Better at home, abroad, or both? How Chinese firms use ambidextrous internationalization strategies to drive innovation

Received 15 July 2014
Revised 30 November 2014
9 March 2015
19 May 2015
27 June 2015
5 September 2015
27 September 2015
6 November 2015
Accepted 7 November 2015

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Abstract

Purpose – Existing research emphasized that Chinese firms gain experience and improve innovation capability through interaction with competitors at home (i.e. inside-out internationalization) and abroad (i.e. outside-in internationalization). However, how Chinese firms transform these experiences into different types of innovation (product vs process) is largely unknown. The purpose of this paper is to: first, analyze how different internationalization trajectories lead to different types of innovation; second, establish how Chinese firms use ambidextrous strategies to combine inside-out and outside-in internationalization; and third, provide empirical evidence of how ambidextrous strategies might influence performance.

Design/methodology/approach – This study uses: first, a case research method to refine the classification of firms' internationalization strategy types; second, a qualitative textual analysis of firms' annual reports to differentiate between product and process innovation and to estimate these firms' international performance; and third, an inductive approach to derive testable propositions from the literature review and empirical cases.

Findings – This study provides evidence that many Chinese firms follow an inside-out approach to internationalization and primarily focus on process innovation. At the same time, those firms that implement ambidextrous internationalization strategies develop both product and process innovations and appear to exhibit higher performance.

Research limitations/implications – This study's focus on understanding what drives different types of innovation of Chinese firms is important as these firms often struggle to accomplish the dual tasks of competing both at home and abroad with innovation-driven domestic and foreign rivals. Applying an ambidexterity perspective to the context of internationalization strategy makes it possible to reconcile the need to simultaneously implement both outside-in and inside-out strategies and to achieve higher performance results. Further empirical research is required to confirm and generalize this study's findings.

Practical implications – Managers are advised to assess which internationalization path would be optimal under a given set of conditions. Further, they should balance their internationalization strategies with respect to innovation types. Foreign multinationals may learn from Chinese firms how to develop ambidextrous internationalization strategies.

Originality/value – This study applies the ambidexterity lens and differentiates between product and process innovation to explore how different types of internationalization strategies affect product vs process innovation, as well as firm performance. The empirical evidence provided in this paper is based on original data from 30 Chinese companies and two in-depth case studies. This study provides novel insights into how different trajectories could be combined through ambidextrous strategies.

Keywords Innovation, Internationalization, Chinese firms, Ambidexterity

Paper type Research paper

Cross Cultural & Strategic Management
Vol. 23 No. 2, 2016
pp. 306-339

2059-5794
DOI 10.1108/CCSM-07-2014-0079

Introduction

In the last few years, China has intensified its efforts to improve the country's innovativeness (UNCTAD, 2014; McKinsey & Company, 2015). A critical part of this effort – the "Indogenous Innovation" campaign unveiled in 2006 is focussed on employing China's fast-growing domestic market and powerful regulatory regime to decrease reliance on foreign technology and develop homegrown technologies that will enable China to solve its massive environmental, infrastructure and social problems, and as a result enhance both its economy and national security (McGregor, 2010). Driven by the Chinese government's turbulent preparation process, unprecedented senior level management mobilization, elaborate web of policies and implementation tools and surging government science and technology spendings (McKinsey & Company, 2015; McGregor, 2010) many Chinese companies attempt to become key players in the international market. However, the results of Chinese firms' internationalization remain mixed because of their difficulty to overcome internationalization challenges (Bichler and Schmidkonz, 2012), which include competing with multinational firms in China as well as competing on quality outside China. In each case, building innovating skills, learning from successful competitors both at home and abroad becomes a priority for Chinese firms.

International business literature has studied the relationship between internationalization and innovation from different angles, but little is known whether firms manage to transform their internationalization experience into innovation, and what type of innovations they primarily develop. Existing research has shown that internationalization drives innovation (Kafouros *et al.*, 2008; Chen *et al.*, 2012). However, beyond this general conclusion literature offers an incomplete understanding of how different types of internationalization – either inside-out internationalization (i.e. firms start to build strong advantages at home and then go abroad), or outside-in internationalization (i.e. firms go international to learn and develop their capabilities and then transfer them back home) – support the development of product or process innovation (Bonaglia *et al.*, 2007). Our paper seeks to address this gap. Understanding the link between the types of internationalization and the types of innovation is critical to Chinese firms because they often have to combine inside-out and outside-in internationalization to improve competitiveness. Whereas in general Chinese firms have developed process innovations at home yielding cost advantages, product innovations usually implies the need to use advanced technologies, which often requires learning from international competitors. The focus on process innovation in the past may have cultural origins but as the cost advantages start to erode, Chinese firms feel an increasing need to learn about Western cultures and engage in product innovation further combining it with marketing knowledge (Mathews, 2002, 2006).

While Western theories of international business mainly focus on inside-out internationalization (e.g. Dunning, 1981, 1988) with firms using their homegrown advantages, and building on their innovativeness to internationalize, the Chinese reality is different. Many Chinese firms enjoy only limited technological or ownership advantage to be transferred abroad; internationalization is rarely innovation based. Thus, Chinese firms often internationalize very early in their history to develop new products, technologies, or brands, trying to catch up with Western competitors. Through close collaboration and learning they develop innovations, which eventually enable them to make a transition to become serious competitors on a regional or even global scale (Bonaglia *et al.*, 2007). Other firms focus first on the penetration of their Chinese home market and later try to find foreign target markets (e.g. sportswear

producer Anta). Existing research in international business has rarely investigated inside-out and outside-in strategies together, although firms do engage in dual internationalization, that is, they compete at home against foreign competitors and go abroad at the same time to increase competitiveness (e.g. telecommunications provider ZTE).

