**BARRIERS TO ABSORPTIVE CAPACITY IN EMERGING MARKET FIRMS [[1]](#footnote-2)\***

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**Abstract**: We identify how barriers to absorptive capacity limit success in integrating external technology by firms in emerging markets. By comparing a failure and a success case, we refine previous barriers to absorptive capacity and classify them into internal (managerial biases and weak social integration mechanisms) and external (muted activation triggers, conflicting source relationships, and feeble appropriability regimes). We also identify how particular home country conditions in emerging markets (higher restraints on incentives, higher information asymmetries, and weaker contract protection) heighten the barriers. These ideas refine our understanding of the concept of absorptive capacity and the barriers by using agency theory as the theoretical grounding of the explanatory mechanisms. They also provide a better understanding of the influence of the home country on the technology strategy of firms.

**Keywords**: absorptive capacity, barriers, emerging countries, agency theory

**INTRODUCTION**

Although emerging market firms (EMFs) are entering the global stage as credible competitors to advanced economy multinationals (AMNCs) and some are becoming leaders in their industries (Garcia-Canal & Guillen, 2008; Ramamurti & Singh, 2009), they tend to suffer from technological competitive disadvantages. They are latecomers from countries with underdeveloped institutions and innovation systems (Bartlett & Ghoshal, 2000; Dawar & Frost, 1999; Khanna & Palepu, 1997; 2010), and they suffer from weaknesses in product innovation (Awate, Larsen, & Mudambi, 2012). To remedy the disadvantages, studies recommend obtaining technology from advanced countries in order to catch up with AMNCs (Luo & Tung, 2007; Mathews, 2006). However, not all EMFs are successful in incorporating external technology and many disappear (Kumaraswamy et al., 2012). Despite this, most studies analyze firms that become successful at navigating the twin challenges of upgrading and doing so in the context of emerging markets (e.g., Awate et al., 2012; Bromfield & Barnard, 2010; Kim, 1998). As a result, we do not understand well the differences between firms that succeed and firms that fail at upgrading capabilities.

Therefore, in this paper, we analyze the limitations of EMFs in their successful incorporation of external technology. In other words, we analyze the barriers to absorptive capacity, that is, barriers that limit “the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends” (Cohen & Levinthal, 1990: 218). This is not only empirically important but also theoretically relevant because much of the literature on innovation has concentrated on understanding the components of absorptive capacity and their relationships (e.g., Adams et al., 2016; Daspit & D’Souza, 2013; Ebers & Maurer, 2014; Patterson & Ambrosini, 2015), with very little attention given to the barriers; this is the research gap we aim to fill.

To identify these barriers we compare two similar firms that aimed to upgrade their capabilities by incorporating external technology. One of them failed to do so, the Chinese automobile producer Nanjing Automobile Corporation (NAC), while its competitor succeeded, Shanghai Automotive Industry Corporation (SAIC). Their analysis refines our understanding of barriers to absorptive capacity in two ways. First, we reconceptualize contingencies discussed in previous literature (appropriability regimes, social integration mechanisms, activation triggers, and power relationships) (Cohen & Levinthal, 1990; Todorova & Durisin, 2007; Zahra & George, 2002) as barriers to absorptive capacity and clarify their influence by separating them into internal to the firm (managerial biases and weak social integration mechanisms) and external (muted activation triggers, conflicting source relationships and feeble appropriability regimes). In this process, we explain how the barriers limit absorptive capacity by increasing the agency problems in the firm. Second, we uncover how particular conditions of emerging markets strengthen the barriers to absorptive capacity and thus further limit the ability of EMFs to incorporate external technology and innovate. The higher information asymmetries, weaker contract protection and higher restraints on incentives that are prevalent in many emerging markets heighten the negative impact of the barriers on the absorption of external knowledge by augmenting the agency problems underlying the barriers.

These ideas contribute two streams of literature: the construct of absorptive capacity and the literature on innovation by EMFs. First, the ideas provide a better understanding of the concept of absorptive capacity (Cohen & Levinthal, 1989; 1990), which, despite wide interest is still in need of further refinement (Zahra & George, 2002; Todorova & Durisin, 2007). Much of the literature has focused on the concept of absorptive capacity per se and analyzed its determinants, components, and outcomes (see reviews by Marabelli & Newell, 2014; Roberts et al., 2012; Volberda, Foss, & Lyles, 2010). We complement these studies by providing depth to the understanding of the barriers that limit a firm’s absorptive capacity, refining previous concepts and identifying new ones. This refinement helps link the concept of absorptive capacity and related literature to the broader agency theory (Holmstrom & Tirole, 1989; Milgrom & Roberts, 1992), with the barriers reflecting agency problems within and between the firm and the sources of knowledge driven by differences in objectives, biases, and information asymmetries.

Second, the ideas contribute to our understanding of the upgrading of technological capabilities in EMFs. Much of the literature has discussed how weakness in the external innovation system limits the competitiveness of EMFs because of a lack of access to sophisticated technology providers (Furman, Porter, and Stern, 2002; OECD, 2015; WIPO, 2015). We extend these ideas by analyzing the internal barriers that limit firms’ use of external technology and how particular conditions of emerging markets heighten these barriers to absorptive capacity by increasing agency problems. This helps not only to better understand these firms but also to expand the literature on the influence of the environment on firm behavior, using EMFs as a laboratory for extending theory (Cuervo-Cazurra, 2012; Ramamurti, 2012).

The paper has important managerial implications. It helps managers of EMFs better understand the limitations that their firms face in the use of external technology. Many of the recommendations for using external technology need to be modified by explaining not only how external technology can help the firm improve, but also how managers need to design actions and strategies that reduce the constraints imposed by the barriers to absorptive capacity.

**ABSORPTIVE CAPACITY AND EMERGING MARKET FIRMS**

**Absorptive Capacity and its Barriers**

Absorptive capacity is “the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends” (Cohen & Levinthal, 1990: 218). The concept is important because it calls attention to differences among firms in their ability to use external knowledge; thus, even if competitors are exposed to the same external technology, they will show differences in their comprehension and use of the technology in their own innovation efforts. The concept has several components, which successive research has refined. Initially, absorptive capacity included the ability to recognize the value and to assimilate and apply external knowledge (Cohen & Levinthal, 1990). Later, a separation was proposed between potential absorptive capacity, which reflects the acquisition and assimilation of knowledge, and realized absorptive capacity, which reflects the transformation and exploitation of knowledge (Zahra & George, 2002). A later analysis added further depth to the concept by separating value recognition, acquisition, assimilation, transformation, and exploitation of knowledge (Todorova & Durisin, 2007).

The result of this evolution in the analysis of absorptive capacity is shown in Figure 1, which summarizes the current conceptualization, with the components of absorptive capacity discussed above appearing in boxes. Most studies analyzing absorptive capacity have focused on clarifying the existence and relationships among the components of absorptive capacity. For example, Daspit and D’Souza (2013) identify that there are relationships among the elements of absorptive capacity (acquisition, assimilation, transformation, exploitation) and that these affect innovation in a sample of software firms. Ebers and Maurer (2014) identify how relations of boundary spanners support potential and realized absorptive capacity in a sample of German engineering firms. Duchek (2015) analyzes two high-tech German engineering firms in order to discuss the practices that facilitate knowledge acquisition, integration, and exploitation. Patterson & Ambrosini (2015) analyze thirteen firms in the British biotech industry in order to confirm that the model of absorptive capacity discussed by Todorova and Durisin (2007) is more appropriate than the models discussed by Zahra and George (2002), and add that assimilation has an interactive effect on the other knowledge concepts. Heil and Enkel (2015) identify the impact of potential absorptive capacity on innovation and how it is enhanced by deliberate integration mechanisms and collaborative learning activities. Adams et al. (2016) identify how both potential and realized absorptive capacity have equal impact on innovation in a sample of firms from six countries.

\*\*\* Insert Figure 1 about here \*\*\*

Figure 1 also shows in ovals those contingencies that previous studies acknowledged as affecting the firm’s ability to integrate and transform external knowledge. We call these contingencies barriers to highlight how they prevent a firm from benefiting from its absorptive capacity rather than merely affect absorptive capacity. Cohen and Levinthal (1990) discussed regimes of appropriability as determining the ability of a firm to exploit the knowledge created. Zahra and George (2002) added activation triggers, which prompt firms to seek external knowledge, and social integration mechanisms, which facilitate the integration and use of external knowledge. Matthyssens, Pauwels, and Vandenbempt (2005) listed several case-based examples of barriers in the acquisition, assimilation, transformation and exploitation components of absorptive capacity. Todorova and Durisin (2007) introduced power relationships, discussing how politics in the firm affected the use of external knowledge. However, despite their importance for the success of absorptive capacity in helping a firm access and use external knowledge in order to innovate, limited attention has been given to the analysis of barriers (Matthyssens, Pauwels & Vandenbempt, 2005). Instead, most of the literature has focused on the determinants, components, and outcomes of absorptive capacity (see reviews by Roberts et al., 2012, and Volberda et al., 2010).

Hence, to provide a better understanding of absorptive capacity, and address this research gap, we analyze the barriers that limit its efficacy. We study the barriers in EMNCs, which serve as a laboratory for extending theory (Cuervo-Cazurra, 2012).

**Absorptive Capacity in Emerging Market Multinational Companies**

Despite the success of many EMNCs in the global arena, EMNCs are perceived as being latecomers and technological laggards in comparison to established AMNCs. Many EMNCs have become multinational companies only recently, and thus face the challenge of being new entrants into global industries dominated by established AMNCs (Bartlett & Ghoshal, 2000; Dawar & Frost, 1999). As a result, they tend to have smaller operations and less well-known brands (Ramamurti, 2012). Moreover, they also suffer from relative technological disadvantages because they come from countries with weak innovation systems, undeveloped supporting institutions, and poor protection of intellectual property rights (Khanna & Palepu, 1997, 2010; Zhao, 2006), which discourage technology development and innovation (WIPO, 2015). One outcome of all this is their focus on the lower value-added parts of global value chains (Mudambi, 2008). Another outcome is the view that EMNCs lack sophisticated firm-specific advantages and mostly compete on the basis of home country comparative advantages and economies of scale (Rugman, 2010).

