude: 'entrepreneurs may have a limited, but significant, time window after founding before path dependence sets in to develop their legacy.' However, such a view likely clouds the entrepreneur's pervasive role in regard to shaping the future of the enterprise (Casson, 1982). As Casson (1996: 81) notes: 'The firm is effectively 're-founded' each time its procedures change in response to a change in fundamental change in market conditions recognised by the entrepreneur.' In this view, the sensitive period of early founding can be induced almost "artificially" by the entrepreneur. Similarly, Tecce (2007: 1341) notes: 'The dynamic capabilities framework recognizes that the business enterprise is shaped but not necessarily trapped by its past. Management can make big differences through investment choice and other decisions.'

However, the availability of internal sources of funding likely conditions the enterprise's scope for re-founding. Hence, re-founding costs are unlikely to be met by young ventures who usually operate under tight financial constraints. This provides an alternative interpretation of Snihur & Zott's (2019) finding that there is only a limited window of opportunity for business model innovation among ventures before path dependence sets in. Snihur and Zott's (2019) and similar findings tell us little about the ability of firms to innovate their business models once their operations reach a significant scale. In fact, high market share firms have higher cash flows from which to finance their business model innovation activities. In this sense, high market share firms are likely to possess the financial latitude to escape unfavourable path dependencies—high market share firms can be re-founded.

Following this line of thought, scholarly interest is shifting from examining the characteristics of dynamic capabilities as a source of competitive advantage to understanding the connections between dynamic capability and firm scale (Pisano, 2017, 2019; Winter, 2003, 2018). In fact, scholarly research examining the dynamic capabilities of start-ups and young ventures (e.g., Huy & Zott, 2018) usually do not consider alternative explanations for the observed "dynamic capability" outcomes, such as 'ad hoc problem solving' (Winter, 2003). Put differently, start-ups may have unique latitude for engaging in ad hoc-problem solving during the sensitive period of early founding, but ad hoc-problem solving is not a dynamic capability. The connections between dynamic capability and firm scale are powerful and pervasive (Pisano, 2017, 2019; Winter, 2003, 2018)<sup>24</sup>. Overall, my analysis here suggests that high market share firms might be able to build a truly dynamic managerial capability (Adner & Helfat, 2003; Helfat & Martin, 2015) to sustain business model novelty over time, as was evidenced by my multiple casestudy as well as a large number of studies reporting the "persistent dominance" of high market share firms across a wide range of markets (e.g., Autor et al., 2020; Van Reenen, 2018). As this study notes, sustaining BM novelty in a world of volatility is inextricably bound with managing lock-out and attaining optionality.

Second, the process of sustaining business model novelty over time can be characterised as 'planned emergence'. My findings on the strategic planning practices of two major OEMs suggest that the long-running tensions between formal and informal strategic planning processes have been perpetuated by misconceptions of the reality of strategic planning. An insufficient account of lock-out has lead both camps to postulate rather extreme positions where strategic planning is either systematic and formalized (e.g., Caves & Porter, 1977; Caves & Ghemawat, 1992; Ghemawat, 1991; Porter, 1980, 1985;

<sup>&</sup>lt;sup>24</sup> See also chapter 2.

Ghemawat & Cassiman, 2007) or emerging from weakly coordinated decisions of multiple organizational members (e.g., Bower, 1970; Burgelman, 1983; Mintzberg, 1994; Mintzberg & Waters, 1982; Pascale, 1984). Each of these theories has its own idea of what the key issue is and naturally claims that it alone addresses this particular issue head-on. This paper sets out a general framework within which these two camps can be brought together, and the ideas can be discussed at once. Consistent with Van den Steen (2017, 2018), my analysis reveals that business model reconfiguration can be seen as a process of 'planned emergence' where the creation of optionality is formalized and planned so as to "optimally guide or force" other choices that may emerge from decentralized strategy formulation.

