

On the boundaries between value creation and appropriation in strategic alliances: a review and research agenda

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How firms create and appropriate value by means of alliances is a key question that has been explored by many scholars from strategic management field. However, the distinction between these two phenomena is still unclear.

This article offers a review of the extant value creation and appropriation literature in strategic alliances and organizes it under various facets: i.e., (a) theoretical lenses, (b) measures, and (c) levels of analysis. The article also highlights existing gaps in the present understanding of value creation and appropriation and outlines a research agenda by identifying key research questions and issues in the areas where further research is needed.

1. Introduction

The engagement of firms in a wide array of strategic alliances has become a ubiquitous phenomenon in today's business landscape.

In many innovation-based industries such as software, telecommunications, semiconductors, pharmaceuticals, and air transportation, strategic alliances have become an important strategic tool through which firms aim to create (Barney, 1991; Doz & Hamel, 1998; Penrose, 1959; Peteraf, 1993; Wernerfelt, 1984) and appropriate value (Adegbesan, 2009; Adegbesan & Higgins, 2010).

On one hand, previous research has shown that alliances help firms to generate value from their relationships with partners that cannot be otherwise created (Dyer & Singh, 1998). On the other hand, the structure and dynamics of alliances determine the relative share of relational rents that the focal firm can appropriate (Gulati and Wang, 2003; Hamel, 1991; Khanna, Gulati & Nohria, 1998). In addition, previous research has dedicated attention to examine, sometimes separately (Adegbesan & Higgins, 2010), some other times jointly (Lavie, 2007), the value

creation and appropriation mechanisms at several levels of analysis, including the dyadic (Anand and Khanna, 2000), constellation (Gomes-Casseres, 2003), network (Tsai & Ghoshal, 1998) and portfolio levels (Lavie 2007).

On this ground, various studies and reviews (Olk, 2006) on such key issues have produced several approaches to measure value creation and value appropriation. Indeed, some scholars argue that no single view or measure suffices to apprise those (Pateli & Lioukas, 2012).

Additionally, extant alliance research strains to identify the boundaries between value creation and value appropriation. In fact, studies dealing with value creation, frequently use arguments pertinent to value appropriation. Other studies, dealing with value appropriation, essentially build arguments about value creation. As a result, the boundaries between value creation and value appropriation seem to be blurred and unclearly identified.

Consequently, to our knowledge ongoing research seems to lack a clear view of how firms create versus appropriate value by means of alliances. By offering a systematic review of existing alliance research on

value creation and appropriation, the aim of this paper is to fill up this gap.

In particular, we develop a conceptual framework that describes the boundaries between value creation and value appropriation under various aspects (i.e., levels of analysis, measures, and theoretical lenses) and proposes, at the same time, some directions for future research.

The remainder of the paper is organized as follows. Section one addresses the meaning and definition of value creation and appropriation in strategic alliances. Section two describes the methodology used to survey, review, and categorize of the literature. We focus primarily on articles published in top journals. Section three reviews various facets (i.e., levels of analysis, measures, and theoretical lenses) of existing alliance research. We divide the review in three parts depending on the scope of papers: (a) value creation; (b) value appropriation; and (c) value creation and appropriation. Finally, we conclude the paper by highlighting some shortcomings in the literature and identifying and discussing issues and questions that may be addressed by future research.

2. The meanings and definitions of value creation and value appropriation in strategic alliances

Value creation and value appropriation are two central topics in strategic management literature (Bowman & Ambrosini, 2000, Pitelis, 2009; Teece, 1986). Value creation and value sharing are the *raison d'être* of alliances and represent two sides of the same coin (Wagner et al, 2010). Value creation and appropriation are two distinct, dynamic and interrelated phenomena which deserve a balanced attention into the investigation of alliance performance. How much value is created plays a key role in determining how that value is distributed (MacDonalds & Ryall, 2004), while value creation in interfirm collaboration is not independent of anticipated value appropriation since this latter criterion determines an alliance partner's effort and incentive to contribute (Adegbesan & Higgins, 2010). However, it is surprising that empirical research virtually ignore the interplay between value creation and value appropriation in the context of strategic alliances. Specifically, alliance scholars have attentioned these two phenomena separately, giving more importance to the former aspect of value. Indeed, extant alliance research has produced a number of studies on value creation and very few of them have attentioned the latter aspect of alliance

performance, namely, value appropriation. As a result, we have a broad set of various conceptualizations of value creation and a very dense and defined set of definitions of value appropriation. The dispersed and fragmented proliferation of studies investigating value creation in strategic alliances, is due principally to two reasons.

First, value appropriation and value capture is frequently confused with the concept of value creation (Lepak, et al, 2007). Hence, some studies exploring value creation include in their analyses a part of value which has to do with the distribution of the value. For instance, the study by Swaminathan and Moorman (2009) examines how firm network characteristics (i.e; (a) network centrality, (b) network efficiency, (c) network density, and (d) network reputation) influence the value from a new marketing alliance. Despite the part of value investigated by such study is value creation, the authors argue they provided evidence of value appropriation.