To reduce these technological disadvantages, the literature suggests that EMFs incorporate technology from advanced economies to catch up with their advanced country counterparts (Luo & Tung, 2007; Mathews, 2006). This can be done using several methods. One method is to copy the actions and in some cases the innovations and technology of advanced economy firms (Chittoor et al., 2009; Luo, Sung, & Wang, 2011). Another is to establish alliances with AMNCs and become part of their supply or distribution chains to create more sophisticated products and improve process technology (Kumaraswamy et al., 2012; Mathews, 2006; Luo & Tung, 2007). A third method is to acquire companies in advanced economies to access sophisticated technologies from firms and establish a presence in the more supporting innovation system and strong patent protection of the advanced country (Luo & Tung, 2007; Madhok & Keyhani, 2012). As EMFs become multinationals, they can additionally access global sources of knowledge and innovation (Barlett & Ghoshal, 1989; Doz, Santos & Williamson, 2001) and the knowledge of their subsidiaries abroad (Pérez-Nordtvedt, Babakus, & Kedia, 2010; see a review in Birkinshaw & Pedersen, 2009), transferring foreign knowledge across borders to improve operations (Bhagat et al., 2002; Kedia & Bhagat, 1988; Perez-Nordtvedt et al., 2008).

However, to be able to benefit from these more sophisticated technology obtained from abroad, EMNCs need to be able to integrate and use the technology; that is, they need a degree of absorptive capacity. Studies on technology development by EMNCs acknowledge the limitations that these firms suffer in their ability to integrate external knowledge and develop sophisticated technological capabilities (Awate, et al., 2012, 2014; Barnard, 2011; Bromfield & Barnard, 2009). However, and surprisingly, there are few detailed analyses of absorptive capacity in the context of EMFs (see reviews in Roberts et al., 2012; Volberda et al., 2010).

Hence, to contribute to a better understanding of absorptive capacity and its barriers, we compare a failure and a success case of firms operating in the same industry and country. Case studies of failures, despite their relative rarity in the literature, can be very useful for better understanding processes; such as Leonard-Barton’s (1992) study of how core capabilities become core rigidities, Arino and de la Torre’s (1998) study of the lack of success in a strategic alliance, or Kim’s (1998) study of technology development.

**RESEARCH DESIGN**

We compare the case of a firm that failed in integrating external technology and another that succeeded to identify the barriers to absorptive capacity. We selected two Chinese automobile firms: Nanjing Automobile Corporation (NAC) and Shanghai Automobile Industrial Corporation (SAIC). Founded in 1947, NAC was one of the first Chinese state-owned vehicle manufacturers. By 2007, when it was acquired by its long-term rival SAIC, NAC had total assets of CNY 12 billion, CNY 12 billion of revenue, CNY 50 million of profits, 14600 employees and more than 400 affiliates including 14 international joint ventures (IJVs). Established in 1955, SAIC grew to be a much larger and competitive rival than NAC and by 2007 it had assets of CNY 102 billion, revenue of CNY 104 billion, profits of CNY 5.9 billion, 65000 employees and more than 100 IJVs (SAIC, 2008).

**Data Collection**

We collected archival data on the entire life of NAC from 1947 to 2007 and of SAIC from 1955 to 2015. We obtained information from books and articles studying the history of NAC, SAIC, and China’s automobile industry; from non-Chinese sources on NAC’s and SAIC’s international alliances and acquisitions; and from internal documents of the former Ministry of Machinery Industry and the annual China Industrial Development Report, which records the evolution of the Chinese automobile industry.

After data collection and the creation of a detailed history of the companies, we conducted 19 semi-structured interviews and one focal group discussion in during 8 field trips between 2004 and 2014 to obtain data and information from NAC, SAIC, their competitors, suppliers and customers, and relevant government departments. Table 1 summarizes the interviews conducted as well as documenting basic information for each interview (“IV” is used to refer to an “interviewee”). Interviewees were selected by planning in the early stages based on archival data, media reports, and personal contacts. A snowball method was followed for later interviews. Questions for each interview were designed differently to maximize the knowledge of the interviewee and included: (1) summarizing the key stages of the company’s development and its milestones; (2) discussing the company evolution, including the roles of the leadership, ownership, foreign partnership, central and local governments, competitors, and customers in the company history; (3) explaining how the company dealt with the relationship among independent R&D, partnerships with foreign companies, and cross-border acquisitions; (4) articulating challenges to Chinese automobile firms between the 1980s and 2000s and the company in particular; and (5) comparison of NAC with SAIC on the achievement of IJVs and overall cooperation.

\*\*\* Insert Table 1 about here \*\*\*

**Data Analysis**

The data analysis process consisted of four steps, following recommendations in Miles and Huberman (1984) and Yin (2008) on case study method, and other examples of case study analyses (Danneels, 2011; Mair, Marti, & Ventresca, 2012).

Step 1: Understanding NAC’s and SAIC’s evolution with a focus on their access to external knowledge and the conditions of operation in an emerging market. We read data from multiple sources, made ourselves familiar with the details, and constructed case studies in which we gained an understanding of the companies. We firstly established a chronological map of events, documenting all actions and activities of the firms over time. As we obtained additional data, we added them to the cases until we reached saturation, with additional documents and interviews confirming previous events and yielding fewer new insights. We then wrote the detailed case narrative story of the two firms. This process helped us understand the firms and how they compare in their evolution, as well as the conditions under which they operated and how these conditions changed with the transition of China from a communist to a capitalistic system and how the companies reacted to these changes.

Step 2: Understanding the determinants of NAC’s failure and SAIC’s success in integrating external technology. We constructed a draft of within-case analysis for both companies, framed around the dominant themes expressed by the interviewees, the so-called first-order analysis *(*Van Maanen, 1979). This within-case analysis allows the unique patterns of each case to emerge (Eisenhardt, 1989). We then compared the access to external knowledge of each firm in contrast to the other. In this process, we noted that in the early stages of their development up to the late 1970s the firms were similar and showed similar levels of success during the planned economic period. However, after the 1980s the companies diverged in their success in obtaining knowledge from their IJVs, with NAC’s IJVs being hampered by challenges while SAIC’s were successful. We contrasted NAC with SAIC and existing theoretical arguments, examining the fundamental drivers contributing to NAC’s failure. Because we had interviewed employees on a continuous basis since 2005, after identifying the drivers we asked later interviewees to evaluate the validity of the drivers and categorize them. In parallel, we cross-checked the validity of these key drivers against archival data. By re-examining the frequency of claims of the interviewees, we concluded that limitations in NAC’s absorptive capacity were a unique determinant of its failure to access and absorb external knowledge. This conclusion became clearer after contrasting NAC’s experience with SAIC’s better access and integration of external knowledge. The coding and categorizing of the data suggested some important drivers of their differences in success. For NAC, the most claimed drivers included “unable to obtain partners’ most popular models”, “unable to learn from partners”, “managers lacked vision and ability”, “poor relationship between the partners”. These led to the confirmation that poor absorptive capacity was the key attributor because the claimed constructs all related to NAC’s failure in the acquisition, assimilation, transformation, and exploitation of its foreign partners’ knowledge.

Using a comparative case study methodology enabled us better understand the single-case findings, “grounding it by specifying how and where and, if possible, why it carries on as it does” (Miles & Huberman, 1994: 29). This methodology is particularly useful for not only proving a relationship being supported, but also providing a good understanding of the dynamics underlying the relationship (Eisenhardt, 1989). Sampling within NAC, we found several barriers restricted NAC’s absorptive capacity and the relationship among these barriers; sampling across both cases, we increased confidence for our finding on NAC as some of the barriers were also found in SAIC, but they operated in an attenuated form as we found that barriers for NAC were less significant or no longer barriers in SAIC’s case, such as the managerial bias. This comparison enabled us to identify which barriers were more crucial limiting the absorptive capacity of NAC and better understand the relationships among the barriers.

Table 2 provides a summary of the case studies we created in stage 1 and the comparison we derived in stage 2. We constructed Table 2 by integrating information from secondary and primary sources, focusing on the firms’ experience in accessing external knowledge. , and provide a comparison of the evolution of the firms. The table illustrates how the two firms share many similarities in history, ownership, privileged learning opportunities from their international joint venture (IJV) partners and foreign acquisitions. However, NAC was hindered by more severe barriers than SAIC, which attributed to the failure of NAC and SAIC’s success in accessing and absorbing external knowledge. Hence, Table 2 not only enhances the comparative effect but also helps identify the barriers and causes in NAC by comparing the NAC with SAIC side by side.

\*\*\* Insert Table 2 about here \*\*\*

Step 3: Extending theory. We reassessed the findings from the cases and ideas generated from the comparative case approach against existing arguments on absorptive capability, identifying previous and new barriers to absorptive capacity. We refined and drew conclusions that spoke directly to theory. By then we were able to explain what led to NAC’s failure in absorbing external knowledge and how SAIC was more successful in dealing with the barriers, serving as the basis for the identification and refinement of the barriers and the development of conceptual relationships among concepts.

**FINDINGS: BARRIERS TO ABSORPTIVE CAPACITY AND EMERGING MARKET INFLUENCES**

Base on the comparison of NAC and SAIC, we now discuss in detail the barriers to absorptive capacity identified. Figure 2 illustrates how the barriers and country conditions that affect these barriers influence absorptive capacity. We present in solid lines the variables identified in previous research and in dashed lines the new concepts and relationships that emerge from the cases. Figure 2 also shows conditions of emerging markets (higher restraints on incentives, higher information asymmetries, and lower contract protection) that appear to have a reinforcing influence on the existence of the barriers to absorptive capacity. To better clarify the concepts, Table 3 summarizes the barriers, lists the influence of emerging market characteristics on these, and provides typical quotes illustrating how we identified the barriers in the cases. We group the barriers into two types, internal ones (managerial biases and weak social integration mechanisms) and external ones (muted activation triggers, conflicting source relationships, and feeble appropriability regime) to provide a deeper reconceptualization. In the coming paragraphs we discuss the barriers to absorptive capacity we identified via the comparison of the two cases and then explain how these barriers affect elements of absorptive capacity and thus limit the firm’s ability in integrating external knowledge. After this, we discuss conditions of emerging markets that appeared to heighten the existence of the barriers. We provide formal propositions with the expectations of how the barriers affect elements of absorptive capacity to guide future large-sample studies.

