Reconsidering RBV in the Platform Economy Age: The Central Role of Interdependence

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Abstract – The Resource Based View (RBV) provides a relevant lens to study how firms develop competitive advantage through strategic resources and capabilities. With the growth of partnerships strategies, the RBV evolved to consider externally owned or controlled resources and capabilities, leading to the concept of relational rent. However, this evolution was limited to short-term value cocreation initiatives in dyadic or multi-firm contexts. In the age of the platform economy, the nature of value cocreation with external resources and capabilities changed fundamentally. In this context, value cocreation with an ecosystem of external resources and capabilities through platform mediated networks leads to sustained relational rents. Moreover, value cocreation with external resources and capabilities becomes a fundamental way in which firms conduct their activities rather than value cocreation being limited to the scope of a particular dyadic or multi-firm alliance. This study draws considerations from the networks, ecosystems, and platforms perspectives to propose a reformulation of the RBV that considers value cocreation with external resources and capabilities in the networks context and further extends our understanding of relational rents. It is based on a longitudinal, multiple-case study that examines modalities of the 20 largest European banks' strategies over 12 years. We show that interdependence emerged as a key element of value creation through relational rents and propose a model that extends the previous view on relational rent. We demonstrate how interdependence enables value creation through the interplay between internal and external resources in the platform age.

Key Words: Resource Based View, Platform Economy, Interdependence, Ecosystems, Banks

Résumé – La « Resource Based View » (RBV) est une perspective utile pour étudier le développement d'un avantage concurrentiel à travers les ressources et capabilités stratégiques de la firme. En écho au développement des stratégies relationnelles, cette approche a été enrichie d'une prise en considération des ressources et capacités détenues ou contrôlées par des parties externes, conduisant, ce faisant, au concept de rentes relationnelles. Cependant, cette évolution a été limitée aux initiatives de cocréation de valeur à court terme dans des contextes dyadiques ou multi-entreprises. Mais à l'ère de l'économie de plateformes (ou économie à la demande), la nature du phénomène a profondément changé : les rentes relationnelles durables sont issues d'une cocréation de valeur qui se produit dans un écosystème et des réseaux médiatisés par des plateformes. En outre, cette cocréation de valeur devient un moyen fondamental par lequel les entreprises mènent leurs activités. Dans ce contexte, la présente étude tire des considérations dérivées des perspectives sur les réseaux et les écosystèmes pour contribuer à un avancement de la RBV et de la notion de rente relationnelle. L'étude est basée sur l'étude longitudinale de cas multiples et examine les modalités stratégiques des 20 plus grandes banques Européennes sur une période de 12 ans. Nous montrons que l'interdépendance a émergé comme un élément clé de la cocréation de valeur à travers les rentes relationnelles et nous proposons un modèle qui développe la perspective précédente sur les rentes relationnelles. Nous démontrons comment l'interdépendance facilite la cocréation de valeur à travers l'interaction entre ressources internes et externes.

Mots-clés : Resource Based View, l'économie des plateformes, l'économie à la demande, interdépendance, écosystèmes, banques

1. INTRODUCTION

The Resource Based View (RBV) is an important theoretical lens for firms strategizing for sustained competitive advantage based on their resources and capabilities. Lavie (2006) proposed that, as well as the Ricardian rents that firms can derive from their own resources and capabilities, firms can also derive short-term relational rents through the combination of their resources and capabilities with those of external stakeholders. Lavie (2006) therefore proposed an adaptation of the RBV to cater for the inclusion of these relational rents from value cocreation initiatives that firms engage in through dyadic/multi-firm relationships.

The last decade saw the emergence of the "Platform Economy" (Parker, et al., 2016; Clemons, et al., 2017) where consumer and firm behaviour shifted from being ownership-centric to access-centric, and where rapid technological innovations led to blurring industry boundaries and new business models. An important reality for firms in this environment is that an increasing number of strategic resources/capabilities reside outside their ownership or control. Firms cannot realistically acquire and/or develop all the rapidly emerging, evolving, and sometimes obsolescing resources/capabilities required to effectuate certain value propositions.

Thus, firms are increasingly cooperating/coopetating to combine their resources/capabilities with an ecosystem of other stakeholders leading to new models of value cocreation, capture, and distribution (Jacobides, et al., 2018).

In adapting the RBV for value cocreation with external resources and capabilities, Lavie (2006) developed his theoretical model by formulating the competitive advantage of a firm participating in a dyadic alliance, then generalizing it to the ego network level. However, as Lavie (2006) notes, "*multipartner alliances cannot be reduced to a collection of dyadic ties*". At the time of Lavie's (2006) contribution, value cocreation between firms was effectuated either at the dyadic or multi-firm levels. These modes of value cocreation were studied by many business and management scholars, such as Hamel, Doz, and Prahalad (1989) who identify several factors that influence the success of alliances including setting clear objectives for the scope of the alliance, managing conflicts and opportunistic behaviour, knowing what resources and capabilities are off-limits for the alliance, and organizational learning. Dyadic and multifirm alliances were the dominant mechanism through which firms cocreated value across industries (e.g., General Motors and Toyota in automobiles, Siemens and Philips in semiconductors). For instance, in the banking industry, BNP Paribas entered into an alliance with Dresdner Bank in 1993 which involved a 10% exchange of equity and board members, joint ventures in various countries such as Hungary, Russia, and Spain, the establishment of an equally owned management entity to supervise joint ventures, and cooperation on network technologies (Marois & Abdessemed, 1996). In 2002, both banks terminated their alliance[1]. However, in the age of the platform economy, facilitated by technology innovation, new business models have emerged that are predicated on ongoing value cocreation with large ecosystems of stakeholders and where the relative influence of a particular participant as well as the inter-firm dynamics prevalent in dyadic or multi-firm alliances are diluted. For instance, in 2020, J.P. Morgan launched its Onyx subsidiary, which runs the Liink blockchain based platform for payments-related information exchange. Over 25 of the world's largest banks have already joined Onyx with over 400 other banks having signed letters of intent to join across 39 countries[2].

[1] https://group.bnpparibas/en/press-release/cooperation-agreement-bnp-paribas-dresdner-bank-terminated
[2] https://www.jpmorgan.com/onyx/liink

Thus, this requires further adaptation to the RBV to cater for value cocreation in the network context (as opposed to dyadic/multi-firm contexts) that is integral to firms' overall strategies, and which leads to sustained relational rents and competitive advantage rather than short-term rents. This study seeks to describe how firms have been adapting their strategies to derive relational rents and sustained competitive advantage from external resources/capabilities in the platform economy age.

In the following pages, Section 2 elaborates on the proposed theoretical adaptation. Then, Section 3 discusses the methodology, including the empirical context (European banks), the strategy of inquiry, data collection, data interpretation, and theorization. Section 4 presents the findings which depict how European banks have adopted strategies of interdependence that sought to cocreate value with networks of external resource and capabilities as integral strategic considerations that lead to sustained relational rents. Section 5 presents this study's theoretical contributions including a) further adapting the RBV to cater for both temporary competitive advantage and sustained relational rents that can be generated through value cocreation, including in network contexts, b) the mechanics of how this adaptation is achieved, c) advancing the better demarcation of resources and capabilities, d) catering for management's entrepreneurial abilities of deploying resources and capabilities in innovative ways, and e) advancing a less static notion of competitive advantage. Section 5 also presents the managerial contribution, limitations, and avenues for further research. Section 6 concludes.

2. THEORETICAL BACKGROUND

Identifying and interpreting sources of firms' sustained competitive advantage is an enduring focus of Strategic Management. Peteraf & Barney (2003) defined competitive advantage as firms' ability to "*create more economic value than the marginal (breakeven) competitor in its product market*". The RBV proposes that "*competitive advantage derives from firm-specific resources that are scarce (rare) and superior in use, relative to others*" where performance differences are "*derived from rent differentials, attributable to resources having intrinsically different levels of efficiency*" (Peteraf & Barney, 2003). The RBV has its roots in Penrose (1959) who theorised how firms could generate economic value and profitable growth through effective management of resources and their idiosyncratic combination and deployment as innovative capabilities. The RBV was developed further in the 1980s (e.g., Wernerfelt, 1984; Barney, 1986; Dierickx & Cool, 1989) and popularized in the 1990s by Barney (1991) who

provided a model for firms to apply the RBV to create strategies for achieving sustained competitive advantage by exploiting resources that are: valuable, scarce, imperfectly imitable, and imperfectly substitutable. During its growth period in the 1990s, the RBV was developed significantly (e.g., by considering the role of the CEO (Castanias & Helfat, 1991), encouraging dialogue across perspectives, (Mahoney & Pandian, 1992), and addressing social contexts in resource selection (Oliver, 1997)). The RBV's maturity stage in the 2000s (Barney, et al., 2011) explored its micro-foundations (Lippman & Rumelt, 2003; Felin & Hesterly, 2007), the "black-box" between resources/capabilities and sustained competitive advantage (Sirmon, et al., 2007), resource orchestration (Helfat, et al., 2007), and entrepreneurial capabilities (Zhao, et al., 2013).