Second, the term "*creation*" is very vast and has been used in other disciplines different from strategic management field including finance, value chain and innovation perspectives. Even though the focus of these studies remain the alliances, they have associated diverse conceptualizations of value creation to such interfirm-relationships as well as different angles from which the creation of value by means of strategic alliances might be observed.

3. Selection of the articles

We searched articles in the areas of business economics using the Web of Science database and cross-checked our results using Google Scholar. A time span often used in the literature is a 20-year time period (Wassmer, 2010). However, we chose to include a more extensive period of research (spanning between January 1, 1988, the earliest date available in Web of Knowledge, and March 4, 2015), since definitions of alliances as coalitions and discussions of alliances in earnest appeared in the late 1980s (Porter & Fuller, 1986; Ghemawat, Porter, & Rowlinson, 1986). In the definition of the keywords we adopted a similar approach to previous studies (e.g. Wassmer, 2010) and used both generic terms such as *alliance* and specific terms such as *joint venture*, *coalition*, *collaboration*, *cooperation*, *agreement*, *inter-firm relationship*, *organizational relationship*.

Moreover, since alliance research has been conducted at different levels of analysis including

dyadic, constellation, network and portfolio levels, we included terms such as *constellation* and *network*.

We did not specify terms such as dyadic or portfolio since they do not provide add by themselves to the search. Specifically, both terms are captured in our search with the term *alliance*.

The purpose of this study, as we mention in the introduction section, is to clarify alliance research on value creation and appropriation. Hence, we combined specific, generic and level of analysis terms with terms related with *value creation* or *value appropriation* and generic terms used in strategic management field such as *value generation* and *value capture*. Table 1 reports the detailed search terms.

By using Web of Knowledge we collected 78 articles. Further search using Google Scholar yielded seven additional articles. Hence, the initial sample collected included 85 articles. The articles were published between May 1988 and November 2014, indicating as expected that research on value creation and appropriation developed after early descriptive research on alliances, but also validating our slight extension of the initial search window.

Two authors then further analyzed the titles and abstracts of the articles to determine whether they were indeed relevant to understanding value creation and appropriation in alliances. The authors evaluated

the articles separately, thus ensuring inter-rated independence and conservative agreement. For cases in which a title or abstract was not conclusive about the relevance of the article, the article was read to determine whether it should be included in the review (Wassmer, 2010).

We ruled out 40 articles from our analysis since they were books reviews, focused on value creation and appropriation in contexts different from alliances, or focused on alliances but not on value creation and appropriation. As a consequence, we investigate alliance research phenomenon on value creation and appropriation on a final sample of 45 articles.

We then read and coded and categorized the articles as follows. We coded each article's study type (i.e., theoretical, empirical, or practitioner oriented), research topic and question, theoretical underpinnings, levels of analysis (i.e., dyadic, constellation, network, or portfolio level), research design, variables (i.e., independent, dependent, moderator, mediator and control variables), empirical setting, findings and key contributions.

We used this coding to elaborate a summary of the articles and to identify the levels of analysis, measures, and theoretical lenses in alliance research on value creation and appropriation.

Timespan	1988-2015
Keywords	value creat* AND alliance* OR value generat* AND alliance* OR value appropriat* AND alliance* OR value captur* AND alliance* OR value creat* AND joint venture* OR value generat* AND joint venture* OR value appropriat* AND joint venture* OR value captur* AND joint venture* OR value creat* AND coalition* OR value generat* AND coalition* OR value appropriat* AND coalition* OR value captur* AND coalition OR value creat* AND partner* OR value generat* AND partner* OR value appropriat* AND partner* OR value captur* AND partner* OR value creat* AND constellation* OR value generat* AND constellation* OR value appropriat* AND constellation* OR value captur* AND constellation* OR value creat* AND network* OR value generat* AND network* OR value appropriat* AND network* OR value captur* AND network* OR value creat* AND collab* OR value generat* AND collab* OR value appropriat* AND collab* OR value captur* AND collab* OR value creat* AND cooper* OR value generat* AND cooper* OR value appropriat* AND cooper* OR value captur* AND cooper* OR value creat* AND agreement* OR value generat* AND agreement* OR value appropriat* AND agreement* OR value captur* AND agreement* OR value creat* AND inter-firm relationship* OR value generat* AND inter-firm relationship* OR value appropriat* AND inter-firm relationship* OR value captur* AND inter-firm relationship* OR value creat* AND organizational relationship* OR value generat* AND organizational relationship* OR value appropriat* AND organizational relationship* OR value captur* AND organizational relationship*
Research Areas	Business Economics
Language	English

Notes to Keywords: As regards the specific terms to identify alliances, our approach is similar to Wassmer (2010). However, we omitted the specific term *alliance web* as it yielded no additional articles. With reference to the generic terms to identify value creation or value appropriation, we attempted to strengthen the search of articles by including the generic term *value obtained*. Nonetheless, we excluded such term as it bears no extra articles.