\*\*\* Insert Figure 2 and Table 3 about here \*\*\*

**Internal Barriers: Managerial Biases and Weak Social Integration Mechanisms**

 The first set of barriers are internal to the firm and are composed of managerial biases, the prejudices that managers have for or against sources of knowledge, and weak social integration mechanisms, or the limitations of the processes and procedures within the firm that enable the coordination of actions and activities among employees. These two barriers reflect underlying agency problems, divergence in the interest of individual managers from what may be most appropriate for the organization in the case of managerial biases, and ineffective controls systems within the organization that constrain individuals from achieving their goals at the expense of the organization in the case of weak social integration mechanism.

***Managerial Biases.*** Managerial biases in the form of prejudices for or against sources of knowledge create a significant limitation on a firm’s ability to integrate external knowledge. This was clearly a driver of the differences between NAC and SAIC in their recognition and exploitation of the knowledge of their IJV partners. When NAC created Nanjing Fiat as an IJV with the Italian car producer Fiat in 1999, both partners were keen to benefit from the booming Chinese market: car consumption had increased 10 fold in the 1990s (China Automobile Annual Report 1999). However, the bias of NAC’s then CEO Huang (who remained in control until 2005) towards Fiat’s core values led to failure in achieving the goals of the IJV (Group). Fiat considered their brand to be associated with good technology and a joyful life, and as a result, it had a long-term marketing strategy to promote Fiat’s brand as the first car, hoping to gradually raise sales at higher prices. However, “Huang dismissed Italian technology from his heart” and did not understand the brand value of Fiat (IV16). With this bias, it was not surprising that Huang dismissed Fiat’s marketing strategy but insisted on capturing China’s market share via a short-term strategy of cutting prices. Huang considered the IJV as “a subordinate” and frequently intervened in its daily business “without respect for the IJV’s interest” (Group). This led to a conflict among partners and failure to exploit the value of IJV. In contrast, when SAIC formed Shanghai GM with the US automaker GM in 1997, its CEO Hu Maoyuan (later SAIC’s CEO from 1999 to 2015) considered foreign partners’ R&D resources the “valuable asset” to build its independent R&D (Zhang, 2008). At the same time, he was also aware that his company might not be able to exploit that asset if there were conflicting interest between the partners. Hence, Hu set up a principle for the IJV that was revolutionary in China at the time: “taking the JV’s interest as the first priority”. Hu proposed the concept of 4S cooperation for an IJV: Study; Sino-foreign JVs' interests go first; Standardization (as the norm of staff behavior); and Spring (being flexible and pragmatic). 4S was considered to be the foundation for integrating the interests of both sides and pursuing a win-win situation (Auto Home, 2014). These practices led to the good relationship between SAIC and the partners, who became more willing to transfer knowledge to SAIC (IV5).

These differences in the cases illustrate how managerial biases can act as a barrier to the recognition and acquisition of external knowledge. The biases and preferences of managers direct the firm toward particular strategies (Ocasio, 1997); these preferences establish the connections among the different activities of the firm in a way that is not easily observed from the outside (Prahalad & Bettis, 1986). In the case of absorptive capacity, it is managers informed by their biases the ones who decide whether the need for external knowledge is actually perceived as needed by the firm or not; it was managers at the companies the ones who noticed the need to upgrade capabilities as the economy opened and sought to establish IJV as a solution to this need. This recognition of the need to obtain external knowledge is separate from the value placed on particular knowledge. These same managers also are the ones who consider whether the external knowledge is valuable to the firm or not, and may dismiss external knowledge even when other may consider that such knowledge is valuable; this was exemplified in the case of NAC in which the CEO considered that the marketing knowledge of Fiat was not valuable and that only the technical knowledge was the knowledge the company needed to obtain. In contrast, the CEO of SAIC considered that all knowledge from the partner was valuable and placed this at the center of its strategy. This discussion of the role of managerial biases in the value of knowledge leads to the following propositions:

*Proposition 1a. Managerial biases limit the recognition of the need for external knowledge separate from the value given to external knowledge.*

Managerial biases that act as a barrier to the acquisition of external knowledge are affected by the managers’ career considerations (see Sengul, Gimeno, & Dial, 2012, for a review) that reflect explicit biases in their attitudes. Managers may have particular attitudes that lead them to identify or prefer certain types or sources of knowledge, as we discussed above. They are also employees that take into consideration how decisions may affect their position within the company and their future career prospects, adding additional constraints on the identification and selection of external knowledge. For example, although NAC’s strength was in trucks and business-use light-duty buses, managers wanted to enter the passenger car business for decades. The reason was the prestige associated with car production; as a senior official in the automobile industry illustrated, “You are a primary school student if you can produce a truck but a university student if you can produce a passenger car.” (Meng Xuenong, quoted from Automobile Business Forum, 2010). Thus, starting in 1995 NAC’s leadership sought foreign partners to enter car production. “Being able to produce cars would be a huge boost for top manager’s reputation and promotion” (Group). CEO Huang led the acquisition of a redundant car production line from the Spanish automobile producer Seat to produced Engle cars (IV16). However, this was later abandoned because the model was unpopular and “failed to be selected by Nanjing municipal government as the taxi model for the city” (Group). Interviewees suggested that top manager’s personal considerations led to the decision to choose this particular partner, as Huang was aware that he would “be able to command that weak foreign partner and do what he wanted” (IV16). In contrast, SAIC’s managers selected partners based on the firm’s benefits rather than their own. One former leader of SAIC recalled that Santana was chosen as the first production model of Shanghai Volkswagen because it met SAIC’s two selection principles: “First, the car needs to be medium level and must involve modern technology; Second, the car needs to be multifunctional, not only an official car, a commercial vehicle but can also be used as a taxi” (Shao, 2009). Later Buick Century was selected as the first model for Shanghai GM because “it was most suitable for Chinese customers” based on a detailed market survey (Zhang, 2008). We summarize these ideas regarding the role of managerial biases driven by career concerns in the following proposition:

*Proposition 1b. Managerial biases limit the acquisition of external knowledge that may undermine the position of managers making decisions.*

Managerial biases are also influenced by implicit prejudices in their attitudes toward external knowledge in the form of not-invented-here biases. Not-invented-here biases (Katz & Allen, 1982; see Lichtenthaler & Ernst, 2006, for a review) lead to the dismissal of external knowledge by employees that have to use it and limit the integration and transformation of knowledge. Not-invented-here biases stop the firm from fully integrating external knowledge, even when it has been acknowledged to be of value to the company. These non-invented-here biases were reflected in NAC’s attitude towards the technology of the Japanese company Isuzu. NAC’s managers visited Japan to talk to Isuzu’s light truck factory to obtain technology that would help them upgrade their models, but employees’ negative attitudes towards the foreign technology limited its use. For example, “with this mold [bought from Isuzu], NAC produced vehicles with only a minor modification on their exterior. When the mold was shipped to the assembly plant for use, the following comments were written anonymously by chalk on the boxes: ‘A pile of scrap metal! You’ve become blind’" (IV16). These not-invented-here biases affect may affect employees and managers differently, with top managers valuing external knowledge and creating mechanisms for obtaining it, for example by establishing a technology transfer agreement or an alliance with a technology provider (Grant & Baden-Fuller, 2004), while lower level managers and employees dismissing the external knowledge and not using it. In NAC’s case, for example, managers believed that the use of foreign technologies would be a useful way to improve the technological capabilities of the firm. Among the workers, however, there was a lack of belief that external knowledge was superior to that of NAC, so they were not ready to adopt it. Employees disliked the modified model from the Japanese firm Isuzu and dismissed foreign machinery. In contrast, in SAIC managers pushed for the acceptance of external technology as the way to improve, stating that “Shanghai Volkswagen must be loved and supported as SAIC’s own son. If we do not boost the Santana project, then Shanghai's auto industry would be finished" (Wu, 2013). As the result, employees were open to accepting Volkswagen’ technology soon after witnessing its advanced German technology. We summarize these of the influence of the implicit prejudices from not-invented-here biases on the use of external knowledge in the following proposition:

*Proposition 1c. Managerial biases in the form of not-invented-here biases limit the assimilation of external knowledge even if the firm has recognized the need and value of such external knowledge and acquired it.*

***Weak Social Integration Mechanisms.*** Weak social integration mechanisms can create a barrier to the success in absorptive capacity because they determine employees’ transformation of external knowledge into internal knowledge that can be exploited by the firm. The absence of weakness of social integration mechanisms in the form of incentives and coordination creates agency problems within the firm that hamper the use of external knowledge, even when the firm has already secured access to it.

Thus, NAC suffered from a lack of incentives and supporting organizational infrastructure that limited various attempts at using external technology. One example was the lack of adequate enticements and mechanisms in its nationalization campaign – a government mandate requesting Chinese firms to reach a certain percentage of nationally produced components in their IJVs. NAC announced its plan to improve the nationalization level, but the plan was not materialized because it failed to establish and manage effective social integration mechanisms. “Among NAC’s dozens of subsidiaries, there were no systematic coordination systems and mutual supportive culture to facilitate the learning from the IJVs”, although “learning from the IJV should be the first step towards later imitation and final nationalization” (IV17). “Profitable subsidiaries blamed loss-making ones while managers and employees fought to move from other subsidiaries to IJV subsidiaries to benefit from their better reputation and often higher profit” (IV17). Waiting to receive up-to-date car models from Fiat, Nanjing Fiat did not establish operations to learn from Fiat how to develop cars (Group), although it was well known that in the automobile industry “no product development capability can be developed without practicing the product development” (Lu, 2006). In contrast, SAIC established mechanisms to encourage nationalization and continuous knowledge integration with IJV’s knowledge. “SAIC established a fault-tolerant mechanism to encourage independent innovation. As long as activities comply with the company's strategy, are in line with the internal control procedures, and are not for personal gain, SAIC would not make a negative evaluation of failed projects. … SAIC built a ‘dual-channel’ promotion system so that technicians can achieve the same position and income as administrators as long as their technical achievements are adequate. In terms of salary incentives, SAIC designed a compensation system to ensure competitive salaries for key technical personnel” (Chen Zhixin, CEO of SAIC Shareholding Ltd, quoted in Fang, 2015).