2.1. Challenging Resource Ownership as a Central Property of the RBV

The RBV's maturity stage saw several critiques. Kraaijenbrink, et al. (2010) compiled a list of 8 categories of critiques, dismissing 5 as having been addressed, while emphasizing that the remaining 3 need to be tackled. The first relates to the need to better demarcate and define resources. A distinction should be made between building, acquiring, and possessing resources and capabilities, as well as the managerial processes required to deploy them (Kraaijenbrink, et al., 2010). Moreover, the traditional RBV trivializes the concept of ownership, failing to recognize that ownership of some resources and capabilities can in some cases be partial or constrained, (e.g., knowledge). The RBV also overlooks the distinction between rivalrous and non-rivalrous resources, which require distinct management approach (e.g., efficient deployment versus wide deployment). The RBV also limits its focus to the characteristics of individual resources rather than catering for the managerial capabilities of configuring and integrating those resources. The second suggestion is to advance a subjective, firm-specific notion of resource value. The RBV assumes that value is a characteristic of firm resources based on bounded rationality and an assumption of the continuity of markets. This assumption does not necessarily hold in unpredictable and fast evolving environments. Thus, in considering resource value, management's subjective, entrepreneurial capabilities to deploy resources and capabilities in innovative ways that generate value should be considered. The third suggestion is to develop the RBV into a more viable theory of sustained competitive advantage. RBV's focus on building and possessing resources supports a notion of sustained competitive advantage that relates to the potential of a firm to outperform its rivals when the resources it possesses have a higher value in a future market. However, to effectively predict firm performance and firms' generation and appropriation of economic rents, the RBV needs to

consider the context and processes of resource deployment. Thus, beyond just managing resources, the RBV should consider the management of the "*imaginative processes that enable the firm to grasp the strategic disjunction between its resource set and the market situation in which it is operating*" (Kraaijenbrink, et al., 2010).

Thus, while the RBV offers firm management a valuable strategy framework for sustained competitive advantage, it requires further adaptation to address the lingering gaps highlighted by Kraaijenbrink, et al. (2010) including challenging the RBV's focus on resource ownership, incorporating the often-underestimated importance of resource bundling, and accounting for the entrepreneurial abilities of management to generate value in innovative ways. Dyer & Singh (1998) called for an expanded view that caters for external resources and capabilities and the entrepreneurial ability of firm management to bundle resources and capabilities in innovative ways across firm boundarties, proposing the Relational View to complement the RBV. Dyer & Singh (1998) propose that a firm can combine its resources and capabilities with those of other firms to create unique, idiosyncratic combined resources and capabilities that generate relational rents and competitive advantage. Dyer & Singh (1998) defined relational rents as short-term quasi-rents that are "*a supernormal profit jointly generated in an exchange relationship that cannot be generated by either firm in isolation and can only be created through the joint idiosyncratic contributions of the specific alliance partners*". Teece, et al. (1997) also considered the importance of external resources and capabilities.

Amit & Zott (2001) proposed combining strategic management and entrepreneurship literatures to better describe how value is created in e-businesses that proliferated at the end of the 1990s. They took an integrative approach to combine considerations from value chain analysis, transaction cost economics, Schumpeterian innovation, the RBV, and Dyer & Singh's strategic networks, and proposed that business models should receive more attention in business and management literature including as a unit of analysis. They define business models as depicting "*the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities*". As business model thinking becomes a more established part of strategic management and as sustained value cocreation becomes an increasingly important consideration for strategy in the platform economy age, it is important to adapt and evolve underlying theoretical foundations to better grapple with new realities. Lavie (2006) sought to do this by adapting the RBV.

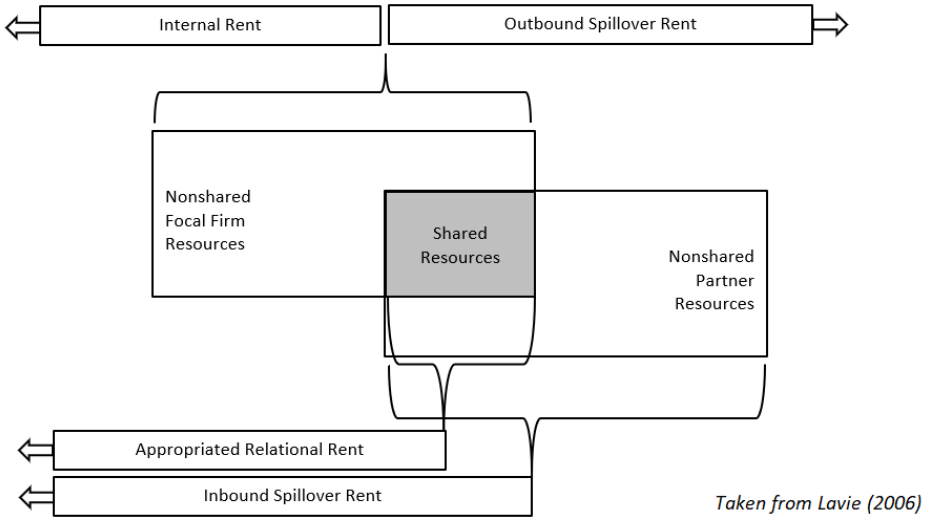
Lavie (2006) proposed to extend the RBV, through knowledge developed from the Relational View (Dyer & Singh, 1998) and from Social Network Theory, to make the RBV more suited to dealing with situations in which firms collaborate to create value and competitive advantage through relational and spillover rents. Lavie (2006) tackles the question of ownership, suggesting that the emphasis in the RBV of resources being "*tied semipermanently to the firm*" (Wernerfelt, 1984) or controlled by the firm (Barney, 1991) was possibly a product of the time in which the RBV was developed when competitive strategy and the Industrial Organization perspective were dominant, leading to collaborative strategies being assumed away. Lavie (2006) proposes instead that ownership and full control of resources is not a necessary condition for competitive advantage, and that "*resource accessibility, which establishes the right to utilize and employ resources or enjoy their associated benefits, may suffice*". Moreover, according to Lavie (2006), the idea of resource accessibility is supported by Penrose (1959) who proposed that firms generate value and sustained competitive advantage through the services that resources provide, not through the underlying resources in and of themselves

Lavie (2006) proposed that "Internal Rents" are the combination of Ricardian rents a firm derives from non-shared resources and capabilities and relational rents it derives through value cocreation from shared resources and capabilities. Lavie (2006) also identified other sources of rent created by value cocreation: inbound spillover rent that a firm can internalize and outbound spillover rent that a firm loses, and which are generated due to unintentionally leaked knowledge from partnering firms beyond the scope of their partnership (Diagram 1). Lavie (2006) also addresses the two fundamental assumptions of the RBV, resource heterogeneity and imperfect resource mobility, demonstrating that his proposed adaptations are compatible with them. While Lavie (2006) acknowledges that interdependence reduces resource heterogeneity by facilitating the flow of resources and capabilities among interconnected firms, interdependence does not invalidate resource heterogeneity as under perfect resource homogeneity firms will only adopt strategies of interconnectedness to collude, in which case mergers and acquisitions would better serve this purpose, instead the purpose of firms collaborating is for access to heterogenous complementary resources. This is even more true given the new business models that have since emerged in the platform economy age. In terms of resource mobility, strategies of interdependence weaken the imperfect resource mobility condition by enabling value extraction and distribution from erstwhile immobile resources, but

the condition is not nullified as under perfect mobility there would be no need for strategies of interdependence as complementary resources could simply be traded (Lavie, 2006).

However, Lavie (2006) and Dyer & Singh's (1998) seminal works were written at a time when value cocreation with external resources and capabilities were predominantly achieved through dyadic/multi-firm alliances. In these contexts, the nature of value cocreation initiatives is limited to the scope of the dyadic/multi-firm relationship, and resultant relational rents are short-term quasi-rents. At the time of Lavie (2006) and Dyer & Singh's (1998) contributions, the platform economy was in its infancy and the technologies and firms that came to define it had not yet emerged. In the platform economy age, firms can cocreate value with an ecosystem of external resources and capabilities through platform mediated networks. As opposed to value cocreation in dyadic/multi-firm contexts, in the network/platform context the nature of value cocreation is more fundamental as value cocreation becomes integral to firms' business models, producing network externalities that can be sustained and resulting in long-term relational rents.