Notes to Research Areas: In this study we restrict our search of articles to the subject area of business economics. This does not preclude the presence of papers from related areas such as sociology. Indeed, when we re-ran our analysis without filters we found 151 articles in total; however, the 73 additional articles do not provide additional information and, for the purpose of this study, are comparable to the findings with the business economics filter.

Table 1. A descriptive analysis of the search of the articles

4. Existing alliance research

4.1. Value creation: theoretical lenses, levels of analysis, and measures

(a) Theoretical lenses: How do firms create value by means of strategic alliances?

Researchers studying value creation have drawn on a wide range of theoretical lenses in order to address this research question. Specifically, as Table 2 shows, such scholars have used various theoretical lenses such as Dynamic capability, Evolutionary economics, Industrial Organization Information economics, Institutional Theory, KBV, Network Theory, Organizational Learning, RBV, Resource dependency, Stakeholder Theory, Strategic choice and Transaction costs economics. This finding explains why a broad set of conceptualizations of value creation (see section 2) is present in the sub-sample of articles dealing with value creation phenomenon.

In addition, Table 2 shows that in many studies (Barringer and Harrison, 2000; Chang, Chen, and Lai, 2008; Li, Miller, Eden, and Hitt, 2012; Merchant, 2005; Merchant and Shendel, 2000) scholars have integrated more than one theoretical lens to understand value creation phenomenon. This finding indicates that the study of value creation in strategic alliances requires the accommodation of multiple perspectives simultaneously (Klijn, Reuer, Buckley, Glister, 2010).

Moreover, among the various theoretical lenses used to explain how firms create value by means of strategic alliances, the sample of our articles shows three theories are particularly adopted and suited to address this specific issue: RBV, KBV, and Organizational Learning.

(b) Measures: How is value creation measured?

While various perspectives have been adopted to understand value creation, the operationalization of this phenomenon appears to find a consensus from the majority of such studies. Indeed, scholars of many studies on value creation have chosen to operationalize value creation by recurring at event study methodology. This methodology determines the effect of an event on a firm's market value using expected stock returns as a benchmark (Brown and Warner, 1985). Hence, following such methodology, scholars assess *ex-ante* value creation by calculating the value implications of alliance events from the perspectives of shareholder wealth (Brown and

Warner, 1985; MacWilliams and Siegel, 1997) and not from the perspective of the single firm involved in the alliance. Indeed, by assuming the efficiency of the market (Li, Miller, Eden and Hitt, 2012) and relying on a sample constituted by listed- public firms (Lee, 2008), such scholars calculate value creation as the incremental amount of value that exceeds the historical value of the firm in a range period which surrounds positively and negatively the announcement of the alliance in the market.

In the attempt to overcome the assumptions and limitations underlying the adoption of event study methodology, some scholars have measured value creation by drawing upon interviews or questionnaires. However, such studies have operationalized value creation by focusing uniquely on the value of only one partner. As a consequence, these studies reveal only one part of the story. An exception to such consideration is the work by Holm, Eriksson and Johansson (1999). The authors, indeed, have tested value creation by asking respondents a question about the profitability associated with the relationship of both the supplier firm and the customer firm over a 5-year period, given all costs and revenues.

Recently, a move forward a more concrete and objective measure of value creation has been also advanced in the context of university-firm research collaborations (Mindruta, 2013). Indeed, unlike previous works that focused on firms or universities, this study takes into consideration the alliance formation from the perspective of both partners. More specifically, the author, drawing on matching theory, develops a matching model between publications and number of citations calculated for both universities and firms.

(c) Levels of Analysis: By which type of strategic alliance do firms create value?

As Table 2 shows, most of value creation studies are focused on dyadic alliances, some of them have started to examine the entire portfolio of alliances while still few have explored networks of alliances.

As regards dyadic alliances, scholars argue that the magnitude of value created depends on the joint interaction of alliance experience, firm size, and partner-culture and business relatedness.

First, with the exception of the work by Li, Miller, Eden and Hitt (2012), scholars show alliance experience influences positively value creation. For example, Anand and Khanna (2000) found strong evidence that firms learn to create more value as they accumulate more experience in joint venturing.

Second, another factor that affects value creation is the firm size. However, contrarily to alliance experience, firm size affects negatively the creation of value by means of strategic alliances. Indeed, several studies (Chan et al., 1997; Gao and Iyer, 2009; Lee et al., 2013) show an increase in firm value has an inverse relationship with firm size.

Third, the value creation of an alliance depends also on partner-culture and business relatedness. For example, Hanvanich et al., (2005) show investors' evaluation of joint- ventures could be affected by two distinct yet opposite aspects of international joint ventures: location-based cultural differences and partner-based differences. Precisely, the former creates shareholder value in the eyes of investors, while the latter has a negative effect on shareholder value.

While the studies on value creation in dyadic alliances continue to proliferate, in the last decade some scholars have started to investigate also the value of the entire portfolio of alliances formed by a firm. Extant studies show that alliance portfolio

creates value under certain conditions. For example, Wassmer and Dussauge (2011b) argue that synergistic combinations of network resources and substitutability of resource combinations between the focal firm and its partners are critical determinants for value creation in alliance portfolios.