 These quotes illustrate the importance of weak social integration mechanisms as a barrier. Social integration mechanisms have been widely discussed in the literature that analyzes knowledge creation and transfer (see for example the articles in the special issue edited by Spender & Grant, 1996). These mechanisms help employees and managers integrate and transform external and internal knowledge and create new knowledge in the process. Social integration mechanisms include the provision not only of incentives but also of a supporting organizational infrastructure (Szulanski, 1996) that facilitates the teaching of complex knowledge (Kogut & Zander, 1992) as well as the position of individuals within the network of relationships (Tortoriello, 2015). These social integration mechanisms reduce agency problems in the employment relationships within the firm by providing non-monetary incentives that align the objectives and behavior of employees toward the desires of managers (Milgrom & Roberts, 1992). The establishment of social integration mechanisms that reduce agency problems helps the firm not only to function more efficiently but, in the case of absorptive capacity, enables the assimilation of external knowledge within the firm and its transformation into knowledge that can lead the firm to success. These social integration mechanisms and the associated non-monetary rewards are particularly important in knowledge assimilation and transformation because it is difficult to specify a priori how employees should integrate and use the knowledge. In knowledge management there are large information asymmetries that limit the establishment of clear directives on behavior; as a result the provision of high-powered incentives in the form of mandates or salary increases associated with particular actions may have pernicious or counterproductive effects by biasing employees to take only actions that are rewarded (Milgrom & Roberts, 1992). These arguments on the challenge that weak social integration mechanisms create on the assimilation and transformation of external knowledge already acquired by the firm support the following propositions, in which we separate the influence on assimilation and transformation to clarify the separation of influences:

*Proposition 2a. Weak social integration mechanisms limit the assimilation of external knowledge even if the firm has recognized the value of external knowledge and acquired it.*

*Proposition 2b. Weak social integration mechanisms limit the transformation of external knowledge even if the firm has recognized the value of external knowledge and acquired it.*

**External Barriers: Muted Activation Triggers, Conflicting Source Relationships, and Feeble Appropriability Regimes**

 The second set of barriers is external to the firm, in the sense that they depend on factors outside the company. They are composed of muted activation triggers, or limitation in external clues that limit the incentives of managers and employees to seek external knowledge; conflicting source relationships, or disagreements between the source of external knowledge and the firm in the access and use of knowledge; and weak appropriability regimes, or the underdevelopment in the development and application of rules and regulations that protect intellectual property rights. These external barriers have underlying agency problems, such as information asymmetries in the case of muted activation triggers, divergence in interests and imperfect contracting in the case of conflicting source relationships, and weak contract resolution mechanisms in the case of feeble appropriability regimes. The differences in location and agency drivers require managers and employees to manage them differently from the internal barriers.

***Muted Activation Triggers.*** Muted activation triggers limit the ability of managers to realize the need for and value of external knowledge as they reduce the incentives of managers by limiting the information that managers are exposed to and that may lead them to actively seek external knowledge.

For example, before the beginning of China’s transition toward capitalism in 1978, NAC’s managers were not compelled to upgrade and incorporate foreign technology, even if they recognized the value of foreign technology as being superior and useful for upgrading capabilities. With no competitive pressures from foreign firms and a limited number of domestic competitors, the firm was able to sell without much effort, reducing the incentive of managers to seek and incorporate the external technology. Once the economy opened, however, the activation triggers were no longer muted, but rather strong. Foreign firms and private ones emerged as new competitors, and NAC managers were induced to seek external knowledge to quickly upgrade the firm’s technological capabilities. A similar process occurred at SAIC, with managers rapidly seeking external knowledge as the economy opened and foreign and domestic competition increased. Thus, for example, despite the success that SAIC achieved during 1978-1984, it actively lobbied the government to import a car assembly line and convinced Volkswagen to form the IJV by proposing to reduce the planned annual output of 150,000 to 30,000 cars (Jiang Tongju, the former Communist party leader of SAIC in 1980s, quoted from Shao, 2009). The experience of NAC and SAIC is similar to the experience of automobile Indian firms when the country started its pro-market reforms in 1991, documented by Kumaraswamy et al. (2012). They are also similar to the organizational crisis experienced by the Korean automobile manufacturer Hyundai, discussed by Kim (1998) in which managers did not see much value in obtaining external knowledge until their firms were forced to compete fully.

However, refining previous arguments, we propose separating the recognition of the need for external knowledge from the recognition of the value of external knowledge brought about by activation triggers. Activation triggers induce the recognition of the need for external knowledge, with the activation trigger acting as a credible and visible signal that reduces information asymmetries between managers’ perceptions of the need for the firm and the actual needs of the firm. This is separate from the incentive that activation triggers create on managers to act on such signals, as managers may be aware of the need to obtain external knowledge but may choose not to act upon such need speedily. This was evident in the differences between NAC and SAIC in their response to the opening of the Chinese economy, with managers of both firms recognizing the need to incorporate external knowledge but differing in their recognition of the value of such external knowledge for helping the firm upgrade capabilities. In other words, the recognition of the need to search for external knowledge, as indicated by Zahra and George (2002) differs from the recognition of the value that external knowledge has for the firm, as discussed by Todorova and Durisin (2007). External knowledge has a value recognized by technology markets (Arora, Fosfuri, & Gambardella, 2001); this may be recognized by managers independently from the existence of activation triggers, although in most cases induced by such trigger. Thus, we summarize these subtle differences in our understanding of how weak activation triggers affect the recognition of the need for the recognition of the value of external knowledge in the following propositions:

*Proposition 3a. Weak activation triggers limit the recognition of the need for external knowledge.*

*Proposition 3b. Weak activation triggers limit the recognition of the value of external knowledge.*

***Conflicting Source Relationships.*** Conflicting source relationships can limit the acquisition and exploitation of external knowledge as the differences in objectives between the firm and the source of external knowledge, information asymmetries and contractual limitations on knowledge as an asset may induce sources to limit the access and use of their knowledge by the firm.

Conflicting relationships with sources of external knowledge constraints the access and use of knowledge by the firm, as was the case of Fiat in its IJV with NAC. When the IJV Nanjing Fiat was established in 1999, for example, “the first leadership of Nanjing Fiat [Fiat’s representative Ciappa and NAC’s representative Mao] held a long-term strategy to promote Fiat’s brand in China, the most valuable asset in the eye of Fiat, but NAC’s CEO disagreed and preferred to capture China’s growing market as soon as possible via short-term marketing strategies such as cutting price” (IV16). The CEO criticized NAC’s representative Mao who was “too soft” on the Italian side and not defending NAC’s interests. As a result, in 2004 Mao resigned from NAC, ending the “golden time” of the IJV. NAC and Fiat changed their representatives in the IJV almost annually, causing uncertainty and lack of policy continuity and decision-making. This limited NAC’s learning. For example, “medium- to high-level managers from both sides held a meeting to discuss one issue but could not reach an agreement by midnight, after several hours of discussion. The host of the meeting rang the CEO of the JV, but even after the CEO joined, they still could not reach an agreement until the next morning” (Ge, 2008). Other conflicts affected the access to knowledge. “Nanjing Fiat manufactured an automobile model using a high value added speed gear, which was particularly welcomed in the Chinese market. However, this speed gear was derived from Fiat’s relationship with Ford. When the relationship between Fiat and Ford broke down, the speed gear disappeared from Nanjing Fiat’s products” (Ge, 2008). In contrast, SAIC enjoyed relatively better source relationships, which enhanced its acquisition and exploitation of non-core technology from its partners. The 4S and IJV’s interest first principle set by CEO Hu laid a foundation for good relations between the partners. SAIC avoided the sensitive issue of accessing core technology and instead focused on learning non-core technologies. For example, SAIC and GM set up a joint vehicle development center, which became the most competent automotive R&D center in China (SAIC, 2015), helping SAIC build up its R&D capability.

 Conflicting source relationships can act as barriers to absorptive capacity external to the firm. Companies that have a technological edge may not allow competitors to know about their specific technologies in order to maintain this competitive edge; they might protect their knowledge using internal mechanisms such as causal ambiguity (Lippman & Rumelt, 1982), secrecy and organizational complexity (Quan & Chesborough, 2010; Zhao, 2006), or human resource management strategies (Hurmelinna-Laukkanen & Puumalainen, 2007). This was a typical behavior of foreign firms, which limited the access of Chinese partners to their core technology. Conflicting source relationships can also prevent the firm from fully exploiting external knowledge, even when the firm is able to obtain knowledge from the foreign partner; this was illustrated by the challenge faced by NAC in its use of Fiat’s speed gear. All this reflects the agency problems of differences in objectives between the firm and external partners, which affect relationships with suppliers (Camuffo et al., 2007), distributors (Lassar & Kerr, 1996), alliance partners (Reuer & Ragozzino, 2006), and acquired companies (Wright, Kroll, Lado, & van Ness, 2002). Differences in the objectives of managers in the firm and managers of the sources of knowledge limit the ability of a firm to obtain the desired knowledge and to use it as the company needs. We summarize the influence of the conflicting sources relationships on the acquisition and exploitation of knowledge in the following propositions:

*Proposition 4a. Conflicting source relationships limit the acquisition of external knowledge.*

*Proposition 4b. Conflicting source relationships limit the exploitation of the knowledge created from the transformation of internal and external knowledge.*

**Feeble Appropriability Regime**

Feeble appropriability regimes constrain the firms’ ability to acquire knowledge from external sources as these may be less inclined to share knowledge or may actively limit the sharing of knowledge because of their limited ability to protect the unauthorized use of knowledge as the result of the weakness in the contract resolution mechanisms and protection of intellectual property rights.

First, a feeble appropriability regime induces knowledge sources to limit the access of external knowledge. For example, NAC suffered from its IJV partners’ restriction on technology transfer and was “not even able to understand the design maps fully” (IV7) after 10 years of technology transfer from Iveco. This was because that “the Italian side did not explain the key technology to our technicians and engineers although the license transfer agreement stated that the Italian should do” (IV7). A fundamental reason behind this refusal was “Fiat’s concern on our imitation [without its consent] (Group). Chen Zhixin, the then CEO of SAIC Passenger Car also complained that: “No core technologies such as chassis are shared in IJVs, which is the 'black box' in which MNEs enjoy a technological monopoly” (Table 2). As a Chinese researcher on innovation noted, “for 20 years, Chinese firms owning car joint ventures have not been able to develop their own cars. The simple reason is that foreign companies only introduce their ready-made product designs and are not willing to let the joint venture carry out product development” (Lu, 2006). In such way, foreign companies prevent their technology from being imitated and Chinese firms are never able to “build up car development capability” (Lu, 2006). Failure to receive core technology from their IJV partners in China drove both NAC and SAIC to acquire the British car company MG Rover’s intellectual property in 2005. “This is the foundation for both firms to start their independent R&D and ultimately produce cars with their own IPR” (IV7).