Diagram 1. Rent Extraction by Focal Firm in Dyadic or Multi-firm Alliances



Taken from Lavie (2006)

2.2. Extending the RBV to Cater for External Resources and Capabilities

The RBV has proven to be a versatile perspective that has integrated with other perspectives like institutional theory (Oliver, 1997) and organizational economics (Combs & Ketchen, 1999), and with other fields like marketing (Srivastava, et al., 2001), and economics (Peteraf, 1993). Barney, et al. (2011) called for scholars "*to be mindful of the need to further innovate*" to help ensure the RBV's revitalization and avoid decline. With Barney, et al.'s (2011) call in mind and

taking into account the lingering critiques of the RBV mentioned above, while building on both the RBV's versatility and the works of Lavie (2006) and Dyer & Singh (1998), we propose a further adaptation to the RBV to better enable it to deal with external resources and capabilities in network relationships in the age of the platform economy. This proposed adaptation also enables the RBV to better cater for a more nuanced demarcation of resources and capabilities and to better account for management's entrepreneurial abilities to configure resources and capabilities in innovative ways. This further development considers:

a) externally owned/controlled resources and capabilities in the platform context whereby these externally held resources and capabilities generate ongoing rents for the focal firm through new business models
b) temporary competitive advantage a component of overall sustained competitive advantage

To effectuate this adaptation several considerations need to be integrated into the RBV. These considerations are drawn from perspectives that deal with different aspects of interdependence (e.g., networks, ecosystems, platforms) and on the notion of temporary competitive advantage.

2.2.1. Accounting for Temporary Competitive Advantage

A key phenomenon that contributes to increasing interdependence is hypercompetition. Hypercompetition is "*an environment of fierce competition leading to unsustainable advantage*" (D'Aveni, 1994). With rapid changes in technology, regulation, and consumer behaviour, and blurring industry boundaries, the platform economy age can be described as hypercompetitive. In hypercompetitive environments "*frequent endogenous and exogenous competence destroying disruptions and discontinuities make sustaining one's advantage impossible*" (D'Aveni, et al., 2010) and factor markets evolve rapidly through innovation leading to frequent changes to the value, uniqueness, tradability, and imitability of resources and capabilities (D'Aveni, et al., 2010). Since resources and capabilities in hypercompetitive markets lose value through imitation or substitution and thus new ones are needed to replace them, firms can be strategically agile and mobilize their resources and capabilities in ways to obtain temporary advantage, while seeking to replace them with more relevant ones should hypercompetitive markets render them obsolete (D'Aveni, 1994; D'Aveni, et al., 2010). Thus, the first consideration in the proposed adaptation of the RBV is the inclusion of temporary competitive advantage hypercompetitive situations (in addition to sustained competitive advantage).

2.2.2. Economic Considerations

The economic benefits of interdependence (e.g., relational rents) can be maximized through structural and behavioural considerations (e.g., network centrality, limiting opportunistic behaviour) (Lavie, 2006; Dyer & Singh, 1998). These economic benefits were limited to interdependence in dyadic/multi-firm contexts. Thus, there is a need to incorporate into the proposed adaptation of the RBV, three considerations relating to the economic benefits of network related interdependence. The first is the consideration of direct and indirect network externalities as contributors to relational rents. The benefit a network participant extracts from the consumption of a good or service depends on the number of other network participants consuming compatible goods and services (Katz & Shapiro, 1986), leading to the generation of network externalities. Network externalities are direct when they result from a participant valuing a network for their ability to transact with other participants, and indirect when a participant values a particular network for its variety of complementary products and services (Katz & Shapiro, 1986). The second consideration is for multi-sidedness, which contributes to the generation of network externalities, to be considered as a strategic resource and the management of multi-sided networks as a strategic capability. In truly multi-sided markets, a focal firm controlling the platform can: a) impact transaction volumes by manipulating price structures/levels; b) reduce/remove information asymmetry; c) charge transaction/membership costs; d) limit bilateral price setting; e) limit price setting through direct bargaining and monopoly price-setting; and, f) constrain pricing between participants (Rochet & Tirole, 2006). The third consideration relates to accounting for a network's structural components as strategic resources and for their management as a strategic capability. Structural considerations like network size, transaction feasibility, centrality, tie strength, and the ability to bridge structural holes (Afuah, 2013; Uzzi, 1997; Ahuja, 2000) and network behaviour like avoiding opportunistic behaviour (Uzzi, 1997; Afuah, 2013) play critical roles in the value-appropriation capabilities of network participants.

2.2.3. Considerations Relating to Alignment Mechanisms

The adapted RBV also needs to consider the alignment mechanisms required for the economic benefits in network relationships to be generated. This can be achieved by incorporating 3 considerations. The first is that value cocreation should be considered a strategic capability. The alignment and coordination of diverse stakeholders to cocreate value that none could have achieved in isolation and which generates direct and indirect network externalities beneficial to

all is a central theme of the ecosystem literature (Adner, 2006, 2017) and should be considered as strategically important managerial abilities. The second consideration is that ecosystem focal position and the ability to originate *de novo* ecosystems should be considered as strategically important capabilities. A focal firm has "*deliberate intent*" in creating an ecosystem (Jacobides, et al., 2018), aligns partners which includes diverse stakeholders such as complementors (Adner, 2017), and sets the *de facto* industry standards (Bonardi & Durand, 2003). Focal firms can influence the generation, distribution, and internalization of network externalities that the ecosystem members cocreate and benefit from (McIntyre & Srinivasan, 2017). In the case of *de novo* ecosystem creation, focal firms need to persuade other stakeholders to commit to an ecosystem whose value depends on their participation, which necessitates a set of capabilities that allow them to reduce ambiguity by shaping meaning (Santos & Eisenhardt, 2009) or orchestrating a "*process of collective discovery*" (Dattée, et al., 2018). The third consideration is the need to include coopetition (Brandenburger & Nalebuff, 1996) as a strategic capability. Successful coopetative strategies require firm management to possess certain capabilities including understanding opportunities and challenges unique to the paradoxical tensions (cooperation, competition) inherent in coopetition (Czakon, et al., 2020), establishing appropriate governance structures (Czakon, et al., 2020), and navigating challenges unique to network coopetition (Czakon & Czernek, 2016).

2.2.4. Technological Considerations

Platforms are the technological interfaces that mediate the relationships between stakeholders in an ecosystem. Two further considerations can be derived relating to the technological manifestation of interdependence in a network. The first consideration is the strategic capability of knowing when to "platformize" and when not to. A focal firm's pursuit of a platform strategy means that it risks ceding some control and exposing some of its intellectual property to the wider market. A focal firm should consider a platform strategy when the proposed platform's products, services, and technologies can perform a function that is core (when the overall system it serves cannot operate without it) to a wider ecosystem while solving business problems to many firms/users in an industry (Gawer & Cusumano, 2008). The second consideration is that architectural modularity and technological standards and protocols should be considered as strategic resources, and their management as a strategic capability. Modularity is "*the degree to which a system's components can be separated and recombined*" (Schilling, 2000). Modularity allows a platform to cater to rapidly evolving consumer needs by facilitating

simultaneous, autonomous testing of several disparate approaches and the ability to learn through trial-and-error in ways that are not possible in traditional, closed, and heavily integrated systems (Langlois & Robertson, 1992). Modularity "*enlists the division of labor in the service of innovation*" by allowing platform participants to focus their innovation capabilities on a specific module without the need to coordinate with other actors (Langlois & Robertson, 1992). Modularity, by itself leads to the formation of markets, not ecosystems of actors interacting through a platform (Baldwin, 2008); for an ecosystem to form, a focal firm with a certain level of institutional legitimacy needs to coordinate activities (Jacobides, et al., 2018) at a platform level which can be achieved through the enforcement of unifying standards and protocols.

In the age of the platform economy, Lavie's (2006) adaptation to the RBV to cater for external resources and capabilities needs to be extended to account for more sustained value cocreation with external resources and capabilities in network contexts. This necessitates the incorporation of considerations about interdependence in networks. This includes considerations of the economic benefits of network interdependence (e.g., network externalities), structural and behavioural characteristics that maximize them (e.g., multi-sidedness), the alignment mechanisms that bring together an ecosystem of stakeholders into a network (e.g., coopetition, the position of ecosystem leader, *de novo* ecosystem origination), the technological interfaces that mediate this value cocreation (e.g., the decision to platformize, modularity), and the temporary competitive advantage that should be considered in hypercompetitive situations as a component of a broader strategy for sustained competitive advantage. With this in mind, this study seeks to address the following research question: how have firms been adapting their strategies to derive relational rents and sustained competitive advantage from external resources and capabilities in the platform economy age?