Moreover, such conditions are of fundamental importance for firms entering into horizontal alliances. In fact, Wassmer and Dussauge (2011a) show that (i) the stock market rewards firms entering into horizontal alliances that provide access to resources that can be combined not only with the firms' own resources but also with their existing network resources, and (ii) the stock market penalizes firms for entering into horizontal alliances that create resource combinations that substitute resource combinations deployed by existing alliance partners.

As regards the few studies on network of alliances, scholars have explored the influence of structural characteristics (Swaminathan and Moorman, 2009) or the dimensions of conflicts (Mele, 2011) on the value creation of network alliances.

Study	Theoretical lens	Measures	Level of analysis
Amici, Fiordelisi, Masala, et al. (2013)	not present	event study methodology	dyadic
Anand and Khanna (2000)	Organizational learning	event study methodology	dyadic
Barringer and Harrison (2000)	Transaction Cost Economics, Resource dependency Theory, Strategic Choice, Stakeholder Theory, Organizational Learning, Institutional Theory	not present	dyadic
Berdrow and Lane (2003)	not present	not present	dyadic
Chan, Kensinger, Keown, et al. (1997)	not present	event study methodology	dyadic
Chang, Chen and Lai (2008)	RBV, KBV, Dynamic Capability, Evolutionary Economics, Organizational Learning	event study methodology	dyadic
Emden, Calantone and Droge (2006)	not present	interviews	dyadic
Frey and Schlosser (1993)	not present*	not present	dyadic
Gao and Iyer (2009)	not present	event study methodology	dyadic
Hanvanich et al. (2005)	Organizational learning	event study methodology	dyadic
Holm, Eriksson and Johanson (1999)	Network theory	interviews	dyadic
Lee (2008)	KBV	event study methodology	dyadic
Lee, Cho, Cheong, et al. (2013)	not present	event study methodology	dyadic
Li, Miller, Eden and Hitt (2012)	Institutional theory, Transaction cost economics, KBV	event study methodology	dyadic
Lubik, Garnsey, Minshall, et al. (2013)	RBV	interviews	dyadic
Mele (2011)	not present	interviews	network
Merchant (2004)	not present	event study methodology	dyadic
Merchant (2005)	RBV, Industrial organization	event study methodology	dyadic
Merchant (2014)	not present	event study methodology	portfolio

Merchant and Schendel (2000)	Industrial organization, Transaction costs economics, Information economics	event study methodology	dyadic
Mindruta (2013)	not present	matching model between publications and number of citations calculated for both partners	dyadic
Rindova, Yeow, Martins, et al. (2012)	not present	not present	portfolio
Sagawa and Segal (2000)	not present*	not present	not present
Sarkar, Aulakh and Madhok (2009)	not present	questionnaire	portfolio
Sleuwaegen, Schep, den Hartog, et al. (2003)	not present	event study methodology	dyadic
Swaminathan and Moorman (2009)	not present	event study methodology	networks
Tsai and Ghoshal (1998)	not present	product innovation	dyadic
Wassmer and Dussauge (2011a)	RBV	event study methodology	portfolio
Wassmer and Dussauge (2011b)	RBV	model	portfolio
Wu and Cavusgil (2006)	Organizational learning	questionnaire	dyadic

Table 2. A snapshot of value creation studies: theoretical lenses, measures, levels of analysis

4.2 Value appropriation: theoretical lenses, levels of analysis, and measures

(a) Theoretical lenses: How do firms appropriate value by means of strategic alliances?

While scholars focusing on value creation have based their studies on a wide range of theoretical lenses, only four perspectives have been adopted when alliance scholars seek to provide evidence of the other part of value: Strategic factor market theory, Risk-return theory, and Dynamic capabilities.

Additionally, in extant studies on value appropriation these theoretical lenses are not combined or integrated each others. Hence, scholars preferred to use only one perspective to explain how firms appropriate the value created by means of strategic alliances (see Table 3).

In particular, Adegbesan and Higgins (2011) empirically test the work by Adegbesan (2009), who used a bargaining perspective to extend strategic factor market theory (Barney, 1986).

A different theoretical approach has been used by Parker and Cox (2013). The authors argue that the split of surplus depends on power relations between firms and resource dependence theory (Pfeffer and Salancik, 1978).

The split of surplus may also depend on the degree of acceptance of share risk or volatility. Indeed, Contractor and Woodley (2014) use Risk-return theory to argue that accepting a higher share of risk or volatility (of compensation or payments) leads to a

desire to appropriate a greater share of alliance value (Contractor and Woodley, 2014: 1).

Finally, Shin, Kraemerb, and Dedrick (2013) claim that the split of surplus depends from the existence of entry barriers and incumbent firms which possess dynamic capabilities (Teece, 2007) may create such barriers to appropriate more value.

(b) Measures: How is value appropriation measured?

Despite alliance research has produced few works on value appropriation, how this part of value is measured is well understood by strategy scholars. Indeed, Adegbesan and Higgins (2010) provide a good measure of value appropriation. The authors measure the distribution of gains between alliance partners by identifying the pie-splitting control rights, which reflect the *ex ante* allocation of value between partners. PS control rights are a good measure of value appropriation since they confer ownership and control over activities and intermediate outputs that directly affect the allocation of portions of the overall value to be created by an alliance.