Thus, a feeble appropriability regime acts as a barrier to the effectiveness of absorptive capacity. A feeble contractual protection appropriability regime may result in the owners of knowledge establishing barriers to the unauthorized diffusion of knowledge in the form of secrecy and internal processes to avoid spillovers (Quan & Chesborough, 2010; Zhao, 2006). The owners of knowledge may be concerned about the unauthorized use or misuse of their knowledge as they cannot rely on the regulatory and judicial system to ensure the protection of their knowledge. It diminishes the incentives for companies to invest in research and development to create innovations with the expectation that these innovations can later be exploited by the firm in exclusivity without fear that competitors may take advantage of the firm’s efforts and copy the innovations (Levin et al., 1987). A feeble appropriability regime thus reflects the economy-wide agency structure and related institutions that facilitate agency relationships (Aoki, 1990; Spiller, 1990). We summarize the influence of a feeble appropriability regime on the acquisition of knowledge in the following proposition:

*Proposition 5a. A feeble appropriability regime limits the acquisition of external knowledge.*

Second, a feeble appropriability regime has a negative influence on absorptive capacity because it limits the ability of the firm to exploit and benefit from the integration of external knowledge with its internal knowledge in the creation of innovations. For example, the innovations in the design of light-duty buses that helped NAC increase its sales were quickly diffused and copied by local competitors and there was little that the company could do to prevent this imitation. “Suddenly many light buses with similar functions [as Nanjing Iveco] appeared in the Chinese market” (IV7). Many of the Chinese automobile firms succeeded from imitating NAC’s light duty bus (IV19), and NAC soon “lost its market share”.

Once the company has acquired, integrated, and transformed the external knowledge into its own knowledge, it faces the challenge of exploiting the innovation without other competitors taking advantage of the firm’s effort (Levin et al., 1987). A feeble appropriability regime limits the ability of a firm to exploit and benefit from its absorptive capacity (Zahra & George, 2002) because it faces the challenge of exploiting the innovation without other competitors taking advantage of the firm’s effort (Levin et al., 1987). The feebleness in the appropriability regime hurts the firm when it tries to achieve a sustainable competitive advantage, as competitors can easily copy its technology. We summarize the influence of the feebleness of the appropriability regime on the exploitation of knowledge in this proposition:

*Proposition 5b. A feeble appropriability regime limits the exploitation of knowledge created from the transformation of external and internal knowledge.*

**Emerging Market Characteristics Reinforcing Barriers to Absorptive Capacity**

 We now explain how the barriers to absorptive capacity that we distilled from the analyses of the cases are strengthened by some of the characteristics of emerging economies that heighten the agency problems. These characteristics are the tighter restraints on incentives from the higher and less predictable influence of the government in the economy, the higher level of information asymmetries from the more limited availably of specialized intermediaries, and the weaker contract protection from the unreliability of judicial system.

 ***Higher Restraints on Incentives***. In emerging markets, there are higher restraints on incentives as a result of the heightened level of government intervention in the economy that limit the impact of activation triggers on the efforts at integrating external knowledge by further limiting the information that drives managers to seek external knowledge. For example, for many years NAC was unable to acquire the urgently needed advanced technology from external sources despite the economic reforms placed a higher demand on upgrading. Whereas during the closed economy NAC’s trucks were in high demand, this was not the case as the economy opened, but “the central government was still helping such as offering government orders. In 1997 the Liberation Army drove Nanjing Iveco vehicles to the return of Hong Kong to China. The local government also supported as NAC was one of the backbone firms in Nanjing and it was ‘too big to fail’. That’s why the local government tried to force all the taxis in Nanjing to use NAC’s model” (Group). Even though NAC and SAIC were no longer owned by the Central government, the Central government still held the power to nominate top managers of both firms. As a result, NAC was unable to remove CEO Huang despite his bias against the IJV partners and the consequent poor learning from the partners. Such interventions were mainly related to both firms’ importance for the local economy and society rather than their ownership (Group).

Governments in emerging economies tend to have an increased say in how economic transactions are undertaken in the country. Many emerging economies tend to implement regulations that protect incumbent firms from foreign competition (Bruton, 1998), partly as the result of the higher ability of large firms to achieve government capture to support rent-seeking (Ghemawat and Khanna, 1998), in many cases aided by corruption (Lambsdorf, 2002). Additionally, in emerging economies, there are fewer regulations in support of market relationships and many of the regulations are poorly implemented (Djankov et al, 2002), which alters the incentives of firms to focus on profit maximization. The regulations are less clearly implemented and there is more room for interpretation by the government officials of how such policies affect firms; this is in many cases the result of regulations put in place to facilitate the demand for bribes (Tanzi, 1998). Thus, the higher restraints on incentives place an additional damper on the muted activation triggers, as the case of NAC illustrates, since managers may not be fully exposed to the external changes that would induce them to focus on obtaining external knowledge. Instead of focusing on upgrading capabilities to increase competitiveness, managers may interact with the government officials to redirect legislation or its implementation to reduce the competitive pressures of foreign firms and imports, thus reducing the impact of activation triggers on their recognition of the need and value of external knowledge. We summarize these ideas regarding the impact of the higher restraints on incentive in emerging markets on the barriers to absorptive capacity in the following proposition:

*Proposition 6a: Higher restraints on incentives in emerging markets from government intervention strengthen the muted impact of the activation triggers and thus further limit the recognition of the need and value of external knowledge.*

 ***Higher Information Asymmetries.*** Many emerging economies are characterized as having higher information asymmetries, as the result of the missing information intermediaries (Khanna and Palepu, 2010) and poorer implementation of regulations (Djankov et al., 2002), which heighten the negative impact of managerial biases as well as the feeble social integration mechanisms on absorptive capacity.

First, the higher information asymmetries of emerging economies increase the deleterious influence of managerial biases on absorptive capacity by supporting the prejudices of managers against external sources of knowledge and limiting the recognition of the need and value of external knowledge as well as its assimilation and transformation. The example of how Volkswagen was selected as SAIC’s as an IJV partner illustrates the prevalence of these information asymmetries. In the 1980s and 1990s when top managers in Chinese automobile firms were searching for foreign partners to establish IJVs, they only knew a few “big names” of automobile firms. “Since the Chinese knew a handful of automakers only, including Germany's Daimler-Benz in Stuttgart, the Chinese Minister of Machinery Industry flew to Germany in 1978 to initiate talks with Benz. On the street, he found few Mercedes-Benz but a large number of [VW] Beetle, Golf and so on. He was told that they were made by Volkswagen. The Minister immediately decided to take his delegation to Wolfsburg [VW’s headquarters] by train. Walking to the gate of Volkswagen from the train station, he introduced himself to the guard through a translator: "I am the Minister of the Machinery Industry of China, and I would like to talk with someone in charge”. Thankfully, Dr. Werner Schmidt, the Volkswagen Marketing Director, happened to be in the building. He replied to the guard full of surprise as well as respect: ‘It will be my honor to invite him to my office in the building’. The dialogue between China and Volkswagen began” (Post, 2011).

These higher information asymmetries in emerging markets thus result in higher managerial biases as there is less information to counter preconceived notions regarding the appropriate actions to take. They are partly driven by the lack of or existence of less developed intermediaries for information and rating agencies that can provide unbiased assessments (Khanna and Palepu, 2010). Thus, managers, even if they are well educated, are less able to rely on agencies to obtain information on sources of knowledge that would enable them to reduce their own prejudices regarding external sources of knowledge. Additionally, a lower development of institutions and regulations that are clearly implemented (Djankov, 2002) results in managers not being able to trust the rules of the game. Instead, they have to substitute the external institutions for informal ones in the form of social networks (Luo, Huang, and Wang, 2012); although these social networks can help address the weakness in institutions and contractual protection, they reinforce information asymmetries as the networks are likely to be established with individuals that share similar backgrounds, potentially leading to groupthink (Janis, 1972; Park, 1990). As a result of the higher information asymmetries, managerial biases are not corrected but in many cases heightened, constraining the effectiveness of absorptive capacity. We summarize these ideas in the following proposition:

*Proposition 6b. Higher information asymmetries in emerging markets strengthen managerial biases and thus further limit the recognition of the need and value of external knowledge and the acquisition and assimilation of external knowledge.*

 Second, these higher information asymmetries also heighten the negative impact of weak social integration mechanisms on the transformation and assimilation of external knowledge. For example, many NAC employees admitted that they were unable to absorb foreign partner’s knowledge, simply because they “lacked so much [basic] knowledge” (IV16). The explanation was that “The development of automobile industry relies on the simultaneous development of its related industries such as machinery and steel. People who had little knowledge of related industries also had difficulties in mastering the technology of automobile or managing an automobile firm” (IV6). In contrast to NAC’s, SAIC’s employees seemed to learn from their partners more effectively, evidenced by the higher level of component nationalization they achieved. Two drivers were acknowledged. “One was the employees’ previous experience on producing SAIC’s own brand ‘Shanghai’ car; another was the good industrialization level in Shanghai, which benefited the employees’ vision and knowledge” (IV1).

As a result of these higher information asymmetries prevalent in emerging economies, firms face more difficulty in building adequate social integration mechanisms within the company to support absorptive capacity. In addition to the lower prevalence of information intermediaries and weaker institutions, emerging markets have less developed educational systems that increase information asymmetries and hamper the ability of employees of obtaining and using external knowledge for innovation. Emerging markets tend to have a lower educational level of the population and also less development of higher education institutions (McMullen, Mauch, and Donnorummo, 2000). These bedevil many of these countries, as well as heighten information asymmetries, as education is focused on memorization and the delivery of information with more limited independent thinking and creativity (World Bank, 1999). These higher information asymmetries heighten the weakness of social integration mechanisms on absorptive capacity. This was reflected on the challenges that Chinese automobile firms have faced in developing their own independent technologies to the level at which they can sell their cars in advanced economies, as their car do not meet the emission and safety standards required in advanced economies (Cuervo-Cazurra and Montoya, 2014). We summarize how the higher information asymmetries in emerging economies heighten the negative influence of weak social integration mechanisms on absorptive capacity on the following proposition:

*Proposition 6c. Higher levels of information asymmetries in emerging markets strengthen the weak social integration mechanisms and thus further limit the acquisition and exploitation of external knowledge.*

**Poorer Contract Protection.** Emerging economies are considered to have weaker contract protection with individuals and firms being less able to rely on a rapid resolution of disputes at a reasonable cost in the judicial system (Zhao, 2006). Not only is the judicial system less developed, but also the quality of regulation is lower and its implementation is less well enforced, resulting in additional uncertainty regarding the ability to write contracts and enforce them (Djankov et al., 2002). This poorer contract protection heightens conflicting source relationships and the feeble appropriability regime, increasing their negative impact on absorptive capacity.