3. METHODOLOGY

3.1. STRATEGY OF INQUIRY

This descriptive longitudinal study of strategies of interdependence adopts an internal realist (Easterby-Smith, et al., 2018) qualitative research design, and considers that firms' strategies of interdependence in relation to the platform economy are objective realities, but that they can best be understood indirectly through the examination of the modalities of their strategic responses. We have therefore focused our attention on such modalities in order to identify and describe strategies of interdependence. For this purpose, we conducted a multiple case study;

this methodology is particularly well suited to addressing descriptive studies, in a contemporary real-world setting, using multiple sources of evidence, and with a detached researcher (Yin, 2018). Case study research design has often been used to develop theories (Eisenhardt, 1989; Yin, 2018), which aligns with this study's aim to propose an adaptation of the RBV. The fact that this study relies on multiple cases rather than a single case and is longitudinal enhances the construct validity and reliability of outcomes.

The empirical context this study uses to answer the research question is the European banking sector since the 2008 Global Financial Crisis (GFC). Banking has been in a state of flux since the shock of the GFC. The crisis led to a prevailing recessionary, low-growth macro-economic environment globally, the introduction of new monetary policy measures, passing of more stringent regulatory reforms, and the sustaining of near-zero interest rates for over a decade which depressed banks' profitability (Molyneux & Wilson, 2017). The aftermath of the GFC saw the erosion of consumer trust in banking, the rise of the platform economy, and the emergence of a digitally native generation. While banks grappled with these seismic forces, the pace of technological change has been formidable with advances in artificial intelligence, blockchain, and cloud computing facilitating new business models across industries. In this environment, innovative start-ups (financial technology firms or "fintechs") emerged to challenge banks, by applying new technologies to banking to better meet consumer expectations (Gomber, et al., 2018). Bigtechs (e.g., Google, Apple, Alibaba) also entered banking; unlike fintechs, they have access to vast customer data, institutional legitimacy, and technological expertise that they can build upon to add banking capabilities, thereby posing an even greater threat to banks (Hill, 2018). Moreover, since the GFC, regulators, especially in Europe, enacted regulations that empowered fintechs and bigtech, (e.g., Payments Service Directive 2 (PSD2)), while simultaneously increasing the net regulatory burden on banks. There were also numerous public policy enablers that, in promoting a more digital economy, support fintech and bigtech activities, especially in Europe (e.g., General Data Protection Regulation (GDPR)).

These forces are more pronounced in Europe where regulatory and public policy enablers such as PSD2 and the Open Banking Standard have invigored fintechs/bigtechs, hence European banks constitute the focus of this study. These disruptions are more widely felt by large, international, diversified banks who need to contend with these forces across diverse geographic, regulatory, and business segment fronts, compared to small, specialized, local

banks. These banks cannot realistically internally develop or acquire all the necessary resources and capabilities required to address the multitude of forces of interdependence that assail them across different business segments, geographies, and regulatory environments; they are therefore more likely to engage in value cocreation with external stakeholders to address these challenges. Thus, we focus on the largest 20 European banks: HSBC, BNP Paribas, Crédit Agricole, Santander, Deutsche Bank, Société Générale, Groupe BPCE, Barclays, Lloyds Banking Group, ING, Crédit Mutuel, UBS, UniCredit, Intesa Sanpaolo, Royal Bank of Scotland, Credit Suisse, BBVA, Standard Chartered, Rabobank, and Nordea[3].

4 modalities (acquisitions and investments, partnerships, open innovation ecosystems, and open IT infrastructure) and 17 submodalities of banks' strategies of interdependence were identified in an abductive process incorporating a) the theoretical framework, b) insights that emerged from the data collected, and c) my experience as a practitioner. To capture these modalities, we used abductive reasoning and a longitudinal multiple-case methodology (Yin, 2018). The unit of analysis is banks' strategies of interdependence as captured by each of the 20 cases. The unit of observation is banks' modalities/submodalities of their strategies of interdependence. The time boundary is 01-Jan-2008–31-Dec-2019. The logic behind the selection of the 20 cases facilitates literal replication (e.g., no mixing of large, integrated global banks with small, specialized, local ones across different regulatory regimes, exclusion of non-banking financial institutions), while theoretical replication is catered for through the different modalities of banks' strategies of interdependence (Yin, 2018). This study's time boundary helps maximize the generalizability of outcomes as it corresponds to the emergence of forces that have increased interdependence in the European banking industry (e.g., fintech and bigtechs competition, enabling technologies, regulatory enablers like PSD2, public policy enablers like GDPR). It is also sufficiently long (12 years) to gather enough relevant data and for observations to be indicative of more significant phenomena instead of temporary noise.

3.3. DATA COLLECTION

Data relating to modalities and submodalities of banks' strategies of interdependence were collected longitudinally for each of the 20 cases and presented in 20 single-case matrices. This study triangulates between different data sources (e.g., press releases, financial databases,

[3] https://www.spglobal.com/marketintelligence/en/news-insights/trending/7NsXjB8GspSSHHkvF0LgYA2

financial statements), between types of data (e.g., documents, archival databases), and between different methods, providing multiple measures of the same phenomenon and enabling the convergence toward a single representation of a phenomenon with a greater degree of confidence (Miles, et al., 2019; Yin, 2018).

Table 1. Data Point Sources for the 20 Cases

CASE	DB	PR	NS	FS	CW	O	TOTAL
Barclays	22	6	47	-	18	2	95
BBVA	14	9	37	10	69	3	142
BNP Paribas	12	32	33	2	43	2	124
Crédit Agricole	10	16	22	1	51	-	100
Crédit Mutuel	11	13	20	7	34	2	87
Credit Suisse	13	13	25	1	24	1	77
Deutsche Bank	10	8	40	-	18	1	77
Groupe BPCE	12	24	19	1	37	-	93
HSBC	12	17	58	-	29	-	116
ING	17	37	44	9	42	3	152
Intesa Sanpaolo	9	15	8	5	34	1	72
Lloyds Banking Group	1	8	14	1	20	1	45
Nordea	6	21	20	5	23	2	77
Rabobank	4	8	45	12	46	7	122
Royal Bank of Scotland	5	12	33	1	37	-	88
Santander	26	18	54	2	34	5	139
Société Générale	9	22	30	4	66	5	136
Standard Chartered	7	25	49	10	27	3	121
UBS	4	5	32	-	29	2	72
UniCredit	5	14	28	-	23	2	72
	209	**323**	**658**	**71**	**704**	**42**	**2,007**

DB: Database; PR: Press Release; NS: News Source; FS: Financial Statement; CW: Corporate Website; O: Other

2,007 data points were obtained for the 20 cases between 2008-19 (Table 1). These data points were obtained from archival databases (e.g., Moody's Analytics BankScope, Dow Jones Factiva, Crunchbase, La French Tech) and documentary evidence (e.g., press releases, corporate websites, annual financial statements, and 113 sources of financial news/specialist news). 42 different Boolean searches were used in Dow Jones Factiva and in keyword searches in annual financial statements for each case. Beyond just conducting keyword searches, the introduction, strategy section, and innovation section of annual financial statements were analysed. Moreover, banks' websites were consulted in detail as these often have "innovation" or "strategy" sections; the corporate venture capital arms, fintech arms, incubators, accelerators, innovation labs, fintech funds often have their own websites as well which were consulted in detail. Each single-

case matrix has a short overview of the bank detailing its organizational structure (e.g., key subsidiaries), international presence, and other relevant information (e.g., unique historical conditions). Each single-case matrix then compiles the data points for the modalities and submodalities. For each data point, the name and/or URL of the data source is included. To ameliorate the reliability and construct validity of outcomes a diligently maintained case study database was used. Moreover, relevant subsidiaries were considered, including those that the parent disposed of, consolidated, or merged. Many subsidiaries have different names than the parent thus all searches conducted using the parent name were also conducted using the subsidiary name, and if subsidiaries file separate annual financial statements to the parent those too were analysed. Furthermore, when conducting database searches and Boolean searches, attention was given to nuances that may affect results like including and excluding accents and using the full name as well as acronyms.