Alternative measures of value appropriation have been proposed by other scholars such as

Contractor & Woodley (2014), Parker and Cox (2013), and Shin, Kraemerb, Dedrick (2013).

However, such studies lack in measuring value appropriation of both partners or, when interviews are performed, making clear the questions by which value appropriation is measured.

(c) *Level of Analysis: By which type of strategic alliance do firms appropriate value?*

While alliance scholars provide evidence of value creation in different types of strategic alliances, such as dyadic, network and portfolio of alliances, scholars studying value appropriation have mainly focused their efforts on the first two types of alliances. For example, Adegbesan and Higgins (2011) found that a given buyer firm appropriates a greater portion of surplus when: (i) it has greater bargaining ability relative to its partner; (ii) it provides superior

complementarity to the alliance; and (iii) the lesser is the scarcity of sellers relative to buyers.

Scholars have also provided evidence of how firms appropriate value from their networks. For example, Shin, Kraemerb, Dedrick (2013) analyze the alliance network among lead firms, component suppliers and CMs which operate in the Taiwanese electronics sector and found that the appropriability of value depends on the amount of R&D, sales and marketing costs which influence the gross profit margin of each firm as well as on the existence of barriers to entry.

Study	Theoretical lens	Measures	Level of analysis
Adegbesan, Higgins (2010)	Strategic factor market theory	PS control rights	dyadic
Contractor, Woodley (2014)	Risk-return theory	questionnaire	dyadic
Murphy, Schindler (2011)	not present	not present	networks
Parker, Cox (2013)	Resource dependence theory	interview	networks
Shin, Kraemerb, Dedrickc (2013)	Dynamic capabilities	gross margin	networks

Table 3. A snapshot of value appropriation studies: theoretical lenses, measures, levels of analysis

4.3. Value creation and value appropriation: theoretical lenses, levels of analysis, and Measures

(a) Theoretical lenses: How do firms create and appropriate value by means of strategic alliances?

While scholars investigating value creation use a wide range of theoretical perspectives and those who investigate value appropriation employ a defined and narrow set of theoretical lenses, alliance scholars exploring value creation and appropriation adopt a well-balanced array of theoretical lenses (see table 4).

Moreover, in the majority of such studies scholars do not make a distinction between theoretical lenses used to analyze value creation and theoretical lenses used to analyze value appropriation. In particular, the theoretical lenses used to conceptualize and investigate both phenomena are RBV, game theory, coopetition, equity theory, and industrial organization.

Only two studies adopt different perspectives to deal with value creation and appropriation. Indeed, Lepak, Smith, Taylor (2007) adopt dynamic capabilities, industrial organization, and strategic human resource management to investigate value creation while they use RBV to explore value appropriation. Conversely, in the work by Zhao, et al., (2014) the RBV is used to investigate value creation while the combination of equity theory, risk-return theory and transaction theory to explore value appropriation.

(b) Measures: How are value creation and appropriation measured?

Despite alliance scholars exploring value creation and appropriation adopt a well-balanced array of theoretical lenses, they seem to not find a consensus on measuring value creation and appropriation. Indeed, the approaches used to measure these two phenomena are various including interviews (Ritala and Tidstrom, 2014), market performance (Lavie, 2007), patent-based measures (Capaldo and Petruzzelli, 2011) and questionnaires (Zhao, Yu, Xu, et al., 2014).

In addition, while some alliance scholars have put notable efforts to develop distinct measures of

value creation and appropriation (Capaldo and Petruzzelli, 2011; Zhao et al., 2014; and Wagner, Eggert, and Lindemann, 2010). Others have omitted to report details of the measures used which consent to remark a line of separation between measures of value creation and those of value appropriation (Belberbos et al., 2014; Lavie, 2007; Ritala and Tidstrom, 2014).

(c) Level of Analysis: By which type of strategic alliance do firms create and appropriate value?

In line with value creation studies and value appropriation studies, scholars focusing on value creation and appropriation have provided evidence of these phenomena in dyadic alliances, started to analyze them in alliance portfolios and quasi-ignored the importance of value creation and appropriation in alliance networks.

As regards dyadic alliances, scholars have provided evidence of the impact that some variables have on value creation and appropriation. For example, Belberbos et al., (2014) found the challenge to appropriate value from sharing IP ownership depends on the types of collaborative partner, distinguishing between intra-industry, inter-industry and university partners.

However, scholars have not limited their focus on the antecedents of value creation and appropriation, but they have also looked at the interaction between value creation and appropriation (Wagner, Eggert, and Lindemann, 2010; Zhao et al., 2014; Belberbos et al., 2014).

Moving to a portfolio perspective, scholars have investigated the dual role of dominant partners have on value creation and appropriation in alliance portfolio. For example, Lavie (2007) found prominent partners that can endorse the focal firm and endow valuable resources may enhance its market performance. On the other hand, powerful partners may leverage their bargaining power and impair the focal firm's capacity to appropriate rents from its alliance portfolio.