In the present study we use the concept of ambidexterity (Luo and Rui, 2009; Keen and Wu, 2011), which could explain the dual internationalization process. "Ambidexterity" has been originally defined as "the power of using two hands alike" (Oxford English Dictionary). In international business it means that seemingly competing perspectives can be reconciled and balanced (Luo and Rui, 2009; Hsu *et al.*, 2013), here: inside-out and outside-in internationalization. Given that little is known about the extent Chinese firms use inside-out, outside-in, or both, i.e., ambidextrous internationalization, our first research goal aims to more precisely identify what types of internationalization strategies Chinese firms follow. If Chinese firms indeed follow ambidextrous strategies, this would also represent an incredible learning opportunity for other foreign companies because the Chinese context may be conducive to adopting ambidextrous internationalization.

Our second research goal is to apply the ambidexterity perspective in the context of international business to understand how internationalization determines the nature of innovation. Following the main argument of the ambidexterity perspective, we are interested in examining whether firms with ambidextrous internationalization (both inside-out and outside-in) will have a broader scope of innovation including both product and process innovation than those that adopt either inside-out or outside-in internationalization strategy. Based on the empirical data on 30 firms' annual reports collected over a five-year period (2007-2011), we show that many Chinese firms follow an inside-out approach to internationalization and mainly focus on process innovation. These firms represent a variety of industry sectors and comprise both state-owned (the majority) and private-owned enterprises. We identified a few outside-in internationalization trajectories with a focus on product innovation and even fewer examples of ambidextrous internationalization when companies adopted dual internationalization strategy and were developing both process and product innovations. Although fewer firms in our sample were following ambidextrous internationalization strategy we found that these firms exhibited higher international performance. These results have important implications for Chinese firms that want to increase their international performance and competitiveness, as well as for foreign firms that could learn from Chinese experience. In addition, the distinction between product and process innovation that we make in our study provides an opportunity to better understand the effects of distinct types of internationalization strategies on innovation that many existing studies treated as a one-dimensional construct.

The paper is organized as follows. First, we summarize the mainstream literature on the link between firms' internationalization and innovation. Given that firms' ambidextrous strategies have only rarely been investigated in existing literature, the goal of establishing the presence of this phenomenon is accomplished by using illustrative case studies, which combined with a systematic analysis of 30 Chinese companies' annual reports and the literature review opens a possibility to formulate research propositions. We use: first, the case research method to refine the classification of firms' internationalization strategy types; second, a qualitative textual analysis of firms' annual reports to differentiate between product and process innovation and estimate these firms' international performance; and third, an inductive approach to

derive testable propositions from the literature review and empirical cases. After presenting our methods, describing two case studies and analyzing the data on the sample of 30 Chinese firms we conclude with a discussion and implications for researchers and managers.

Internationalization and innovation: literature review

We begin with a brief review of the literature studying the relationship between firms' internationalization and innovation. Existing studies on this subject can be categorized in three streams. One stream of research emphasized the importance of inside-out internationalization in enhancing firms' innovation outcomes, while the second stream of research stressed the importance of outside-in internationalization in relation to firm innovation. A relatively recent stream of studies focussed on exploring the role of dual or ambidextrous internationalization strategies combining inside-out and outside-in approaches. We present the key insights from each stream of research below and highlight important contradictions and gaps that provide a ground for our study's research goal. Table I depicts the different approaches used to explain firms' approaches to internationalization – inside-out, outside-in, and ambidextrous.

Inside-out internationalization and innovation

Inside-out internationalization describes a pattern of strategic behavior when firms develop their competencies at home before they internationalize. Both Dunning's (1981, 1988) OLI paradigm and the Uppsala incremental process theory (Johanson and Vahlne, 1990) explain this phenomenon. According to the OLI paradigm, firms accumulate experiences and extend their foreign operations to reduce their transaction costs and exchange risks and to exploit *ex ante* advantages via internalization.

Theoretical perspective	Author(s)/Year	Outside-in, Inside-out, Dual focus
OLI paradigm	Dunning (2006) and Li (2007)	Inside-out oriented asset exploitation. Modified OLI paradigm with inward investment and more collaborative linkages
Incremental process theory	Johanson and Vahlne (1977, 1990)	Inside-out orientation built on substantial home advantage as an antecedent to internationalization, sequential market entry
Linkage, leverage, learning model	Mathews (2006)	Outside-in orientation with latecomer firms using overseas investments and global linkages to leverage their existing cost advantages and learn about new sources of competitive advantage
International entrepreneurship	Oviatt and McDougall (1994)	Outside-in orientation with the world as a target market and internationalization right after foundation
Springboard perspective	Luo and Tung (2007)	Dual pathway orientation with expansion as a compensatory response to a late-mover position on the global scale and home-based reorganization
Ambidexterity perspective	Guillén and García-Canal (2009), Luo and Rui (2009) and Keen and Wu (2011)	Dual pathway of outside-in capability building and inside-out asset exploiting

Table I. Theoretical perspectives to explain EMFs' internationalization processes

Based on ownership advantages, location advantages, and internalization advantages, firms are presumed to sequentially expand into foreign markets. This sequential order of foreign expansion is what the OLI paradigm has in common with the Uppsala internationalization process theory (Johanson and Vahlne, 1977) that builds on firms' step-wise expansion to foreign countries with a goal of capability development and risk reduction.

While the OLI paradigm considers technological innovation as ownership advantage that drives internationalization (Dunning, 1988), international process theorists refer to innovation more implicitly when they emphasize the acquisition of experiential knowledge leading to firm performance (Huber, 1991). Both argue that it takes firms to build and refine their competitive advantage at home before they internationalize, at a later point in time. Thus, the main conclusion we can derive from this stream of studies is that innovation is a necessary step toward (inside-out) internationalization. At the same time, these studies remain mostly silent about the effects of internationalization on firm innovation. Existing research on Chinese firms' internationalization convincingly showed that innovation only rarely drives internationalization, and that it is mostly internationalization that drives the creation of knowledge and innovation, necessary to compete globally (Chen *et al.*, 2012). In addition, it is unclear whether the sequential internationalization is the most beneficial internationalization strategy in the context of emerging country firms.