First, in emerging economies, the lower level of contract protection intensifies conflicting source relationships because disagreements in the relationships between the firm and sources of knowledge cannot be easily solved via contract resolution mechanisms, thus further limiting the firm’s ability to acquire and exploit external knowledge. For example, when SAIC started to negotiate with Volkswagen to form an IJV in 1978, the negotiators realized that China had no Foreign Investment Law. The two sides needed to negotiate on the basic agreement, feasibility study, technology transfer agreement, and the joint venture contract, but there were no appropriate examples or regulations in China for them to consult (IV5). As a result, both partners were extremely cautious, lacking confidence and worried, and delaying the negotiation process. “Above all, both sides were concerned that their partner might take advantage on its side due to the incomplete laws and regulations [in China], which eventually led to the structuring of a 50-50 IJV, resulting in numerous problems for their future cooperation. One of the major issues of such a 50-50 IJV was a delay in decision-making” (IV1). “For the Chinese side, accessing foreign technology but not allowing a foreign firm to dominate the Chinese market was key. Without laws, holding the majority share was the mechanism to reach their purpose. For the German side, they wanted to control the technology as well as the quality of the products. Hence, holding a majority share was also essential. In the end, 50-50 was the feasible solution” (IV6).

This poorer contract protection of emerging economies increases the challenges of conflicting source relationships. It forces partners to reduce their ability to trust each other given that there is a limited ability to use the judicial system to address disagreements. This is more challenging in the case of knowledge-based resources, such as innovation and technology, because their intangible nature and non-rival consumption limit their physical exclusion from use once others have gained access to them. Under a weak contract protection regime sources are likely to be more reluctant to share their knowledge because even if they created a contract that specifies how the relationship will be established and how the partner may use the knowledge it has received, the partner may not be able to enforce such contract in courts, reinforcing the conflicting nature of the relationship between partners. Thus, with a limited ability to use external contract enforcement mechanisms, managers of the source of knowledge may resort to internal mechanisms to protect the knowledge of the firm, using secrecy, complexity, and exclusion, and thus limit the ability of the firm from acquiring and exploiting knowledge. We summarize how the weak contract protection of emerging economies heightens the conflicting source relationships and as a result further limit the acquisition and exploitation of knowledge in the following proposition:

*Proposition 6d. Weaker contract protection in emerging economies strengthen the conflicting source relationships and thus further limits the acquisition and exploitation of external knowledge.*

Second, emerging economies are associated with weaker contractual protection of intellectual property rights, which heightens the feeble appropriability regime negative impact on the acquisition and exploitation of knowledge. For NAC, the weak contract protection only heightened the challenges of doing R&D. “Private firms ‘stole away’ all of our top designers, engineers, and technicians by paying attractive packages. When these people went away, technology or confidential data went away as well. This not only undermined NAC’s R&D capability but also fundamentally reduced the value of R&D. Nobody thought it was worthwhile to spend so much money and time on R&D. There are no laws to prevent from this happening and even no professional conduct codes to prevent people moving from NAC to private firms” (IV16).

This lower contract protection reinforces the feeble appropriability regime and limits the ability of firms to acquire and exploit knowledge. Investors establish structural protections of their knowledge in order to prevent the unauthorized access by external parties (Flyer and Shaver, 2000; Zhao, 2006). In the case of countries with very weak contractual protections, these private contracts may be deemed ineffective in enabling the sources of knowledge to prevent the misuse of their technologies. The other parties may merely break the clauses of the contract and copy the knowledge with the view that enforcing the contract in the courts may take too long or be too expensive to serve as an effective deterrent. Thus, firms will guard their knowledge and limit access to it. At the same time, the weak contractual protection also limits the exploitation of knowledge by the firm, as the case of NAC above illustrates, since competitors can easily obtain the innovations and technologies developed by the firm. As a result, the lower contract protection of emerging economies reinforces the feeble appropriability regime that establishes limitations on the acquisition as well as on the exploitation of knowledge. We summarize these ideas in the following propositions:

*Proposition 6e. Lower contractual protection in emerging markets strengthens the feeble appropriability regime and thus further limits the acquisition of external knowledge.*

*Proposition 6f. Lower contractual protection in emerging markets strengthens the feeble appropriability regime and thus further limits the exploitation of knowledge created from the transformation of external and internal knowledge.*

**DISCUSSION AND CONCLUSIONS**

In this paper we provide a detailed analysis of the barriers that limit the use of absorptive capacity to transform external knowledge into a competitive advantage, focusing on the case of EMNCs as a laboratory for advancing theory. To do so, we compared the Chinese automobile producer NAC, which failed to use external knowledge to improve its capabilities and disappeared, with SAIC, which succeeded in integrating external knowledge and improved its technology and ended acquiring its rival. This comparative case approach helps refine previous conceptualization of contingencies as barriers to absorptive capacity and classify them into those that are internal (managerial biases and weak social integration mechanisms) and those that are external (muted activation triggers, conflicting source relationships, and feeble appropriability regimes). This comparison of two EMFs also enables us to identify how characteristics typical of emerging markets (higher restraints on incentives, higher information asymmetries, and weaker contract protection) strengthen the barriers. We build and extend agency theory to explain the mechanisms underlying the influence of these barriers on absorptive capacity.

**Contributions to the literature**

The ideas contained in this study contribute to a refinement of the analysis of absorptive capacity and its grounding on agency theory, and to a better understanding of how the home country conditions influence the behavior of firms. First, the ideas provide depth to the concept of absorptive capacity by refining and explaining the barriers to the effectiveness of absorptive capacity. In contrast to most studies of absorptive capacity that focus on analyzing its components, we studied the barriers that limit the relationships among the components; in other words, we addressed the research gap on the integration of intra-organizational and inter-organizational antecedents in Volberda, Foss, and Lyles’s (2010) terms. This clarifies and provides additional depth to the models outlined by Cohen and Levinthal (1989), Zahra and George (2002) and Todorova and Durisin (2007) and the examples of barriers presented in Matthyssens, Pauwels, and Vandenbempt (2005), reorganizing some of the relationships and influences. We extended the four contingencies discussed previously and grouped them into two sets depending on whether they are internal to the firm (managerial biases and weak social integration mechanisms) or external to the firm (weak activation triggers and conflicting source relationships and a feeble appropriability regime); this distinction is important because it requires managers to use different strategies to address them.

We also explained how these barriers reflect agency problems that limit the ability of the firm to access, assimilate, transform, and exploit external knowledge for competitive advantage. This focus on barriers grounds the analysis of absorptive capacity on agency theory and at the same time we go beyond the usual discussion of agency problems between shareholders and managers (Eisenhardt, 1989; Jensen & Meckling, 1976) and instead discuss agency problems both within the firm in employment relationships (Milgrom & Roberts, 1992; Roth & O’Donnell, 1996) and between the firm and its external partners (Camuffo et al., 2007; Lassar & Kerr, 1996; Reuer & Ragozzino, 2006; Wright, Kroll, Lado, & van Ness, 2002). This reconceptualization of barriers through an agency perspective adds a fresh view and a better understanding of the influences on absorptive capacity and a better clarification of the relationship between concepts. Despite the perceived value of using external knowledge to facilitate innovation in the firm, there are barriers that limit such action. Many of these barriers are related to the particular attitudes and lack of mechanisms that facilitate appropriate behavior by individuals. Our analysis of the barriers points not only to divergence in objectives but more fundamental cognitive biases in the ability of managers and employees to process knowledge. As such, the usual information asymmetry problem of agency theory, in which the agent knows more than the principal and thus uses this asymmetry to his advantage, can be reconceptualized in the analysis of barriers to absorptive capacity as arising not only from information asymmetries and differences in objectives but also from from limitations and biases in the ability of managers and employees to analyze and understand knowledge. Agents, whether managers or employees, may not be opportunistic in their behavior and use information asymmetries strategically, but may be unaware of their own biases and limitations in their own knowledge, thus acting as if they were misbehaving when in reality they are just suffering from cognitive biases.

Second, the analysis of how particular conditions of emerging markets modify the barriers to absorptive capacity contributes to the theory of the multinational by providing a better understanding of the mechanisms linking home country conditions and the strategies of firms (Cuervo-Cazurra and Genc, 2008; Holburn & Zelner, 2010; Luo & Wang, 2012). We explain how the country of origin affects the way in which EMFs overcome the barriers. Thus, the challenges that these firms face in their ability to develop technology in general and to integrate external technology in particular are not only driven by their own internal limitations in their absorptive capacity, but also by the influence of the context in which they operate, in which factors such as weaker contract protection, higher information asymmetries, or higher restraints on incentives, heighten the barriers to absorptive capacity. These influences we have identified go beyond the usual argument that EMFs suffer from weaknesses in the innovation system of the country as there are fewer researchers, lower investment in R&D or fewer patents (OECD, 2015; WIPO, 2015) and point to a wider diversity of negative influences of the home country on the ability of EMFs to innovate.

**Managerial Implications**

The paper presents ideas that could be useful to managers of EMNCs. It provides a better understanding of the challenges that these managers face in their quest for integrating external knowledge, obtained via copying, alliances with foreign firms, or the acquisition of foreign firms, with internal knowledge to upgrade capabilities and innovate. Even for companies that succeed in establishing relationships with external parties that provide access to desired external knowledge, not many of them may be able to take advantage of such access. One reason identified here is the existence of barriers to absorptive capacity that the firm needs to overcome in order to fully realize the benefits from their external knowledge in their quest for global leadership, with managers addressing agency problems within the firm and between the firm and its sources of knowledge. The paper identifies the specific challenges that managers face in each of the components of absorptive capacity, outlining the causes for the existence of the barriers to absorptive capacity. This identification is useful for creating targeted policies that bypass the barriers in two ways. First, they can take the form of practices that address the specific barriers. Thus, for example the identification of conflicting source relationships can be addressed by the analysis of the differences in objectives of the firm and source of knowledge and the discussion of areas in which such differences can be overcome and the actions to take to facilitate a working relationship. Second, they can help managers first identify the problem that the firm is facing and then analyze the sources of the problem to establish appropriate politicizes. For example, if managers observe that their firm is facing challenges in the acquisition of knowledge, they can explore in more detail whether the sources of the challenges are their own biases, conflicting relationships with sources or knowledge, or a feeble appropriability regime, and thus can design the most appropriate policies to address the source of the problem.