Finally, in the context of networks, Ritala and Tidstrom (2014) have investigated value creation and appropriation by identifying strategic patterns with regard to relational strategy and in terms of firm-level cooperative strategies.

Study	Theoretical lens		Measures		Level of analysis
	Value creation	Value appropriation	Value creation	Value appropriation	
Belderbos, Cassiman, et al (2014)	not present	not present	not present	Tobin's q (MV/BV)	dyadic
Capaldo, Petruzzelli (2011)	not present	not present	number of citations	patent family size	dyadic
Lavie (2007)	RBV	RBV	market performance (annual change in the market value of the firm's common shares)	market performance (annual change in the market value of the firm's common shares)	portfolio
Lavie (2009)	not present	not present	not present	not present	portfolio
Lepak, Smith, Taylor (2007)	Industrial organization, Dynamic capabilities, Strategic human resource management	RBV	not present	not present	not present
Macdonald, Ryall (2004)	Game theory, Industrial organization, KBV	Game theory, Industrial organization, KBV	model	model	not present
Ritala, Hurmelinna-Laukkanen (2009)	Game theory Coopetition	Game theory Coopetition	not present	not present	not present
Ritala, Tidstrom (2014)	Coopetition	Coopetition	interviews	interviews	networks
Wagner, Eggert, Lindemann (2010)	Equity theory	Equity theory	input and outcomes, tangible input and outcomes, and intangible input and outcomes	input and outcomes, tangible input and outcomes, and intangible input and outcomes	dyadic
Zhao, Yu, Xu, et al (2014)	RBV	Equity theory, Risk-return theory, Transaction cost theory	questionnaire	questionnaire	dyadic

Table 4. A snapshot of value creation and appropriation studies: theoretical lenses, measures, levels of analysis

5. Directions for future research

5.1. Value creation and appropriation: theoretical lenses, measures, and levels of analysis

(a) *Theoretical lenses: How could firms create and appropriate value by means of strategic alliances?*

Since value creation and appropriation are two interrelated phenomena, alliance scholars might offer a better understanding of these phenomena by adopting a unique theoretical lens which consents to treat separately and jointly value creation and appropriation.

Among the theoretical lenses used to understand how firms create and appropriate value by means of strategic alliances, extant studies highlight how coopetition (Bengtsson and Kock, 2000; Brandenburger and Nalebuff, 1996) reveals feasible premises to accomplish this difficult task. Indeed,

coopetition might help to understand how much value is created by alliances and how much part of this value could be appropriated by each partner because value creation and appropriation are two central topics in coopetition. The few value creation and appropriation studies which based their arguments on coopetition lens (Ritala and Hurmelinna-Laukkanen, 2009; Ritala and Tidstrom, 2014) show how this theoretical lens is adequate to develop distinct conceptualizations of value creation and appropriation. We warmly recommend alliance scholars use this theoretical lens in the future.

Alternative approaches to coopetition are the balanced combination of theoretical lenses for value creation and theoretical lenses for value appropriation. For example, RBV applied to network resources which flow within the bundle of alliances and the networks of the partners involved could be a promising theoretical lens to solve the confusion alliance scholars have created by adopting different perspectives to investigate value creation. With regards to value appropriation, transaction cost economics and the literature on bargaining power

may help scholars to develop some more fine grained theory on value appropriation in alliance.

(b) Measures: How could value creation and appropriation be measured?

As regards the measures, we encourage alliance scholars to develop measures that distinguish value creation from value appropriation per partners, horizon, moment of occurrence and types of firms.

With few exceptions (Adegbesan and Higgins, 2011; Mindruta, 2013) extant studies have measured value creation and appropriation focusing on one of the partners involved in the alliances. We hope to see studies that advance our knowledge of the value created and appropriated by both partners of each alliance. In line with this view, Lavie (2007) suggests to develop refined measures of value creation and appropriation based on primary data sources, distinguishing, for example, between partners' shared and non-shared resources, and accounting for isolating mechanisms that may potentially limit the flow of network resources.

In addition, extant studies have operationalized value creation and appropriation focusing on the short term. However, Ritala and Hurmelinna-Laukkanen (2009) advocated, value creation and appropriation should be treated as dynamic phenomena that evolve over time during the course of an alliance. Hence, alliance scholars are invited to advance also long term measures of value creation and appropriation.

Moreover, many studies have investigated the ex-ante performance of alliances. However, *ex ante* measures of performance must not be confused with those based on their *ex post* counterparts (Li et al., 2012; Merchant, 2014). Hence, there is urgent need to investigate the actual performance of alliances, instead of stock market's expectations of them.

Finally, the majority of actual studies have measured value creation and appropriation of public and listed firms (Lee, 2008). Hence, we call alliance scholars for developing more refined measures of value creation and appropriation in private firms.

(c) Levels of analysis: By which type of strategic alliance could firms create and appropriate value?