Outside-in internationalization and innovation

Outside-in internationalization describes firms' efforts to first develop innovations as they internationalize and later transfer these innovations back home. The LLL model (Mathews, 2006) supports the view that firms achieve competitive advantages via engaging in external collaboration with foreign partners. In contrast to the previous group of theories (OLI and international process theories), this model emphasizes that collaborating with foreign partners and building corporate capabilities and innovation by exploring external assets may greatly improve a firm's market position at home. In the LLL model, emerging market firms (EMFs) strive for higher-value-adding activities, connect with incumbents abroad to establish a presence in often highly competitive foreign markets. This requires them to deploy their low-cost advantages rapidly while acquiring lacking technological, process, and marketing knowledge to develop more disruptive or high-end innovations (Bonaglia *et al.*, 2007). Increased innovativeness eventually enables them to make the transition to become serious competitors on a regional or even a global scale (Bonaglia *et al.*, 2007).

The premises of the LLL model are similar to those found in the literature on international entrepreneurship (Jones and Coviello, 2005), which studies the internationalization process of born global firms, i.e. firms that seek superior international business performance by entering foreign markets at an accelerated speed, bypassing the domestic market (Oviatt and McDougall, 1994). Here, internationalization success is predicated on the ability to treat global competition as an opportunity to move into more profitable industry segments and adopt strategies that turn EMFs' latecomer status into a source of competitive advantage. In this set of studies the main argument is that internationalization drives innovation, but the implicit assumption is that it is the outside-in internationalization that is of an utmost importance. Given the documented prevalence of inside-out internationalization strategies in the context of emerging country firms, it is unclear whether outside-in internationalization retains its importance.

Dual or ambidextrous internationalization and innovation

A relatively newer stream of studies has focussed on studying how firms combine inside-out and outside-in internationalization strategies. For instance, Luo and Tung (2007) suggested a dual pathway model explaining the outside-in internationalization as a "springboard" EMFs use to acquire strategic assets needed to compete more effectively against global rivals and to avoid the institutional and market constraints they face at home. Overcoming latecomer disadvantages via a series of proactive acquisitions abroad intends to compensate for EMFs' competitive weaknesses. A springboard approach is also encouraged by local governments to counter-attack global rivals in their home countries and to facilitate asset and opportunity seeking abroad. What firms acquire and learn abroad can then be used at home to enhance local competitiveness and to again internationalize, now driven from an inside-out perspective based on a higher level of assets and competence.

A set of studies focussed on understanding how firms manage tensions between outside-in and inside-out internationalization strategies using the concept of ambidexterity (Luo and Rui, 2009; Hsu *et al.*, 2013). Duncan (1976) defined ambidexterity as the necessity "to be aligned and efficient in the management of today's business demands while simultaneously adaptive to changes in the environment." Scholars acknowledge that there are often competing activities, which need to be reconciled in terms of resources (March, 1991; Gupta *et al.*, 2006; Prange and Verdier, 2011). In the international business literature, Barkema and Drogendijk (2007) established that firms enter culturally close and distant markets simultaneously. In the emerging market context, Luo and Rui (2009) argue that EMFs follow a multi-dimensional strategy of ambidexterity whereby they reconcile, among others, competencies acquired in their local markets with relational capabilities in maintaining and exploiting collaboration with foreign partners.

In sum, this set of studies laid the ground for the application of the ambidexterity lens in research on firms' internationalization. However, several questions remain unanswered including the extent to which dual internationalization strategies are widespread and effective in the Chinese context and whether ambidextrous internationalization strategies result in ambidextrous innovation skills in terms of developing both product and process innovation.

In this paper, we use the ambidexterity concept to denote a firm's strategic behavior of using both inside-out and outside-in internationalization strategies simultaneously. An ambidexterity perspective applies well to Chinese firms that have to contend with both low-cost competition derived from advantages at home as well as competing and collaborating abroad with established global players in the market. We also differentiate between product and process innovation. The distinction between product and process innovation is well known and widely used (Markides, 2006). Contrary to product innovations, process innovations have an internal firm focus and aim to increase efficiency and effectiveness of the internal organization to facilitate the production of goods and services. Understanding what drives different types of innovation of Chinese firms is important as these firms often struggle to accomplish a dual task of competing at home and abroad with innovation-driven domestic and foreign rivals. Applying ambidexterity perspective in the context of internationalization strategy allows to reconcile the need for simultaneously implementing outside-in and inside-out strategies to achieve higher performance results. Thus, our goal is twofold. First, we aim at establishing what types of internationalization strategy of Chinese firms drive their product vs process innovation.

Second, we aim to understand whether any of the three types of internationalization strategy appears to yield superior outcomes for Chinese firms in terms of their international performance. Given that firms' ambidextrous strategies have only rarely been investigated in existing literature, the above mentioned research goals of the present study are accomplished by using illustrative case studies, which combined with a systematic analysis of 30 Chinese companies' annual reports and the literature review opens a possibility to formulate research propositions.

Methodology

In order to accomplish our research goals we adopted a two-steps methodology. First, to establish how Chinese firms implement ambidextrous or dual internationalization strategies, we present two illustrative case studies of ZTE Corporation and Tsingtao Brewery company. Illustrative cases are a descriptive account of the main characteristics of a real world example to clarify an idea or reinforce an argument (Eisenhardt, 1989; Gering, 2007). The case research methodology builds on the grounded theory approach, and allows scholars to systematically examine qualitative data on the case companies, aiming to identify patterns and concepts. Sampling in grounded research must begin purposively, as in any qualitative study, and should include extreme cases, e.g. focussing on different sectors or different company size (Yin, 2014). Thus, we chose our case companies according to the grounded theory approach in the case research methodology with ZTE Corporation being in the telecommunications industry and Tsingtao Brewery company being in the brewery industry.