My research has a number of important managerial implications. First, it suggests that dominant firms do indeed have great influence to control possibly disruptive innovation if they are to manage lock-out. It also suggests, however, that it might be difficult for managers to sustain a continuing flow of optionality overhead investments, on a scale big enough to matter, in the absence of "deep pockets". Second, the concept of optionality provides guidance to managers to help to overcome corporate or individual blind spots and making unnecessary commitments to new market segments that prove to be of limited value. Critical to this strategy is to avert lock-out from strategically important alternatives, without blundering into irreversible lock-in. Third, my inductive model provides some clues to managers as to which management practices might be important to apply in particular environments. In the early stages of industry growth phases, binding and managing opportunities are of the essence. Once a substantial portion of the uncertainty has been resolved the focus may shift to managing lock-in and opportunity seizing.

#### 6 | CONCLUSION

Anecdotes and scattered case studies of highly specialised innovations teach us that new industry growth phases may bring down incumbents while catapulting new entrants to market leadership. While the received literature in strategic management often portrays incumbent firms as inept, inert and incapable of dealing with change, recent scholarship in economics provides compelling evidence that incumbents have both the incentive and ability to foreclose existing rivals and exclude entry. In fact, emerging facts on firm heterogeneity report, among others, secular declines in firm entry rates (e.g., Decker et al., 2017; Karahan et al., 2019; Gourio et al., 2014), secular declines in the economic share of young firms (Criscuolo et al., 2014; Binjens & Konings, 2018; Decker et al. 2017; Furman & Orszag, 2018), and "persistent dominance" of a relatively small number of firms in the upper tail of the global firm size distribution (e.g., Autor et al., 2020; Van Reenen, 2018). In this light, we appear to lack a sound understanding of the powerful mechanisms by which ordinary pre-entry capabilities can be leveraged and used in the face of change. To obtain a less incomplete understanding of this matter, I suggest broadening the pre-entry capability perspective to include a dynamic capability-based perspective. Exploring the ramifications of this extension, I induct a theoretical framework offering a partial synthesis of multiple scenario development (Schoemaker, 1993), the four causal factors of commitment (Ghemawat, 1991), and dynamic capability (Teece & Pisano, 1994; Teece et al., 1997; Teece, 2007; Winter, 2003). The framework suggests that high market share firms do have significant latitude for navigating a range of possible future scenarios. Incumbent firms can use their monopoly profits (and other) to invest in optionality and so avert lock-out from numerous strategically important alternatives. Future preparedness of this type allows the dominant firm to smoothly negotiate a possible future change. I hope that my findings and reflections in this paper will spur further research on the rich links between multiple scenario development, commitment, and dynamic capability and that they will encourage scholars to build further bridges between these fundamental strategic concepts with critical importance to management practice.

#### 7 | REFERENCES

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# **APPENDIX B: DETAILS OF THE INTERVIEW GUIDE**

# **General Principles:**

I asked respondents to articulate concrete behaviours (concrete illustrative actions and outcomes) to elaborate what they mean when general words are used, such as competitive advantage, innovation, resources, capabilities, competitive dynamics, etc.

I also focused on concrete (even if mediating outcomes) such as: So what happens next? What result did you get? What did you learn from this experience? In what ways did you apply this learning to your next attempt? In so doing, I attempted to focus on observable, objective, verifiable outcomes.

## **Strategy Formulation Related Questions:**

- 1. When you look at the volatility in your industry, how do you ensure that you don't get locked-out of strategically important scenarios?
  - What are the major uncertainties your firm faces in terms of entering some of the nascent markets in your industry? What alternative business scenarios keep you up at night?
  - How does your firm position itself in order to navigate these uncertainties?

# **Strategy Execution Related Questions:**

- 2. What kinds of capability creating activities have you pursued recently? Can you give me specific examples?
- 3. What initial steps did you and your colleagues take to build the desired capabilities? (starting the process)
- 4. Do you pay attention to milestones, if yes, which ones? (pacing of capability process)
- 5. Did you focus on key processes when building capabilities, if yes, which ones? (identification of key sub-processes)
- 6. What are the main lessons learned so far in terms of building these capabilities? (learning within and across capability-building processes)
- 7. When and in what sense did you have to "go back to the drawing board"? What kinds of changes did you have to make to the capability-building concept? When and why? (key events and triggers)

## **Closing Questions:**

- 8. What are the most important issues in the coming 6 months?
- 9. Is there any question or issue that you feel is important for me to ask you but I haven't?
- 10. What questions do you wish you had an answer for?
- 11. Is there any question that my research might address that would be relevant to you?
- 12. How do you feel about the interview process? How can I improve it?