3.4. DATA ANALYSIS

Our data analysis consisted of 2 main steps. First, once all single-case matrices were completed, a content analytic meta-matrix (see Appendix 1 for a sample of part of the content analytic meta-matric) brought together data from all 20 banks to facilitate analysis (Miles, et al., 2019). In keeping with this study's abductive approach, the content-analytic meta-matrices rely both on theory driven propositions that were derived from the literature review and propositions that emerge from the data "*from the ground up*" (Yin, 2018). A holistic case-based approach (Byrne, 2009) was used to interpret the data. Second, on this basis, we empirically derived a taxonomy (Bailey, 1994) of banks' strategies of interdependence. For this purpose, we used Nickerson, et al.'s (2013) approach and adapted it to qualitative, case-level data. Thus, this study's approach to taxonomy creation followed the following logic: pattern matching, cross-case synthesis, time series analysis, and logic models were applied to the content-analytic meta matrix to cluster bank's characteristics (modalities/submodalities) into dimensions, 4 further rounds of clustering were conducted at the dimension level (with the possibility of adding, removing, splitting, or merging dimensions, except in the final round) resulting in 8 taxa. This study considers that a taxonomy is composed of several taxa; a taxon is composed of dimensions; and a dimension is composed of characteristics (modalities/submodalities). The taxonomy was deemed final based on the following conditions being met: robust but concise, complete and collectively exhaustive (all 20 cases accounted for; all modalities/submodalities accounted for in each taxon), extendible, facilitates theorization, at least one case in each taxon, no new taxa

or dimensions added, merged, or split in the final iteration, mutual exclusivity at the dimension level (each case figures in only one taxon, each taxon is unique, each dimension is unique within a taxon). Appendix 2 presents the final iteration of the taxonomy and details the dimensions that constitute each taxon.

4. FINDINGS

The findings demonstrate how the top 20 banks in Europe increasingly sought to cocreate value with external resources and capabilities between 2008-19. The findings show how the value cocreation initiatives that banks entered into with external resources and capabilities were done in network contexts with an ecosystem of diverse stakeholders rather than in dyadic/multi-firm contexts, that these cocreation initiatives relate to a broad range of activities (in some cases to banks' business models) rather than being confined to the comparatively narrow scope of specific dyadic/multi-firm alliances, and that banks integrated these value cocreation initiatives into their overall strategy of sustained competitive advantage rather than drawing on dyadic/multi-firm value cocreation as a short-term, tactical source of competitive advantage. Section 4.1 demonstrates empirically the economic, alignment, and technological considerations that banks incorporated into their strategies of value cocreation with external resources and capabilities. Section 4.2 details the taxonomy of banks' strategies of interdependence which shows how interdependence and value cocreation has become a more fundamental and sustained strategic consideration in the platform economy age.

4.1. New Considerations for Value Cocreation with External Resources and Capabilities in the Platform Economy Age

All banks considered sought to reinforce their existing resources and capabilities to make them better suited to value cocreation with external resources and capabilities. Some banks acquired fintechs to integrate the targets' resources and capabilities into their own to enhance their ability to engage in strategies of interdependence (e.g., Groupe BPCE's acquisition of Fidor, Santander's acquisition of Superdigital). Some banks established corporate venture capital subsidiaries and allocated fintech funds (e.g., Santander's InnoVentures with its 200 million EUR fintech fund) to develop resources and capabilities that enable them to better identify fintechs acquisition/investment targets.

Many banks launched fintech subsidiaries that are separate from the rest of the bank through which they developed resources and capabilities that are better suited to value cocreation (e.g., Barclays' Pingit, UniCredit's Buddybank). The organizational segregation of fintech subsidiaries from the rest of the banks provided the space for management to configure and deploy resources and capabilities in innovative ways, often through value cocreation with external complementors, while being unencumbered by banks' legacy technologies and ways of working. In some cases, banks spun-off their fintech subsidiaries preferring for them to grow as separate entities with whom they can partner with to derive relational rents (e.g., ING spin-offs Payconiq, Cobase, and Yolt). This demonstrates how bank management made the distinction between building innovative resources and capabilities (which they owned) and deploying them in novel ways by spinning them off (ceasing ownership while maintaining a partnership) thus advancing more nuanced approaches to sustained competitive advantage.

Banks established alignment mechanisms and technological interfaces through which they could cocreate value through the comingling of their own resources and capabilities with those of external stakeholders. The majority of banks launched internal open innovation initiatives (e.g., internal think tanks, innovation labs, incubators, and accelerators) to invest in their own workforce and facilitate the creation of new resources and capabilities that are adapted to strategies of interdependence through the entrepreneurial activities of their staff (e.g., UBS' think tank UBS Y, Standard Chartered's eXellerator innovation lab/incubator/accelerator, Royal Bank of Scotland's innovation outpost RBS Silicon Valley Solutions). In many cases, banks launched open innovation initiatives that are open to participation from external stakeholders (e.g., Barclays' Rise innovation lab and its Barclays Accelerator). Through these open innovation initiatives, banks were able to combine their resources and capabilities with those of external stakeholders to experiment with innovative technologies and solutions, incubate and test them, and subsequently take them to market, adapt them further, or terminate them. In some cases, banks launched exclusively technological interfaces to allow their staff, customers, and external stakeholders to cocreate new solutions and services (e.g., Crédit Agricole's CA Store). Driven by regulation like PSD2, all banks launched open API portals and developer kits to technologically facilitate value cocreation with external stakeholders. However, many banks embraced open banking beyond minimum regulatory requirements, thus benefiting from API-driven modularity to "*enlists the division of labor in the service of*

innovation" (Langlois & Robertson, 1992) for value cocreation across firm boundaries (e.g., BBVA extended its open API portal and developer kit to its US and Mexican operations).

These alignment mechanisms and technological interfaces demonstrate how bank management increasingly made the distinction between rivalrous resources they should not expose to external open innovation initiatives and non-rivalrous ones that they should and how they built, configured, and deployed resources and capabilities in innovative ways across firm boundaries to create value. They also demonstrate how banks' management are organizationally catering for value cocreation with external resources and capabilities by facilitating coopetition with firms that are potential competitors (Brandenburger & Nalebuff, 1996), becoming architecturally more modular (Langlois & Robertson, 1992), and using open innovation initiatives to orchestrate how they interact with external stakeholders. Moreover, these alignment mechanisms and technological interfaces also exemplify how banks incorporated strategies for temporary competitive advantage by mobilizing their resources and capabilities as well as those of external stakeholders in agile, innovative, and experimental ways.

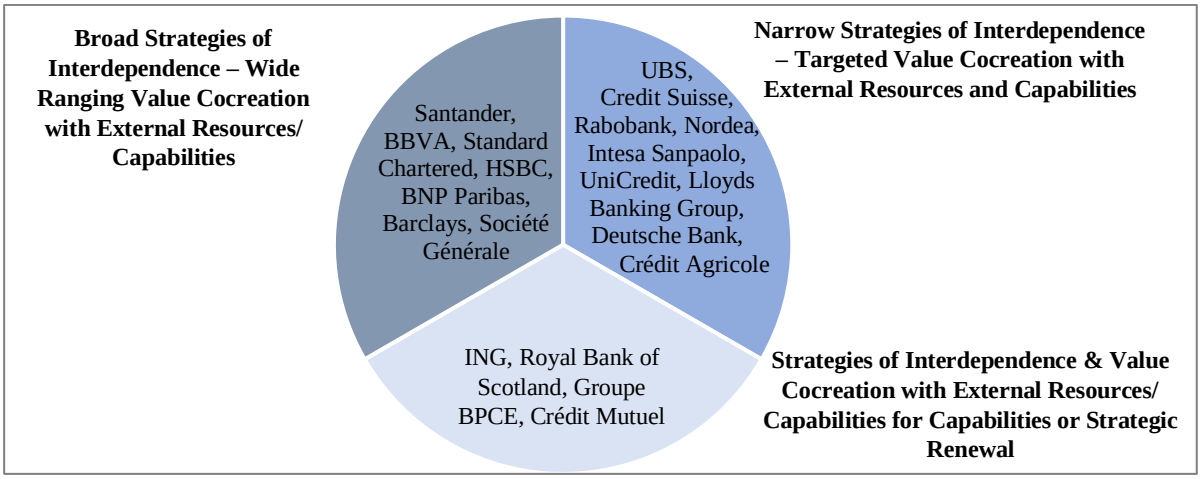
All the banks considered coopetated and/or cocreated value through the combination of their resources and capabilities with those of external stakeholders, including with new entrants such as fintechs (e.g., many of the banks considered partnered with prominent fintechs like Symphony, AcadiaSoft, and Neptune Networks), potential competitors like bigtechs (e.g., most banks partnered with bigtechs like Apple and Google in payments through applications like Apple Pay and Google Pay, while some like Standard Chartered went further especially in China by partnering with Chinese bigtechs in wider ranging initiatives), and traditional competitors like other banks and incumbent financial services firms (e.g., HSBC's partnership with SWIFT to define a common industry standard for open-APIs in Hong Kong). All 20 banks participated in blockchain based multi-sided networks that generate network externalities for all participants (e.g., many of the banks considered backed blockchain consortia like we.trade and Komgo). Several banks assumed the position of focal firm to lead and originate blockchain based multi-sided networks (e.g., UBS originated *de novo* the international payments network Fnality International, and the Massive Autonomous Distributed Reconciliation (MADREC) compliance platform). This demonstrates bank management's entrepreneurial abilities to configure and deploy resources and capabilities in innovative ways across an ecosystem of stakeholders (Adner, 2006; 2017) through the mediation of multi-sided technological platforms