Data for the two case companies were obtained via publicly available sources of information, i.e., companies' annual reports, websites, investor relations report, and the public press, all published in English. The two cases illustrate prominent cases of ambidextrous strategies and are essential in developing research propositions. In particular, the analysis of case data provides preliminary insights on the use by Chinese firms of ambidextrous internationalization strategies and their subsequent innovation and performance outcomes. In addition, the case analysis helps to identify various conceptual categories related to the characteristics of internationalization strategies (inside-out, outside-in, or ambidextrous) and to the characteristics of product vs process innovation.

Identifying the above mentioned characteristics serves as an input for the second step of our analysis – a systematic qualitative analysis of a sample of Chinese firms' annual reports over the five-year period on 2007-2011 with an objective to explore the link between these firms' internationalization strategies, types of innovation and performance outcomes (see Appendix 2 for company details). The illustrative cases of the two firms – ZTE Corporation and Tsingtao Brewery company – allowed us to identify such categories as "direction of resource allocation"(internal/external), geographic focus (home market penetration/external expansion), and capability leverage (own development and reinforcement/foreign acquisition). We then used the above categories to code the qualitative data in a sample of Chinese firms' annual reports. Tables AI and AII summarize data coding categories of firms' outside-in and inside-out internationalization strategies (Table AI) and innovation types (Table AII).

The sample frame for the second step in our research methodology study consists of the 46 Chinese Fortune 500 firms in 2010, the list of the 50 most valuable brands in China in 2010, and the list of China's top 100 companies according to the S&P rating of 2010. As the first list mainly contains construction, infrastructure building, and financial services firms and the second includes several non-listed firms, we also

referred to the list of China's top 100 companies of 2010 to increase our potential sample. We reduced the combined lists by checking for double entrants, non-listed firms, and non-available reports. For the purposes of our research we needed access to the companies' annual reports, which is only possible if a company has at least some percentage of publicly traded shares. We also wanted to ensure that the companies we studied had at least some degree of flexibility in their strategic decision making and were not purely organs of the state. As a result our sample consists of companies with different degrees of both private and state ownership. For example, Baosteel has 80 percent of state ownership and 20 percent of publicly traded shares, while such companies as Baowang and China Mobile Limited have 75 percent of private ownership with the remaining 25 percent of shares publicly traded. There are also companies in our sample that are in-between – for example, BOE Technology Group is a public company with only 27 percent of shares owned by the state, and COSCO has 52 percent of state ownership and 48 percent of publicly traded shares (see Appendix 2).

We first searched for companies' annual reports on the internet. In total, 67 companies' reports were obtained. When we analyzed these firms' degree of internationalization (Ietto-Gillies, 1998) we discovered that only 30 firms had substantial overseas activities, measured as either the amount of foreign sales to total sales (FSTS) or as foreign assets to total assets (FATA). Using FSTS/FATA, we identified internationalization trajectories for the 30 Chinese firms with substantial foreign operations. The 30 firms with 150 annual reports in our final sample represent different industries, which makes the sample an appropriate choice for a study requiring diversity of cases (Guercini, 2014). The majority of firms present state-owned industries. Table II presents the relevant cut-off criteria for analysis.

Following our qualitative analysis of numbers related to our sample companies' foreign and domestic sales, we conducted a qualitative textual analysis of these companies' annual reports to examine the content and meaning of texts or words (Given, 2008). The qualitative textual analysis refers to a variety of primarily qualitative methodologies or models (Schreier, 2012). For the purposes of our study we used content analysis of annual reports by identifying keywords and phrases that are used in conjunction with internationalization and innovation based on the categories identified in step 1 of our method. In particular, we performed a keyword in context

	Qualitative indicators			Quantitative indicators	
	Firms' investment	Geographic focus of activities	Capability leverage	FSTS	FATA
Inside-out	Home	Home-market penetration	Internal development	$> 5\%$ and rising for three consecutive years	$> 2\%$ and rising for three consecutive years
Outside-in	Abroad	Foreign market expansion	Acquisition abroad	$> 30\%$ but decreasing for three consecutive years	$> 20\%$ but decreasing for three consecutive years
Ambidextrous	Home and abroad	Both home market penetration and external expansion	Dual capability upgrading	Both increase and decrease of at least 20% for three years	Both increase and decrease of at least 20% for three years

Table II. Identification of internationalization trajectory

analysis (Krippendorf, 2012; Hall, 2014) to evaluate the difference of words and their usefulness in measuring internationalization in this study. This procedure helps to identify keyword variation patterns and differences in keyword usage, in particular any mentioning of innovation or capability development. We particularly distinguished between product (brand, marketing, customer innovation) and process innovations (efficiency, cost, procedures, operational innovation) (see Table AII).

In sum, in accordance with our two-step methodology of an inductive study, we first report below the analysis of our two illustrative case studies (focussed on qualitative analysis) followed by the broadened qualitative analysis of 30 Chinese firms' annual reports. The insights from these analyses combined with existing theoretical perspectives summarized in our literature review section serves as a background for the research propositions in the following section.