Additionally, the paper identifies the particular influences of the emerging market context, helping managers design firm-level strategies that may counter their influence. Although managers are not in a position to remove emerging market influences, they can design policies that minimize these influences. For example, when confronted with higher information asymmetries arising from the lower education of employees, they can implement in-house training programs that address these deficiencies and provide them with the skills needed to have the necessary mindset and ability to recognize and use external knowledge.

**Limitations and Future Research**

This study has some limitations that future research can address. First, we studied EMNCs as a laboratory for understanding the barriers to absorptive capacity, benefiting from the existence of lower levels of technological sophistication at the firm and country level to identify new concepts and relationships. Other studies could analyze firms in advanced economies to identify how operating in a country with a more sophisticated and well-established innovation system results in a different role for the barriers identified and for the differences in the home country drivers that affect the barriers.

Second, we studied manufacturing companies in which knowledge can be codified and in which there are providers of technology willing to provide companies with the knowledge needed. Other studies could analyze firms in service industries, which tend to rely more on internal and tacit processes to create and protect their knowledge. Hence, the barriers, as well as the absorptive capacity, may work in different ways in service firms, with, for example, secrecy playing a larger role as a mechanism to protect the transfer of knowledge, thus affecting source relationships differently.

Third, used the comparative case study of two companies in the same industry and country to identify the arguments and mechanisms and advance theory by building directly from case studies to the theoretical argument. Some of the findings may be specific to the setting. Hence, future research can conduct additional case comparison in other countries to refine the barriers and relationships among factors, or to take the ideas found here and use a large sample to test the relationships identified and refine how these work and which ones are, for example, likely to have a larger impact on the dependent variable.

**Conclusions**

 Absorptive capacity has received increasing attention in the literature as one of the cornerstones for the successful use of external knowledge for innovation and competitive advantage. Despite the advances in our understanding of the concept and its components, less attention has been given to the barriers that limit the success in absorptive capacity. These barriers operate both within the firm and outside it by influencing the incentives and ability of employees to use external knowledge to improve the competitive advantage of the firm. Additionally, in emerging markets, firms face higher barriers as some country characteristics strengthen these barriers. The current paper has aimed to provide an overarching framework of the barriers that future research can refine and improve by going deeper into each of the individual relationships and the mechanisms identified here, and thus contribute to a better understanding of theoretical relationships and managerial practice.

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Figure 1. Current model of absorptive capacity



Source: Todorova and Durisin (2007)

Table 1. Information on interviews conducted

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Interviewee** | **Date**(dd/mm/yyyy) | **Venue** | **Length (hours)** |
| IV1 | Head, Department of Foreign Cooperation, Shanghai Volkswagen, Shanghai Automobile Industrial Corporate (SAIC)  | 01/07/2005 | Shanghai Volkswagen headquarters | 2.0 |
| IV2 | Site Manager, Shanghai Volkswagen Workshop SAIC  | 01/07/2005 | Shanghai Volkswagen Workshop Floor | 1.0 |
| IV3 | Deputy CEO, Shanghai Thyssen Krupp  | 03/07/2005 | Shanghai Thyssen Krupp Headquarters and Workshop Floor | 2.0 |
| IV4 | Member of Negotiation Group of Acquiring MG Rover, NAC | 20/12/2005 | NAC Headquarters, Nanjing | 2.0 |
| IV5 | Deputy Head, China’s Automobile Industry Association; former deputy minister of China’s Automobile Industry  | 12/01/2006 | China’s Automobile Industry Association, Beijing | 1.0 |
| IV6 | Deputy Head, China’s Machinery Industry Association; former Deputy Minister of Machinery Industry | 26/06/200613/12/2006 | China’s Machinery IndustryAssociation, Beijing | 1.01.0 |
| IV7 | Head of Department of Foreign Cooperation, NAC | 16/06/2006 | NAC Headquarters, Nanjing | 2.0 |
| IV8 | Staff of Department of Foreign Cooperation, NAC | 16/06/2006 | NAC Headquarters, Nanjing | 2.0 |
| IV9 | CEO, Nanjing Steel Corporate (NSC) | 17/06/2006 | NSC Headquarters, Nanjing | 2.0 |
| IV10 | Subsidiary head, Nanjing Steel Corporate (NSC) | 17/06/2006 | NSC Headquarters, Nanjing | 3.0 |
| IV11 | Senior manager of China Industrial and Commercial Bank | 14/01/2006 | The manager’s office in Beijing | 1.0 |
| IV12 | Head, Overseas Development, Chery Automobile | 02/05/2010 | A restaurant, Sao Paulo  | 1.0 |
| IV13 | Head, Department of Investment Promoting, Nanjing City Government | 20/06/201120/11/2011 | Department of Investment Promoting, Nanjing; email  | 1.0n.a |
| IV14 | Deputy Head, MG Rover Longbridge | 20/10/2011 | Phone calls and email  | n.a. |
| IV15 | Former employee, NAC | 30/03/2012 | Nanjing Normal University | 1.0 |
| IV16 | Former subsidiary head of NAC | 31/03/2012 | A restaurant, Nanjing | 4.0 |
| Group | Ten Nanjing entrepreneurs who either worked in NAC or were connected with it (e.g. their companies were suppliers or customers of NAC). | 30/03/2012 | Nanjing Normal University | 3.0 |
| IV17 | Former manager of NAC Exim Ltd | 12/09/2013 | Dar es Salaam | 2.0 |
| IV18 | Former employee of NAC | 12/09/2013 | Dar es Salaam | 1.0 |
| IV19 | Ethiopia subsidiary head of Lifan Automobile Ltd | 11/07/2014 | Addis Ababa  | 2.0 |

Figure 2. Conceptualization of absorptive capacity and its barriers



Note: Solid lines denote concepts and relationships discussed in previous literature and dashed lines denote refined and new concepts and relationships identified in this article.