As discussed in section 3, scholars focusing on value creation and appropriation have provided evidence of these phenomena in dyadic alliances (Belberbos et al., 2014; Capaldo and Petruzzelli, 2011; Wagner et al., 2010; Zhao et al., 2014), started to analyze them in alliance portfolios (Lavie 2007, 2009) and quasi-ignored the importance of value creation and

appropriation in alliance networks (Ritala and Tidstrom, 2014).

Additionally, there are no studies on value creation and appropriation in alliance constellations. Hence, we urge scholars to continue to explore these phenomena at portfolio level as well as to start to investigate them in both alliance networks and constellations.

A second line of research is to operationalize the interaction between value creation and appropriation. Indeed, the more value created determines the more value appropriated by each partner. In parallel, the amount of value appropriated by one of the partners at time t influences the value creation at time $t+1$ for both partners. Hence, in line with recent studies (Belderbos et al., 2014; Wagner, Eggert, and Lindemann, 2010; Zhao et al., 2014) we call for studies which investigate the dual interaction between value creation and appropriation.

Finally, most studies have focused on a single perspective of alliance (whether dyadic, portfolio or network). However, such studies emphasize there is need to develop measures at multilevel analysis. Wassmer and Dussauge (2011b) argue value creation should be investigated at multiple levels of analysis. For instance, it could be interesting to investigate how value creation and appropriation of an alliance portfolio influence value creation and appropriation of a single alliance and viceversa.

6. Conclusion

We have started this study by noting the importance of value creation and appropriation by means of strategic alliances. Value creation and appropriation are two dynamic and interrelated phenomena that have attracted the interest of alliance scholars from different research fields.

The promises of this study were to offer a systematic review of the extant literature on value creation and appropriation under various facets (i.e. theoretical lenses, measures, and levels of analysis) as well as to identify gaps and launch research questions that could be addressed by alliance scholars in the future. The review of value creation and appropriation suggested that scholars have to treat jointly these phenomena, adopt theoretical lenses that may take into consideration their dynamic interaction and develop refined measures of value creation and appropriation at multiple levels of analysis.

The contribution of this article is two-fold: (a) the development of a review of the existing alliance research on value creation and appropriation and discussion of major findings per theoretical lenses, measures and levels of analysis, (b) the development of an agenda for future research.