Chinese firms' internationalization and innovation

Focussed qualitative analysis: two illustrative case studies

According to our theoretical classification criteria (Table III), we selected two companies that utilize different variants of ambidextrous strategies, combining inside-out and outside-in internationalization: ZTE Corporation and Tsingtao Brewery company. ZTE Corporation is a global provider of telecommunications equipment and network solutions. It offers a wide choice of products, including voice, data, multimedia, and wireless broadband services. Founded in 1985, ZTE is China's largest listed telecom equipment company, operating in more than 140 countries. It is China's largest listed telecom equipment provider specializing in offering network solutions for telecom carriers worldwide. ZTE first went international in 1998 by establishing an R&D laboratory in the USA (ZTE Annual Report, 2012), followed by an international deal in 1999, in Pakistan. ZTE's internationalization effort has intensified since the early/mid-2000s with entries to Pakistan, Kenya, and Iran. Headquartered in Shenzhen, ZTE has at least 13 wholly owned R&D centers in North America, Europe, and Asia. In the mid-1990s, it realized that global success required sophisticated product knowledge to be acquired from foreign competitors abroad. It increased its foreign assets and operations to participate in high-level technological innovation. In order to minimize investment risk and avoid cultural obstacles, ZTE has always employed the tactic of first establishing R&D centers in a developed market, followed by sales office when the timing and market conditions were judged suitable. This approach has been quite successful so far.

After years of investigation however, ZTE Inc., was considered a national security threat in 2012 because of their alleged attempts to extract sensitive information from American companies and because of their loyalties to the Chinese government. While this may pose a serious threat to their internationalization to the USA, sales figures, both at home and abroad (Europe, Americas, and Oceania) dropped in 2013, only to recover again in 2014.

With changes in FSTS between 50 and 60 percent in the last five years, we consider the company a "high-level ambidextrous internationalizer" with an almost equal focus on activities in China and abroad.

Tsingtao Brewery company is the earliest brewery in China, and was founded by The Anglo-German Brewery Co. Ltd, an English-German joint stock company based in Hong Kong, who owned it until 1916. Known as Germania-Brauerei, the company built the brewery with the then state of the art equipment supplied by Siemens of Germany. In 1916 Germania-Brauerei was forced to liquidate and the brewery was sold to

	Tsingtao brewery	ZTE telecommunications
Industry	Brewery	Telecommunications
Founding date	1903	1985
Employees (2011)	40,000	89,786
Number of businesses (2011)	2	3
Chairman's statement concerning internationalization	At present, China's beer market is still in the phase of integration, and the prospect brought about by the rise in consumption has caused the domestic and international brewery magnates to increase their investments in China. The production capacity was increased through mergers and acquisitions, new construction and expansion, which led to fiercer competition and a more centralized market (Annual Report, 2011)	We intend to further consolidate our market position by expanding to the government enterprise and service segments and increasing sales to mainstream carriers… In the meantime, we will be taking actions to strengthen cash flow management, optimize process regimes, and improve operating efficiency (Annual Report, 2011)
FSTS/FATA (2011)	FSTS 2.0 FATA 1.1	FSTS 54.2 FATA 19.0
Internationalization trajectory (Criteria)	Low-level ambidexterity (toward exploitation) Investment: factory investment in Thailand, ongoing investment in internationally competivie technologies. Local quality improvements to meet highest standards Geographic focus: increasing international sales and development of foreign subsidiaries Capability leverage: no distinction between local and foreign partners, highest standards of technology	High-level ambidexterity (toward exploration) Investment: ongoing investment in overseas projects, investments in local operations Geographic focus: local, regional, international Capability leverage: learn from local and foreign partners
Innovation (Keywords)	Foster innovation (as a general statement) Increase in production efficiency Profitability of the company is improved through technical innovation and technological improvements	Improve efficiency and optimize processes Enhance skill development Developing globally competitive products and solutions
Internationalization leads to innovation	Outside-in orientation in innovation and capability building combined with inside-out orientation and penetration of the local market with high-quality products	Inside-out internationalization through collaboration with major players in China (improving efficiency and operations) complemented by outside-in internationalization to increase product quality
Result (Changes in net profit over 5-year period 2007-2011)	Changes over 5-year period: 144.9%	Changes over 5-year period: 139.5%
Result for benchmark firms (Changes in net profit over 5-year period 2007-2011) (Figure in brackets relate to losses)	Revenue benchmark: Haier: 377.2 Employee benchmark: Baosteel: 18.4 Age benchmark: Jardine Matheson: 203.0	Electronics: BOE: (919.0), Internet: Baidu 44.3, Telecommunications: China Mobile: 125.8, Information technology: Digital China Holding: 185.6

Table III. Summary information case companies

Dai-Nippon Brewery in Japan. The Japanese owner started selling products under the Asahi and Sapporo brand. After Second World War, ownership of the brewery briefly belonged to the Tsui family for a few years before being nationalized shortly after 1949 following the Communist's victory. Tsingtao was first exported in 1954, but it was in 1979, as China was opening its doors to the world, that Tsingtao became well known outside the country and the government in Beijing named Tsingtao the official export beer of China.With the opening of the Chinese economy the brewery was renamed "Tsingtao brewery." In July 1993, Tsingtao became the first of several Chinese state-owned companies to list on the Hong Kong Stock Exchange. After the stock sale, the Qingdao State-Owned Asset Bureau owned 44 percent of Tsingtao, the Bank of China and other People's Republic parties owned 10 percent, and another 35 percent was owned publicly, including 5 percent purchased by the US company Anheuser-Busch in the initial public offering.

The business scope of the company is the production and sales of beer, and other related business. Tsingtao occupies leading position in the domestic beer industry in term of size and market share with 53 breweries in 18 provinces, cities and regions all over China. Right from its inception, Tsingtao started to be international in its mindset. It was eager to learn about technology and product expertise from foreign companies operating in China. Thereby, Tsintao became more innovative both by learning from competitors at home and by gradually increasing its engagement beyond national boundaries to learn abroad. As a result, Tsingtao became competitive on a global level. Although changes in FSTS between 2.0 and 2.6 percent in and changes of 0.8 and 1.5 percent in FATA are still small, the company can be considered as a ‚low level or newly ambidextrous internationalizer' with an explicit ambition to balance both internationalization and innovation development strategies (see again Table III for a comparison).