that facilitated the ongoing generation, distribution, and internalization of network externalities, as well as management's ability of knowing when and when not to platformize (Gawer & Cusumano, 2008). Moreover, the origination of *de novo* multisided platforms demonstrates how banks acting as ecosystem focal firms sought to shape-meaning and become cognitive referents in situations of ambiguity (Dattée, et al., 2018; Santos & Eisenhardt, 2009) (e.g., UBS' MADREC platform, which several other banks subsequently joined, was originated in response to the enactment of the new MiFID II regulations in 2018).

4.2. Taxonomy of Banks' Strategies of Interdependence

Based on the data analysis process described in Section 3.4, a taxonomy of banks' strategies of interdependence was created after 5 rounds of clustering. The taxonomy (Diagram 2) shows that the 20 banks considered took 3 broad approaches to interdependence.

Diagram 2. Taxonomy of Banks' Strategies of Interdependence



4.2.1. Broad Strategies of Interdependence

Banks in this taxon engaged with external resources and capabilities through sophisticated and wide-ranging strategies of interdependence. Banks figuring in this taxon, like HSBC, BNP Paribas, and Santander, are large and operate across diverse businesses and geographies. In the platform economy age, these banks are unlikely to internally develop and/or own all of the rapidly evolving resources and capabilities required to respond to rapid changes in regulation, technology, competitive landscapes, and consumer behaviour across such wide and diverse geographic, regulatory, and business segment fronts. Thus, they have embraced value cocreation with external stakeholders as a key component of their overall corporate strategies

in the pursuit of both the rejuvenation of their internal resources and capabilities and the generation and capture of sustained relational rents and competitive advantage. For these banks, value cocreation with external resources and capabilities became more and more a component of their business models; archetypal in this sense is BBVA, with their Chairman and CEO Francisco González encapsulating the importance of value cocreation and platformization to BBVA's strategy in his 2018 statement that *"BBVA will be a software company in the future"*[4].

These banks adopted various alignment mechanisms to bring together ecosystems of complementors and other external stakeholders to undertake value cocreation initiatives. They launched extensive internal and external open innovation initiatives such as innovation labs, incubators, and accelerators. Unlike banks from other taxa, several banks in this taxon like Standard Chartered, Santander, and BBVA, integrated their internal and external open innovation initiatives with other capabilities they developed that were focused on value cocreation such as fintech subsidiaries, corporate venture capital arms, and fintech funds. For example, in 2019 Santander launched its Santander Global Platform (which incorporates its innovation labs, fintech subsidiaries, and banking-as-a-service platform) to build and scale fintech solutions that it can provide to the Santander Group, customers, and external parties on a banking-as-a-service basis. Banks in this taxon also demonstrated advanced coopetition coopetition capabilities, coopetating with various potential competitors in value cocreation activities, including other banks (e.g., BNP Paribas' partnership with other banks in creating national payments platforms such as PayLib and LyfPay), fintechs (e.g., Société Générale's partnership with fintech Obopay to offer mobile banking to banked and unbanked customers in Senegal), and bigtechs (e.g., fintech alliance between Tencent and HSBC subsidiary Hang Seng Bank). To facilitate the regeneration of existing resources and capabilities towards models of value cocreation with external stakeholders these banks established segregated fintech subsidiaries (e.g., BNP Paribas' direct banking subsidiary Hello Bank! launched in 2013).

These banks also demonstrated advanced ecosystem leadership capabilities. For example, in 2016 HSBC was one of only five non-Singaporean banks to participate in Project Ubin, the Monetary Authority of Singapore's pioneering project to conduct inter-bank payments on blockchain and the only non-Canadian bank to participate in Project Jasper, a similar project

[4] https://www.bbva.com/en/francisco-gonzalez-the-future-of-banking-is-decided-in-places-like-this-one/

launched by the Bank of Canada in 2016. These banks also participated extensively in multi-sided blockchain-based platforms through which they could generate network externalities. Some, like BBVA, also demonstrated the advanced ability to originate multiple *de novo* multi-sided platforms (e.g., blockchain-based bond issuance platform in 2018 and corporate lending platform in 2018) through which it could control the generation, distribution, and internalization of network externalities. Banks in this taxon also demonstrated a more sophisticated ability of knowing when and when not to platformize. BBVA's multiple *de novo* multi-sided blockchain platforms for example were built on a hybrid architecture of internal and public blockchain networks – the only bank to adopt this architecture – allowing BBVA to exert more control on its platforms and avoiding the unnecessary loss of outbound spillover rents. These banks also often adopted open banking beyond the minimum scope of regulation (e.g., Santander and BBVA extending open API portals to geographies where open banking is not a regulatory requirement) to put the benefits that modular open banking architectures afford to use in value cocreation with complementors and other external stakeholders.

4.2.2. Narrow Strategies of Interdependence

Banks in this taxon took a more targeted approach to interdependence. While these banks deemed strategies of interdependence including value cocreation in network contexts as contributors to long-term competitive advantage, they engaged in them in narrower contexts (e.g., in specific business division or geographic contexts). Many of these banks are more regional in their geographic reach (e.g., Nordea, Rabobank) and/or more limited in their business segment focus (e.g., Lloyds Banking Group). Moreover, several of these banks like UBS and Credit Suisse are leading specialists in specific banking activities like private wealth management and are likely more cautious towards the risks of strategies of interdependence in eroding existing internal resources and capabilities (e.g., through outbound spillover rents).

These banks launched a moderate number of alignment mechanisms to cocreate value with external stakeholders, through internal and or/external open innovation initiatives (e.g., UBS's internal think tank UBS Y, the Intesa Sanpaolo Innovation Center launched) that were less integrated and less expansive than those of banks in the "Broad Strategies of Interdependence" taxon, and through narrower coopetition with competitors (e.g., Credit Suisse was late to partner with bigtechs in payments only partnering with Apple Pay, Samsung Pay and SwatchPay as late as 2019). Banks in this taxon participated in multi-sided blockchain networks though more

moderately compared to those in the "Broad Strategies of Interdependence". Banks that specialize in specific business segments, like UBS and Credit Suisse, were prominent in originating and leading *de novo* blockchain based multi-sided platforms (e.g., UBS' MADREC and Fnality International platforms, Credit Suisse's syndicated lending platform), indicating a propensity towards exerting tighter control of the development of these multi-sided platforms to ensure that they can better orchestrate the generation, distribution, and distribution of network externalities and better defend against the risks of losing outbound spillover rents. In a similar vein, none of the banks in this taxon adopted open APIs significantly beyond the minimum scope of regulatory requirements with many banks in taxon launching their open API portals later than their peers (e.g., UBS, Intesa Sanpaolo, and UniCredit launched theirs in 2019).

4.2.3. Interdependence for Strategic and Capabilities Renewal

Banks in this taxon adopted strategies of interdependence that mobilized value cocreation for the purpose of capabilities or strategic renewal. Some banks in this taxon like ING and the Royal Bank of Scotland, were particularly badly affected by the GFC, with significant reversals of their financial performance and a reduction of their business activities; these banks adopted value cocreation strategies as sources of future sustained growth and strategic renewal. Others in this taxon, like Groupe BPCE and Crédit Mutuel, are comparative technological laggards, and saw in strategies of interdependence a chance for the renewal of their capabilities to better equip them for sustained value cocreation with external stakeholders.