7. References

- Adegbesan JA.; Higgins MJ. (2010): The intra-alliance division of value created through collaboration, *Strategic Management Journal*, **32**, 187-211.
- Amici, A., Fiordelisi, F., Masala, F., Ricci, O.; Sist, F. (2013): Value Creation in Banking through Strategic Alliances and Joint Ventures, *Journal of Banking & Finance*, **37**, 5, 1386-1396.
- Anand B. N.; Khanna T. (2000): Do firms learn to create value? The case of alliances, *Strategic Management Journal*, **21**, 295-315.
- Barringer, B. R., Harrison, J. S. (2000): Walking a tightrope: Creating value through interorganizational relationships, *Journal of Management*, **26**, 3, 367-403.
- Belderbos R., Cassiman B., Faems D., Leten B.; Van Looy B. (2014): Co-ownership of intellectual property: exploring the value-appropriation and value-creation implications of co-patenting with different partners, *Research Policy*, **43**, 5, 841-852.
- Berdrow, I.; Lane, H. W. (2003): International joint ventures: Creating value through successful knowledge management, *Journal of World Business*, **38**, 1, 15-30.
- Capaldo, A.; Petruzzelli, A. M. (2011): In search of alliance-level relational capabilities: Balancing innovation value creation and appropriability in R&D alliances, *Scandinavian Journal of Management*, **27**, 273-286.
- Chan, S.H., Kensinger, J.W., Keown, A.J.; Marin, J.D., (1997): Do strategic alliances create value? *Journal of Financial Economics* **46**, 199-221.
- Chang, S.C., Chen, S.S.; Lai, J.H. (2008): The wealth effect of Japanese-US strategic alliances, *Financial Management* **37**, 271-301.
- Contractor F.J.; Woodley J.A. (2014): How the alliance pie is split: value appropriation by each partner in cross-border technology transfer alliances, *Journal of World Business*.
- Dagnino G.B., Picone P.M.; Ferrigno G.(2015): Temporary competitive advantage: an investigation into the core of the literature and challenges for future research, Working progress.
- Emden, Z., Calantone R. J.; Droge C. (2006): Collaborating for New Product Development: Selecting the Partner with Maximum Potential to Create Value, *The Journal of Product Innovation Management* **23**, 4, 330-341.
- Frey, S. C., Jr.; Schlosser, M. M. (1993): ABB and Ford: Creating value through cooperation. *Sloan Management Review*, **34**,1, 65-72.
- Gao, L. S.; Iyer, B. (2009): Value creation using alliances within the software industry. *Electronic Commerce Research and Applications*,**8**,6, 280-290.
- Lavie D. (2007): Alliance portfolios and firm performance: A study of value creation and appropriation in the U.S. software industry. *Strategic Management Journal*, **28**: 1187-1212.
- Lavie D. (2009): Capturing value from alliance portfolios, *Organizational Dynamics*, **38**,1, 26-36.
- Lee B.H. (2008): Firm value creation of Global R&D Collaborations. *International Business Journal*, 27-55.
- Lee, H., Cho, E., Cheong, C.; Kim, J. (2013): Do Strategic Alliances in a Developing Country Create Firm Value? Evidence from Korean Firms, *Journal of Empirical Finance*, **20**,1, 30-41.
- Lepak, D. P., Smith, K. G.; Taylor, M. S. (2007): Value Creation and Value Capture: A Multilevel Perspective, *Academy of Management Review*, **32**, 1, 180-194.
- Lubik, S., Garnsey, E., Minshall, T.; Platts, K. (2013): Value creation from the innovation environment partnership strategies in university spin-outs. *R&D Management*, **43**, 136-150.
- Li D., Miller S.R., Eden L.; Hitt M.A.(2012): The impact of rule of law on market value creation for local alliance partners in BRIC countries, *Journal of International Management*, **18**, 305-321.
- MacDonald G.; Ryall MD. (2004): How do value creation and competition determine whether a firm appropriates value? *Management Science* **50**, 10, 1319-1333.
- Mele, C. (2011): Conflicts and value co-creation in project networks, *Industrial Marketing Management*, **40**,8, 1377-1385.
- Merchant, H. (2004): Revisiting Shareholder Value Creation via International Joint Ventures: Examining Interactions among Firm- and Context-specific Variables. *Canadian Journal of Administrative Sciences*, **21**, 129-145.
- Merchant H. (2005): Efficient Resources, Industry Membership, and Shareholder Value Creation: The Case of International Joint Ventures, *Canadian Journal of Administrative Sciences Revue canadienne des sciences de l'administration* **2**, 3, 193-205.
- Merchant H. (2014): Configurations of governance structure, generic strategy, and firm size: opening the black box of value creation in international joint ventures. *Global Strategy Journal* **4**,4.
- Merchant, H.; Schendel, D., (2000): How do international joint ventures create shareholder value? *Strategic Management Journal* **21**, 723-737.
- Mindruta D., (2013): Value Creation in University-Firm Research Collaborations: A Matching Approach, *Strategic Management Journal* **34**, 644-665.
- Murphy, J. T.; Schindler, S. (2011): Globalizing development in Bolivia? Alternative networks and value-capture challenges in the wood products industry, *Journal of Economic Geography*, 1-25.
- Parker R.; Cox S. (2013): Power relations and small and medium-sized enterprise strategies for capturing value in global production networks: visual effects (vfx) service firms in the Hollywood film industry, *Regional Studies*.
- Rindova V, Yeow A, Martin L, Faraj S. (2012): Partnering portfolios, value-creation logics, and growth trajectories: a comparison of Yahoo and Google (1995-2007), *Strategic Entrepreneurship J*, **6**,133-151.
- Ritala, P.; Hurmelinna-Laukkanen, P. (2009): What's in it for me? Creating and appropriating value in innovation-related cooperation, *Technovation*, **29**, 819-828.
- Ritala P.; Tidstrom A. (2014): Untangling the value-creation and value-appropriation elements of cooperation strategy: A longitudinal analysis on the firm and relational level, *Scandinavian Journal of Management* **30**, 498-515.
- Sagawa, S.; Segal, E. (2000): Common interest, common good: Creating value through business and social sector

partnership, *California Management Review*, **42**, 2: 105-122.

Sarkar M.B., Aulakh P.H.; Madhok A. (2009): Process capabilities and value generation in alliance portfolios *Organization Science*, **20**, 3, 583–600.

Shan, W., & Hamilton, W. (1991): Country-specific advantage and international cooperation, *Strategic Management Journal*, **12**, 419–432.

Shin N., Kraemerb K.L.;Dedrick J. (2013): Value capture in global production networks: evidence from the Taiwanese electronics industry. *Journal of the Asia Pacific Economy* **19**, 1, 74–88.

Sleuwaegen, L., Schep K., den Hartog G.; Commandeur H. (2003): Value creation and the alliance experiences of Dutch companies, *Long Range Planning*, **36**, 6, 533-542.

Swaminathan V.; Moorman C. (2009): Marketing alliances, firm networks, and firm value creation, *Journal of Marketing*, **73**, 5, 52–69.

Wagner S.M., Eggert A.; Lindemann E.(2010): Creating and appropriating value in collaborative relationships, *Journal of Business Research*, **63**, 8, 840–848.

Wassmer, U. (2010): Alliance portfolio: A Review and Research Agenda, *Journal of Management* **36**, 141-171.

Wassmer U.; Dussauge P. (2011a) Value creation in alliance portfolios: The benefits and costs of network resource interdependencies, *European Management Review*, **8**, 1, 47–64.

Wassmer U.; Dussauge P. (2011b): Network resource stocks and flows: how do alliance portfolios affect the value of new alliance formations? *Strategic Management Journal* **33**, 7, 871–883.

Zhao S., Yu H., Xu Y.; Bi Z. (2014): Relationship-specific investment, value creation, and value appropriation in cooperative innovation. *Inf Technol Manag* **15**, 119–130.