Inside-out and outside-in internationalization. While both companies use a combination of inside-out and outside-in internationalization strategies. Tsingtao differs significantly from ZTE because of its low level of internationalization. That is, the company is predominantly focussed on the national market, but its strategic objectives and resource allocation clearly represent its ambition to add an outside-in internationalization strategy. In contrast, ZTE is truly ambidextrous in combining and balancing both internationalization strategies. This is manifested in a very high FSTS-ration.

Internationalization and innovation. In 1998 ZTE opened its first R&D institute in the USA to learn about advanced technologies from Western countries. In the following year, it established its first overseas office in Islamabad, Pakistan. Since then, it has focussed on mutually enriching internal market penetration and further expansion: ZTE conducted a major organizational reshuffling toward the domestic marketing regime during the interim period to improve its operational efficiency and provide better support to the expansion of the international business (ZTE Annual Report, 2006). Besides significantly improving its operational efficiency (process innovation) through collaborations in the home market, ZTE now offers premium products and services to over 500 customers in more than 140 countries and regions around the world. The capability base for these product developments results from collaborative research efforts with foreign partners mainly from developed markets. R&D centers and collaborations support the product focus.

Tsingtao focusses on high-level capability building, both at home and abroad. International standards are taken as benchmarks for the home market and learning from

competitors in China and abroad to produce high-quality products is given equal weight ("We are the technological leader in the beer industry through expanding the scale and investment of our R&D and providing strong technological support for quality technical management for the company," Tsingtao Sustainability Report, 2011). Tsingtao attaches great importance to R&D and the promotion of new products and brewing processes and technologies. It makes use of laboratories mainly developed and popularized by internationally advanced new technologies. Also, irrespective of local brand preferences, the company adopts a global approach in its marketing to "become an international company with a brand of global influence" (Tsingtao Sustainability Report, 2011). The product focus of innovation was mainly achieved through international collaborations at the same time with further improving process innovation (processing, manufacturing) to generate profit in the home market through lower costs.

Internationalization outcomes. Although both companies had different levels of internationalization, the fact that they were using a combination of inside-out and outside-in internationalization led to significant increases in FSTS-ratios for both of them. This indicates certain equifinality in that irrespective of the precise balance between inside-out and outside-in internationalization, the adoption of ambidextrous strategy can improve international performance.

Besides illustrating the two examples of low and high ambidexterity in EMFs international strategy, the two case studies allowed us to better understand how internationalization affects Chinese firms' innovation, in particular process and product innovation. Based on these case studies, we refined the methodology of identifying product and process innovation as well as distinguishing between predominantly inside-out, outside-in or ambidextrous international strategies, all being key constructs in our preliminary analysis.

The constructs used for illustrative case analysis consist of three major components: first, internationalization strategy – in line with a company's strategic positioning and long-term objectives, we identified a predominantly inside-out, outside-in, or ambidextrous orientation (Tables IV and AI). Second, innovation type – analyzing annual reports and the description of firms' activities, we distinguish between product and process innovations (Table AII). Third, internationalization outcomes – performance implications of internationalization trajectories combined with innovation types are reported as changes in net profit or FSTS (Zahra *et al.*, 2000).

Broadened qualitative analysis: 30 Chinese firms

In the sample of 30 Chinese firms, ten firms followed an "inside-out orientation" based on the criteria described in Table II (see Table AI). Certain firms, for example, Digital China Holding and Li Ning, had quantitative indicators that used alone did not allow us to classify these firms' international strategies. We therefore used qualitative data from these firms' annual reports. In particular, Digital China Holding has been reporting foreign sales figures as below 10 percent for the last five years but has continuously indicated that it "undertakes strong efforts for further internationalization," "prepares itself for internationalization," and "builds the resources to compete internationally." For similar cases, the procedure was repeated and we classified these firms as following "inside-out" internationalization, when the information from annual reports confirmed the trend.

With regard to innovation, the ten firms with "inside-out orientation" were predominantly focussed on being competitive in their local Chinese market, while

Table IV.
List of firms and internationalization trajectories[a]

Company	Industry	Total Sales 2011 (US$ millions)		Percentage of foreign to total sales (FSTS) or assets (FATA) 2011	2010	2009	2008	2007	Inside-out /Outside-in /Ambidexterity
1. Air China	Aviation	15,653	FSTS	48.6	57.3	63.9	94.0	86.0	Outside-in
			FATA	–	–	–	–	–	
2. Anta	Sportswear	1,416	FSTS	1.2	1.1	0.7	0.5	0.7	Inside-out
			FATA	–	–	–	–	–	
3. Baidu	Internet	366	FSTS	0.4	0.2	0.1	–	–	Inside-out
			FATA	3.3	2.6	–	–	–	
4. Baosteel	Metals	35,454	FSTS	10.7	9.9	9.4	–	–	Inside-out
			FATA	–	–	–	–	–	
5. Bawang	Herbal hair care	141	FSTS	2.5	4.2	4.5	–	–	Inside-out
			FATA	1.1	5.8	0.1	–	–	
6. BOE	Electronics	80,004	FSTS	39.3	46.9	38.2	46.5	50.2	Outside-in
			FATA	–	–	–	–	–	
7. BYD	Automotive	14,897	FSTS	10.9	15	35.0	46.0	36.0	Ambidextrous
			FATA	–	–	–	–	–	
8. China Eastern Airlines	Aviation	13,107	FSTS	31.3	31.8	26	–	–	Inside-out
			FATA	–	–	–	–	–	
9. China Mobile	Telecommunications	83,987	FSTS	< 5	9.6	1.9	< 10[b]	< 10	Inside-out
			FATA	< 5	0.1	0.1	< 10*	< 10	
10. China Southern Airlines	Aviation	6,345	FSTS	20.5	18.3	15.0	18.5	19.7	Outside-in
			FATA	–	–	–	–	–	
11. Citic Pacific	Diversified	47,979	FSTS	21.3	23.4	25.7	28.6	38.6	Outside-in
			FATA	52.5	49.8	45.8	45.4	48.2	
12. CNOOC	Utilities	38,326	FSTS	~23.0	~29.0[b]	~24.0	~27.0	~14.0	Ambidextrous
			FATA	43.5	42.1	31.4	9.7	8.2	
13. COSCO	Logistics	14,463	FSTS	41.6	70.6	67.3	89.1	77.2	Ambidextrous
			FATA	64.5	68.7	70.0	75.9	–	
14. Digital China Holdings	Information technology		FSTS	< 10	< 10	< 10	< 10	< 10	Inside-out
		9,066	FATA	< 10	< 10	< 10	< 10	< 10	