These banks sought to renew their capabilities through different mechanisms. They launched internal and external open innovation initiatives to spur innovation between their internal external resources and capabilities and those of external stakeholders like fintech start-ups (e.g., ING's Think Forward Initiative launched in 2017 in collaboration with various stakeholders like Deloitte, IBM, and Amazon and which includes a research hub and an accelerator). These banks also sought to reinforce and rejuvenate their internal resources and capabilities through the acquisition of innovative fintechs (e.g., Crédit Mutuel made 9 fintech acquisitions; Groupe BPCE acquired 8 fintechs including prominent digital-only bank Fidor). They often subsequently incorporated these acquisitions into their fintech subsidiaries (e.g., Groupe BPCE's S-Money) to ensure that they are unencumbered by legacy resources and capabilities. Moreover, these fintech subsidiaries were often the vehicles through which these banks coopetated with competitors in value cocreation initiatives (e.g., the majority of Crédit Mutuel's

coopetitive initiatives with bigtechs were done through its fintech subsidiaries Fortuneo Banque and Max), indicating that the renewal of these banks' capabilities subsequently led them to better engage in value cocreation initiatives with external stakeholders.

Most of the banks in this taxon also participated comparatively widely in blockchain based multi-sided platforms. Having invigored their resources and capabilities, several banks also leveraged their renewed capabilities to originated and lead *de novo* blockchain based multi-sided platforms (e.g., ING launched the commodities financing blockchain platform Komgo in 2018 which it incubated in its ING Innovation Bootcamp in 2016; the Royal Bank of Scotland's Innovation Engineering team built the Emerald blockchain platform which became the backbone for Project Greenpay, the inter-bank payments network launched in Ireland in 2017 by a consortium of banks). Some banks in this taxon also took even more innovative approaches to value cocreation with external stakeholders. Banks in this taxon like ING and the Royal Bank of Scotland where significantly over-represented in spinning-off fintech subsidiaries and initiatives (e.g., the Royal Bank of Scotland decided to progress its Emerald blockchain platform as an open-source initiative, ING spun-off 9 fintech subsidiaries including prominent ones like payments fintech Payconiq and corporate banking fintech Cobase). In spinning off these fintechs, they ceded ownership of strategic resources and capabilities in order to derive ongoing relational rents through value cocreation with them through partnerships and to allow them to better develop and grow independently from the parent firm. This "Trojan Horse" approach means that the banks nevertheless benefit from having configured the spin-off's resources and capabilities and having knowledge of the attributes that make the spin-off's resources and capabilities strategic (e.g., causal ambiguity, unique historical conditions, social complex processes through which they came about). This also demonstrates how banks in this taxon see in interdependence and novel value cocreation, the potential for strategic renewal.

This taxonomy of banks' strategies of interdependence demonstrates that banks are adopting value cocreation strategies with external stakeholders as integral parts of their overall strategies for sustained competitive advantage rather than in ways that are limited to the scope of specific dyadic/multi-firm alliances. Consequently, banks' strategies of interdependence are sources of sustained relational rents and competitive advantage rather than short-term relational rents and short-term competitive advantage.

5. DISCUSSION

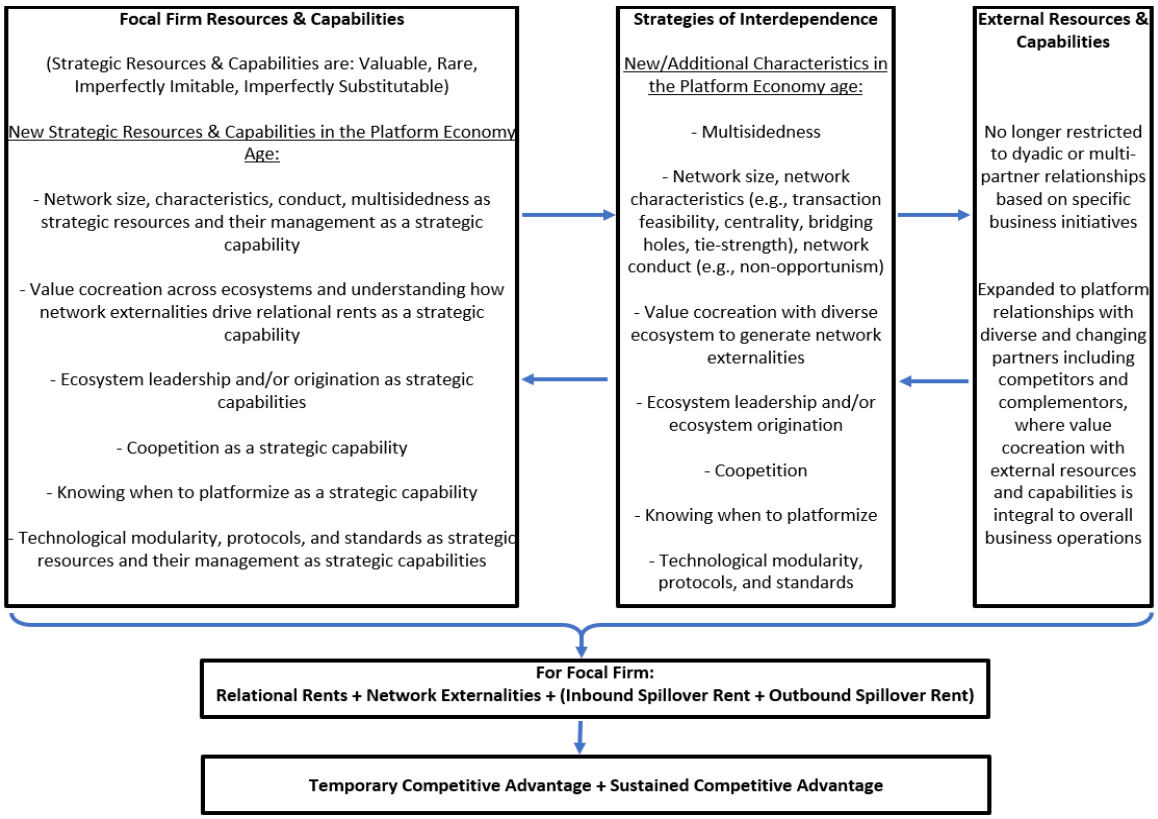
5.1. THEORETICAL CONTRIBUTIONS

Lavie's (2006) adaptation to the RBV to make it better suited for value cocreation with external resources and capabilities are well aligned to strategies of interdependence in dyadic/multi-partner contexts. However, given that Lavie's (2006) seminal work preceded the rise of the platform economy, his adaptations do not adequately account for value cocreation with external resources and capabilities in the network context. The technologies, consumer behaviours, rapid pace of change, regulations, and firms that have come to define the platform economy age, have forced firms to consider value cocreation with external resources and capabilities as a more fundamental and sustained phenomenon. This led to the evolution of business models that incorporate value cocreation as a central consideration of overall strategies of sustained competitive advantage. This study contributes to the adaptation of the RBV in the platform economy age by considering value cocreation with external resources and capabilities in platform-mediated network contexts whereby value cocreation is ongoing and the generation of relational rents is sustained by, *inter alia*, more fundamental changes to business models. Lavie (2006) and Dyer & Singh's (1998) treatment of relational rents as short-term quasi-rents bound by the scope of firm's specific dyadic/multi-firm alliances requires rethinking in the platform economy age. The incorporation of these short-term quasi-rents creates theoretical tension with the RBV's avowed search for sustained competitive advantage. This study's proposed adaptation of the RBV thus removes this tension by a) incorporating temporary competitive advantage as a component of firm's overall aim for sustained competitive advantage, b) proposing that as well as short-term relational rents, strategies of interdependence can also contribute to long-term Ricardian or monopoly rents, and that these long-term rents can often be derived from direct and indirect network externalities generated through networks.

This study also goes into the mechanics of how this adaptation of the RBV is achieved. In doing so, this study contributes to the "*revitalization*" of the RBV called for by Barney, et al. (2011) by incorporating considerations from perspectives on interdependence (networks, ecosystems, platforms). Like Lavie (2006) and Dyer & Singh (1998), this study incorporates the structural characteristics of networks that make them economically attractive, however it incorporates additional platform-centric structural characteristics like multi-sidedness as a strategic resource and management of multi-sided platforms as a strategic capability. This study contributes further by incorporating considerations about alignment mechanisms needed to bring a firm

into contact with an ecosystem of external resources and capabilities, and considerations about technological interfaces that facilitate this. In terms of alignment mechanisms, this study calls for considering as strategic capabilities the managerial abilities to align different stakeholders including complementors in value cocreation activities, coopetate, lead ecosystems, originate *de novo* ecosystems, and knowing when and when not to platformize. In terms of technological interfaces, this study calls for considering as strategic resources a firm's modular technological architectures, standards, and protocols, and their management as a strategic capability.