Table 2 The evolution of NAC and SAIC

|  |  |
| --- | --- |
| **NAC** | **SAIC** |
| **1. The beginning: The early history (1947-1978).** | **1. The beginning: The early history (1955-1978).** |
| In 1947, the predecessor of NAC began as a repair factory to support the army led by the Chinese Communist Party (CCP). In 1957, the Ministry of the First Machinery assigned NAC to develop a light truck, even though it lacked experience and technology. The Chinese central government unexpectedly offered technical data from the Russian GAZ [AR]. On 10 March 1958, the first light truck Yuejin appeared on the streets. “During the planned economy period, NAC was China’s light truck source. Whenever China needed light trucks, the task was given to NAC” (Li, 2010). From 1958 to 1978, NAC produced 110,000 vehicles, or 8.22 percent of total output in China. NAC was the largest truck manufacturing base in China. | In 1955, the predecessor of SAIC began as a parts and components factory. In 1958, the Chinese government imported a Mercedes sedan 220S and dozens of top industrial enterprises in Shanghai were involved in the analyzing and imitating process. The Mercedes was disassembled, and almost every participating enterprise was given a special responsibility to research or produce a particular component of the Mercedes. [AR]. Using such methods, “Phoenix” (later branded as “Shanghai) car was successfully made in 1958, becoming the only brand in the south vs. Red Flag in the north, the only existing domestic brand then. The annual production capacity was 5,000 cars in 1975, making the company one of the largest passenger car manufacturers in China.  |
| **2. The transformation: From a planned-economy SOE to a market-oriented SOE (1978-1984).** | **2. The transformation: From a planned-economy SOE to a market-oriented SOE (1978-1983)**. |
| In 1978, China started its economic reform causing demand and changes for automobiles. “The Chinese government issued a document stipulating that the Yuejin truck using the old GAZ engine technology would be suspended from production due to its high fuel consumption” (Zhu Guozhang, 2013). Customers also considered NAC’s truck “too old fashion” (IV16). [AT]. To upgrade the model [and also] to meet a new customer desire for fashion, NAC’s managers visited Japan to talk to Isuzu’s light truck factory. “However, with this mold [bought from Isuzu], NAC produced vehicles with only a minor modification on their exterior. When the mold was shipped to the assembly plant for use, the following comments were written anonymously by chalk on the boxes: ‘A pile of scrap metal! You’ve become blind’" (IV16). Having not found a desirable external technology to help NAC’s upgrade, managers were unable to deal with employees’ resistance. [managerial bias]. Despite this, however, “NAC had never worried about production and sale before the reform and also many years after the reform. Due to the high demand for trucks, NAC enjoyed stable growth and was even able to reward its employees with color TV in the late 1980s” (IV16). [MB]. | In 1978, the State Council approved the import of an automobile assembly line so as to increase domestic production as the spending on imported cars in one year exceeded that of a decade’s worth of investment in the car industry. Shanghai promptly submitted a renovation plan for automobile production. However, foreign firms were not interested in selling lines but preferred forming IJVs. On Nov 9th, 1978, Deng Xiaoping approved the proposal of allowing domestic firms to form IJV. [AT]. SAIC abruptly changed course to pursue IJVs. Since then, the negotiation between SAIC and Volkswagen lasted six years. Three incidents almost killed the project but the Head of SAIC successfully persuaded the government to go ahead with the IJV by arguing that the automobile industry would require a long-term plan and the project would increase car production to meet the future demand in China. [MB]. During the negotiation and early stages of IJV, “People in SAIC favored Shanghai plant over the IJV because the former was SAIC’s ‘own child’ while the latter was not” (Wu, 2013), but the Head said that “Shanghai Volkswagen must be loved and supported as SAIC’s own son" (Wu, 2013). Employees gradually changed attitude after working with the Germans: “the German's meticulous work attitude won our highest admiration (Jin, 2012). [MB]. |
| **3. The international collaboration: The truck & passenger car joint ventures with Iveco & Fiat (1985-2004)** | **3. The international collaboration: The passenger car joint ventures with Volkswagen and GM (1984-2003)** |
| In 1985, Iveco, the commercial vehicles unit of the Fiat Group was chosen by the Chinese government for NAC to form a license transfer partnership because “the Italian had the most favorable offer including training which was particularly needed in China” (NAVECO, 2013). Iveco’s production lines in China were assembled in 1985 and achieved instant success by producing the best-selling light-duty bus. Based on this, on Jan 25th 1996, Nanjing Iveco was established as a 50-50 IJV between NAC and Iveco, the first IJV for China’s commercial vehicle. However, the success attracted imitators. Iveco was reluctant to offer a new model [AR]. In April 1999, Nanjing Fiat, the 50-50 IJV carmaker was formed by NAC and Fiat Group. In NAC “there was no concrete strategy and plan to reward employees who learned more or faster from foreign sources”{IV16). “The details of the nationalization project were manipulated in order to get the targeted percentage of nationalization” (IV12) [SIM]. The learning experience from a foreign partner was worsened as the IJV experienced management turmoil. NAC blamed Fiat for not offering its most popular models for it to meet the constantly changing market demand, but Fiat criticized NAC’s incompetence because the same models provided sold well in Brazil. “We were squeezed into the corner. Fiat gave us one model and we had to wait and wait while being criticized by our dealers and customers” (IV4). [SR]. The then CEO Huang “dismissed Italian technology from his heart” so disagreed with partner’s marketing strategy of promoting Fiat brand but pushed the partner to cut prices and offer new models (IV16). [MB] On the other hand, Fiat was commented on as “too proud”; there was an issue of “pride and prejudice” (IV7). The fight led to NAC’s failure to learn from Fiat and Fiat’s failure to profit from China’s massive market (Group)  | In 1984, Shanghai Volkswagen, the first China IJV for passenger car making, was established and has been leading China’s passenger car market since then. In Shanghai Volkswagen, “the Germans decided issues on technology and management as they were the experts and we were not” (Wu, 2009). However, SAIC made efforts to obtain non-core technologies from the partner. “During our preparation to negotiate with Volkswagen on the proposed IJV, we [SAIC] conducted a detailed study on our component nationalization plan, ... and set up a seven-year schedule. … After Shanghai Volkswagen was officially launched, the schedule became an annex to the IJV contract. … offering huge incentives to the component producers” (Shao, 2009). [SIM]. Santana sold extremely well in China, but the model was outdated after seven years of production. [AT]. SAIC considered producing a more advanced passenger car.In 1997 Shanghai GM wasformed as an IJV between SAIC and GM. The then CEO Hu considered foreign partners’ R&D resources the “valuable asset” for its independent R&D but was also concerned of not benefiting from it due to potential conflict (Zhang, 2008). Hence, Hu “seriously sought for solutions on cooperating effectively with JV partners” and eventually set up a principle of “taking the JV’s interests as the first priority” (Auto Home, 2014). [MB] On the other hand, “he circumvented the obstacle by exploiting the partner’s knowledge as much as he can through building up a close relationship and forming up joint research centres with the partner” (IV5). In this way SAIC accumulated knowledge from its IJVs (IV5). Meanwhile, the good relationship with the IJV partners ensured the decades-long best-selling records of the IJVs, making SAIC the largest carmaker in China and a listed firm in Fortune 500, while also making China the most profitable market for both partners. [SR]. |
| **4. Learning via acquisitions: Acquiring part of MG Rover (2005-2007).** | **4. Learning via acquisitions: Acquiring part of MG Rover in 2005 (2005-2007)** |
| In 2005, NAC simply ignored Fiat’s threat to dissolve the IJV because it had paid its full attention to the acquisition of the British firm MG Rover in order to obtain its IPR. “By paying £55 million, NAC obtained MG Rover’s engine plant, several brands and other facilities that would enable NAC to produce competitive cars and obtain IPR for car production” (IV4). The NAC manager who participated in the acquisition noted: “We are thinking, if we have independent brands and cars of our own, we would be able to force other IJVs to release new models and upgrade their model. Consequently we would step into a virtuous circle” (IV4). [SR]. After the acquisition, NAC retained MG R&D in the UK. In 2007, Nanjing Fiat was dissolved. It sold on average fewer than 30,000 cars annually and operated in the red during the entire period from 2003 to 2007. During these same years, overall vehicle sales in China doubled to almost 8.8 million units. (China Daily, 2009) | In 2005 SAIC aimed to acquire MG Rover to own independent car making technology. The new CEO Chen explained: "We are doing basic research from scratch, which is totally different from what IJVs do. In IJVs the R&D excludes engine, transmission, vehicle architecture with the main focus on the body development. No core technologies such as chassis are shared in IJVs, which is the 'black box' on which MNEs enjoy a technological monopoly”. However, the knowledge accumulated from its IJVs ensured SAIC could quickly absorb the acquired technology and lead to the launch of SAIC Motor in April 2006, dedicated to developing cars with its own IPR. SAIC also hired Phil Murtaugh, previous head of GM's Chinese operation. Murtaugh was able to call upon 5,000 engineering staff who worked for subsidiary suppliers to the GM and Volkswagen joint ventures to help SAIC, directly leading to the successful launch of Roewe model with SAIC’s IPR (Economist, 2007) [SR].  |
| **5. Disappearance: Acquisition by SAIC (2007)** | **5. Corporate integration by acquiring NAC and internationalization (2007-2015)** |
|  Unfortunately, all the efforts of NAC under its new leadership of Wang Haoliang were simply “too little and too late” (Group). NAC required a large capital investment to produce the MG cars, but except for its Iveco models no other products made reasonable profits. Banks were reluctant to lend, as NAC was already heavily indebted. In 2006, the central government decided not to save NAC, but to facilitate its “integration” with SAIC. The acquisition went ahead on December 26 2007, resulting in NAC becoming a subsidiary of SAIC. | Along with its overseas acquisitions, SAIC launched a series of domestic mergers and acquisitions including acquiring NAC in 2007. Given the ambition that SAIC wanted to make cars with its own IPR, it made perfect sense that SAIC needed to own NAC, because “SAIC bought the software of MG Rover while NAC bought the hardware. They need each other” (IV5). After restructuring its operation, SAIC began to operate in global markets on its R&D, producing and selling abroad, realizing its long-held dream of building global competitiveness based on its own branded cars. |

Note: AC = activation trigger; MB=managerial bias; AR= appropriability regimes; SR= source relationship

Table 3. Barriers to the effectiveness of absorptive capacity

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  | **Barriers** |  |  |
|  | **Muted activation triggers** | **Managerial biases** | **Conflicting source relations** | **Weak social integration mechanisms** | **Feeble appropriability regime** |
| **Location** | External | Internal | External | Company | Country |
| **Impact on absorptive capacity** | Recognition of need and value | Recognition of need and value, acquisition  | AcquisitionExploitation | AssimilationTransformation | AcquisitionExploitation |
| **Source of problem** | Deep transformation of environment | Prejudices, power distribution, corporate culture | Incentives and relationship among source and recipient | Incentives, corporate culture, structure | Unclear IPR protection |
| **Emerging market influence** |  Higher restraints on incentives | Higher information asymmetries | Weaker contract protection | Higher information asymmetries | Weaker contract protection |
| **Quotes from NAC** |  “All the restrictions on who could produce automobiles and how many they could produce were removed. Numerous firms in Shanghai, Chongqing and Beijing started to produce automobiles, [putting NAC under huge pressure to change” (IV16)]. |  “Huang dismissed Italian technology from his heart” hence he disagreed with Fiat’s marketing strategy (IV16). Others had sympathy for Huang: “so few Chinese understood the automobile business. Huang had nobody to consult and no data on foreign partners for him to choose existed” (Group).  | In Nanjing Fiat, “Successive managers never had a trusting relationship. … Decision making was ineffective, if not impossible.” (Ge, 2008). Sadly, this was partially because no rules existed on how partners share knowledge in a 50-50 IJV” (IV5).  |  “The details of the nationalization project were manipulated … as you know, there was no one from central government who kept an eye on it” (IV12). In NAC “there were no systematic coordination systems and mutual supportive culture to facilitate the learning from the IJV subsidiaries” (IV17). | “Suddenly many light buses with similar functions appeared in the Chinese market, Nanjing Iveco soon lost its market share” (IV7). NAC demanded the most up-to-date production lines but Iveco wanted to … avoid dissemination of its best technology (IV7). |
| **Quotes from SAIC** | In 1978 SAIC actively lobbied the central government on hearing that it was planning to import a car assembly line. “SAIC convinced the Chinese side first by arguing that automobile development was a long term business and it needed to be developed in order to advance economic development in the future” (Jiang Tongju, quoted from Shao, 2009). | Hu Maoyuan considered foreign partners’ R&D resources the “valuable asset for its independent R&D” (Zhang, 2008). To benefit from the partner’s valuable assets, Hu “seriously sought for solutions on cooperating effectively with JV partners” and eventually, he set up a revolutionary principle for the IJV: “taking the JV’s interest as the first priority” (Auto Home, 2014). | Since Volkswagen and GM were not willing to transfer core technologies, SAIC focused on learning non-core technologies. Hu “circumvented the obstacle by exploiting the partner’s knowledge as much as it can through building up a close relationship and forming up joint research centers with the partner” (IV5). | “SAIC had a plan for nationalization and also built a ‘dual-channel’ promotion system so that technicians can achieve the same position and income as administrators as long as their technical achievements are adequate. In terms of salary incentives, SAIC designed a compensation system to ensure competitive salaries for key technical personnel” (Chen Zhixin, 2015). | “In IJVs the R&D excludes engine, transmission, vehicle architecture.... No core technologies such as chassis are shared in IJVs, which is the 'black box' in which MNEs enjoy a technological monopoly” (Chen Zhixin 2015). “This is closely related to lack of laws to protect foreign technology from being copied” (IV5).  |
| **Identify the barriers based on the comparative cases**  | Managers at NAC failed while managers at SAIC succeeded in recognizing the changes in the car business, even though both firms were doing well in the early 1980s when China began to reform | NAC’s manager was unable to recognize Fiat’s Fiat, leading to disagreement, fighting and delayed decision- making in the IJV. SAIC’s manager understood the value of the partner and how to exploit it.  | NAC managers lacked the vision and strategy that SAIC managers possessed to maintain a good relationship with its partner. In NAC, the IJV was full of fighting and uncertainty and not a source of learning | NAC did not establish effective mechanisms and incentive systems to encourage both individual and corporate learning and enable continuous knowledge integration, while SAIC did | NAC’s light bus products were easily imitated. SAIC’s high-end passenger cars were difficult to imitate. NAC’s IJV partner was more concerned about Chinese firms “stealing” its technology |

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