(*continued*)

Table IV.

Company	Industry	Total Sales 2011 (US$ millions)		Percentage of foreign to total sales (FSTS) or assets (FATA) 2011	2010	2009	2008	2007	Inside-out /Outside-in /Ambidexterity
15. Haier	Household appliances	3,841	FSTS	~2.6	~10.0	0.0	< 10	< 10	Outside-in
			FATA	–	~10.0	0.0	< 10	< 10	
16. Hisense Electric	Household appliances	266	FSTS	29.8	29.8	27.6	39.0	42.0	Outside-in
			FATA	13.2	15.6	–	–	–	
17. Huawei Technologies	Telecommunications equipment	32,396	FSTS	67.8	65.0	60.4	~75	~72	Ambidextrous
			FATA	–	–	–	–	–	
18. Jardine Matheson	Diversified	57,306	FSTS	58.9	58.9	48.5	46.4	–	Inside-out
			FATA	36.9	37.6	36.2	52.4	–	
19. Lenovo	Electrical and electronic equipment	29,574	FSTS	53.6	52.5	58.2	56.8	–	Outside-in
			FATA	45.3	50.8	35.0	43.3	–	
20. Li Ning	Sportswear	1,151	FSTS	2.3	1.7	< 5*	< 5	< 5	Inside-out
			FATA	–	–	–	–	–	
21. PetroChina	Utilities	317,748	FSTS	28.7	25.8	22.4	23.1	–	Inside-out
			FATA	9.8	9.7	6.7	6.6	–	
22. Semiconductor Manufacturing International	Semiconductor	1,319	FSTS	67.3	71.1	79.5	80.1	85.2	Outside-in
			FATA	–	–	–	0.0	0.0	
23. Shanghai Automotive	Automotive	69,122	FSTS	0.2	0.3	0.3	16.5	25.3	Outside-in
			FATA	1.6	3.7	0.1	10.1	18.4	
24. Shenhua Group	Utilities	32,446	FSTS	–	3.8	6.2	11.4	11.7	Ambidextrous
			FATA	–	2.2	1.4	0.0	0.0	
25. Skyworth	Consumer electronics	3,138	FSTS	8.9	0.9	12.2	12.3	9.7	Ambidextrous
			FATA	0.5	0.8	1.3	6.2	3.2	
26. TCL International Holding	Multimedia technology	4,245	FSTS	40.1	40.6	47.0	54.3	51.2	Outside-in
			FATA	22.5	23.5	27.6	38.4	49.9	
27. TPV Technology	Wholesale trade	11,040	FSTS	70.7	69.1	70.4	74.2	72.5	Outside-in
			FATA	53.1	58.2	64.2	62.6	64.0	

(*continued*)

Table IV.

Company	Industry	Total Sales 2011 (US$ millions)		Percentage of foreign to total sales (FSTS) or assets (FATA) 2011	2010	2009	2008	2007	Inside-out /Outside-in /Ambidexterity
28. Tsingtao	Brewery	3,683	FSTS	2.0	2.0	2.0	2.3	2.6	Ambidextrous
			FATA	1.1	0.8	1.5	0.0	0.0	
29. Weiqiao Textiles	Textiles	2,422	FSTS	32.0	38.3	35.1	40.5	41.1	Outside-in
			FATA	0.0	0.0	0.0	0.0	0.0	
30. ZTE	Telecommunications	13,720	FSTS	54.2	54.2	49.6	60.6	57.8	Ambidextrous
			FATA	19.0	28.6	29.7	27.9	31.0	

Notes: [a]All the data are based on annual reports, UNCTAD statistics, and corporate websites; [b] < and ~ relate to qualitative information, and are used if the company did not indicate any precise quantitative information in their financial overview. *Firms' qualitative information indicates that FSTS is too low to report details

acknowledging the competitive pressures to engage in capability development. For instance, Bawang's products target the mid-low end segment in China and the company aims at increasing the market coverage of its products. It therefore focusses on channel replication processes and the expansion of core products while not engaging in new product development. However, in terms of future development, the group plans to expand overseas, though mainly to other emerging markets which are receptive to the current product and brand (Bawang Annual Report, 2011).

The "outside-in orientation" was identified for 12 firms. For example, SMI follows an outside-in internationalization. The company is engaged in global expansion with a broad focus on acquiring design capabilities as well as constantly investing roughly 15 percent of sales revenues annually in R&D to increase its product innovativeness. SMI serves its global customer base, comprised of leading integrated device manufacturers. Similarly, TCL tries to connect to foreign companies abroad and learn through direct foreign operations. This is reflected in the group's statement about the group's intent to implement its long-term development strategy focussing on "integration, innovation and internationalization," continue to strengthen innovation capability, enhance and upgrade the transition of its industry chains, and adhere to the strategic development of the high-end industry and globalized operations (TCL Annual Report, 2011).