Diagram 3. Proposed Adaptation of the RBV in the Platform Economy Age



This study therefore contributes to the adaptation of the RBV to the platform economy age by presenting a detailed, cohesive, and extensive adaptation of the RBV that incorporates wide ranging considerations. This study's adaptation of the RBV is supported empirically by this study's findings. The empirical findings demonstrate in a systematic and tangible way how the adapted RBV can help identify the strategies of interdependence firms adopt to cocreate sustained value with external resources and capabilities, especially in platform contexts.

5.2. Contributing to Addressing the Lingering Critiques of the RBV

This study's adaptation of the RBV contributes to addressing the lingering critiques of the RBV. This adaptation explicitly challenges the RBV's overly narrow treatment of ownership of resources and capabilities (Kraaijenbrink, et al., 2010), by proposing that in the age of the platform economy, there are often circumstances where a firm should also consider externally owned or controlled resources and capabilities with whom it can cocreate value. The adapted RBV distinguishes between rivalrous and non-rivalrous resources and capabilities (e.g., by catering for management's ability of assessing the non-rivalrous resources and capabilities that can be exposed to coopetition and platformization). In keeping with Kraaijenbrink, et al.'s (2010) call for a better demarcation of resources and capabilities, this study's adapted RBV proposes further demarcations (e.g., resources and capabilities contributing to sustained competitive advantage and those contributing to temporary competitive advantage; resources and capabilities that can sustain platformization and those that if exposed to platformization lead to outbound spillover rents).

By incorporating value cocreation and temporary competitive advantage, this study's adaptation of the RBV directly address Kraaijenbrink, et al.'s (2010) call to account for the idiosyncratic, entrepreneurial abilities of firm management to deploy resources and capabilities in innovative ways to create future value. The consideration of value cocreation with external stakeholders emphasizes the importance of entrepreneurial discovery and activity as important contributors to generating value from resources and capabilities. Specifically, the inclusion of considerations on alignment (coopetition, ecosystem leadership, *de novo* ecosystem origination), rent generation, distribution, and internalization in platform contexts (network externalities, network characteristics, multi-sidedness, knowing when to platformize), and technological enablers (modularity, standards, and protocols), contribute to better equipping the RBV with the mechanics of entrepreneurial discovery and entrepreneurial activity. The incorporation of temporary competitive advantage also addresses Kraaijenbrink, et al.'s (2010) call for a less static notion of sustained competitive advantage, by introducing a temporal dimension to the process of value creation, rent generation, and rent appropriation.

5.3. Managerial Contributions

The rise of the platform economy has forced top management at firms across industries to rethink their strategies for sustained competitive advantage. The rapid proliferation of strategic

resources and capabilities residing outside firms' ownership/control is not only a reality for the top 20 banks in Europe, but also for banks more generally and for firms in other industries. As top management at these firms seek to incorporate strategies of interdependence into their overall corporate strategies, they will need to come to terms with how to approach value cocreation with external resources and capabilities as a source of sustained rents and competitive advantage. This study's adaptation of the RBV provides top management with a framework for achieving this. This study's adaptation of the RBV also breaks down into components the mechanics through which value is cocreated, providing valuable insights to middle management who need to effectuate top management's strategies of interdependence.

5.4. Limitations and Avenues for Future Research

Naturally, this study is not without limitations. Many studies on interdependence considered the high technology industry, and while this study offers a fresh perspective on interdependence by focusing on the banking industry, it is nevertheless limited to large banks in Europe. Future research should examine the point of view of smaller banks, non-bank financial institutions as well as other industries for whom the forces of interdependence are strategically important, and regions outside of Europe. This study also considered the forces of interdependence and firms' strategies of interdependence from the point of view of the strategic management discipline and from the RBV perspective. However, this study's research question can also be addressed through other theoretical lenses from the strategic management discipline as well as other disciplines like organizational theory and entrepreneurship. Furthermore, this study is a descriptive one that does not make any claims relating to causality. Future research should include explanatory studies that examine *inter alia* questions relating to the conditions that cause a strategy of interdependence to be preferable to another, whether certain conditions have greater relative causal implications, the relationship between these conditions and the components of the adapted RBV, the relative importance of specific considerations/components of the adapted RBV under different causal conditions, and how the components of the adapted RBV can be manipulated or configured to help firms respond to different causal triggers through optimized strategies of interdependence. These further studies will reveal nuances about firm's strategies of interdependence that are specific to diverse contexts. Consequently, these nuances may necessitate further tweaking to this study's proposed adaptation of the RBV thus making it a more general theory that can be applied across a wider range of industries and contexts.

6. CONCLUSION

Lavie's (2006) adaptations have better equipped the RBV to tackle interdependence. However, Lavie's seminal work preceded the seismic changes of the platform economy, which changed the characteristics of interdependence. By incorporating considerations from perspectives on interdependence (networks, ecosystems, platforms) and the notion of temporary competitive advantage, this study presents an adapted RBV that further adds to Lavie (2006) and enhances the RBV's ability to deal with interdependence in light of the platform economy.

Our research precisely describes the strategies major European banks developed to cope with the platform economy through an analysis of the modalities of their strategies of interdependence. Through these modalities, we better understand how firms deal with external resources and capabilities. In line with the network approach, it appears that an implication of the changing characteristics of strategies of interdependence in the platform economy, is that network externalities have become important consequences of value cocreation, leading to longer-lasting relational rents, and contributing to sustained competitive advantage. We propose a new way to integrate these external resources into the RBV. Thus, we contribute to the RBV's sequential development from a perspective that is focused on firms' internal resources and capabilities (Barney 1991) to one that caters for short-term relational rents in specific dyadic/multi-partner relationships (Dyer & Singh, 1998; Lavie, 2006) to one – as we propose – that caters for a platform perspective by considering long-term value cocreation with a network of external resources and capabilities. These insights demonstrate how interdependence needs to be accounted for as a key concept in the RBV, which challenges the RBV's assumptions around the ownership and control' of resources and capabilities as previously developed (Barney, 1991). These findings indicate that the way firms deal with their resources and capabilities as well as those of external stakeholders must evolve in order to leverage possibilities offered by the platform economy.

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APPENDIX 1. SAMPLE CONTENT ANALYTIC META-TABLE – ACQUISITION & INVESTMENT MODALITY, FINTECH SUBSIDIARY SUBMODALITY

	Acquisition & Investments Modality							
	Fintech Subsidiaries							
	Direct / Online Banking	Payments	Open Banking	Crowd-funding	Lending	Personal Finance	Fintech Platform	other
HSBC	3 (First Direct & HSBC Direct 1989; Kinetic 2019)	1 (PayMe, 2017)						
BNP Paribas	2 (Consors Bank, 2014; Hello Bank!, 2013)							
Crédit Agricole	2 (BforBank, 2010; Findio, 2015)							
Santander	2 (Openbank, 1995; Cahoot, 2000)	1 (OnePay FX/ PagoFX, 2018)					1 (Santander Global Platform, 2019)	
Deutsche Bank	1 (2012)						1 (Breaking Wave, 2019)	
Société Générale	2 (Boursorama Banque, 1995; Prismea, 2019)							1 (2018)
Groupe BPCE		2 (Natixis Payment Solution, 2006; S-Money, 2011)	1 (Fidor, 2016)	3 (2015, 2015, 2015)				
Barclays		2 (Pingit, 2012; bPay, 2012)						
Lloyds	1 (2005)							
ING	1 (ING Direct, 1997)							
Crédit Mutuel	3 (Monabanq, 2006; Fortuneo Banque, 2009; Max, 2017)			4 (2x 2015, 2016, 2018)			1	1 (2010)
UBS								
UniCredit	1 (Buddybank, 2018)							
Intesa Sanpaolo	1 (2016)	3 (2013, 2018,)		1 (2011)				
RBS	2 (Bó, 2019; Mettle, 2019)	1 (2019)			1 (2016)			1 (2018)
Credit Suisse	1 (2019)							
BBVA	2 (2014, 2017)	1 (Tuyyo, 2017)	1 (2018)					2 (2017, 2018)
Standard Chartered	2 (2018; Mox, 2019)		1 (2019)		1 (2019)			
Rabobank	1 (Rabo Direct, 1994)	1 (2017)			1 (Facturis, 2011)	1 (Peaks)		1
Nordea								

APPENDIX 2. FINAL ITERATION OF TAXONOMY

Grey=N/A; Red=None; Orange=Low; Yellow=Moderate Green=High (unless otherwise stated in column heading)