Finally, a group of eight companies followed an ambidextrous internationalization strategy. For instance, oil producer CNOOC explicitly follows a combined internal and external approach, as does the utilities provider Shenhua. Shenhua, in its annual report mentions several times that the company wants to fully leverage overseas development opportunities by proactively promoting existing projects in foreign countries such as Australia and Indonesia and by participating in overseas cooperation and competition. Thereby, it intends to gain resources at home and abroad so as to expand into both markets in China and overseas and boosts the internationalization of the company (Shenhua, Annual Report, 2011). These companies explicitly stated their dual international focus in their annual reports and place equal emphasis on both process and product-related innovation. This does not necessarily imply that the two strategies are totally balanced as has been illustrated in the two case studies. Table IV provides summary information on the 30 firms.

Complementing our first set of criteria for analysis – internationalization strategies, innovation types, and performance – the analysis of our 30 firms illustrated that all three internationalization strategies as well as the two innovation types were applied. Given the dominance of state-owned firms, the majority of firms however, was found to adopt inside-out internationalization and focussed on the penetration of the local market first, placing process innovations above product innovations.

Research propositions

In the previous section our analyses showed that Chinese companies have different internationalization objectives, vary in industry affiliation, size, or strategic posture. While some of them focus on increasing foreign sales based on existing cost advantages and gradually prepare themselves for asset-based internationalization, for others physical presence is vital for learning and knowledge accumulation. Using our original empirical evidence and following the principles of inductive study theory building we proceed with formulation of research propositions. Figure 1 provides an overview.

Inside-out internationalization and innovation. Internationalization strategies reflecting firms' inside-out orientation help to address the transformation needs at the current developmental stage of China, i.e., the need to reduce Chinese firms'

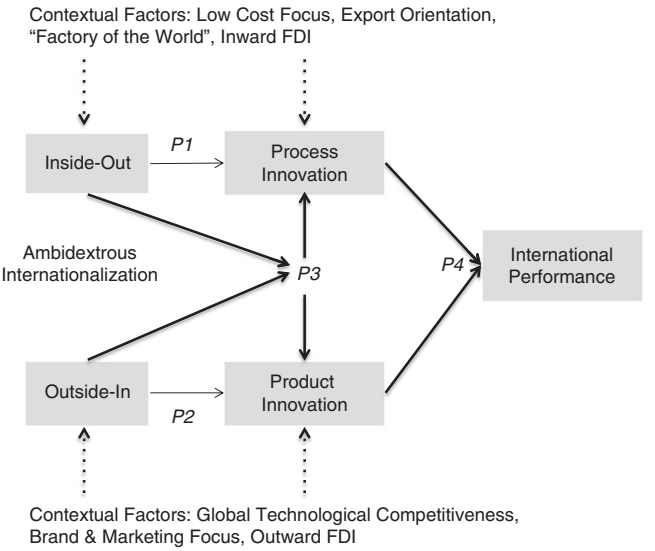

Figure 1.
Overview
propositions

dependence on export of low-cost products, and the need to engage into innovation to strengthen internal competitiveness. Several companies that focussed on the local market by adopting an inward orientation from their inception are now considering foreign expansion. This is evident from the resource- or market-seeking efforts of many state-owned companies like Baosteel or PetroChina. At the same time, firms that operate in global industries have started to internationalize to benefit from growing target markets, e.g., Bawang in Herbal Health Care, or Baidu, and Digital China Holdings, which operate in the global internet industry.

Other firms, like sportswear producers Li Ning and Anta see international expansion as a long-term goal facing market saturation. Along the process, the companies realized that they needed to compete with international players, such as, Adidas, Nike, and Puma, and re-elevate the quality of their products. This is a typical scenario for many Chinese firms that have previously capitalized on their low-cost advantage in the world market. For instance, several companies in the Chinese utilities sector fall into this category. Over time, eroding cost advantages lead to a more intensified focus on product and management innovation. In line with the LLL model predictions (Mathews, 2006), companies build several linkages via collaborations with other firms to enhance their foreign operations and develop cutting edge products jointly. In our sample, we found several firms that started to compete on process innovations and related cost advantages and are now trying to intensify the development of product innovations while going abroad (e.g. Li Ning, Anta, Baidu, Digital China Holdings). This occurred because of increasing competition in Chinese home market and these firms' lack of product differentiation. Thus, we propose:

P1. Chinese firms following an inside-out internationalization are more likely to develop a relatively higher level of process innovations compared to product innovations.

Outside-in internationalization and innovation. A different internationalization-innovation relationship is found for firms with outside-in orientation. Recent changes in FDI illustrate that strategic asset-seeking companies are inclined to improve their competitive advantages through obtaining new assets rather than by making use of their existing competitive advantages based on their home market. Outside-in strategies seem to be adopted predominately in high-tech, household appliances, and electronics. For example, technology manufacturer TPV's takes advantage of booming developing regions but has also tapped the world's major growth regions in North and South America, Europe, and Asia. As the company can no longer compete on cost advantages alone and needs to advance the value curve to enter more profitable product segments, it is required to invest heavily in brand building, customer relationship skills, and innovative marketing solutions. For many incumbents it is not only necessary to improve product quality but also build an international brand image. For instance, Haier came up with an innovation remixing different features to suggest a rodent-proof fridge. The specially designed refrigerator features metal plates to cover the holes in the fridge and uses thicker "bite-proof" wiring. Though quantitative figures for Haier did not provide evidence for outside-in internationalization strategies, evidence of qualitative criteria supported this strategy, i.e., high levels of foreign acquisition, external resource investments, and capability development jointly with foreign partners abroad. For instance, companies like BOE, Haier, Hisense, Lenovo, or SMI all work in high or information technology and consumer electronics, where brand image is vital to compete internationally. Further, companies may not lose sight of continuously improving their process innovation though this is not their major objective of internationalization. In doing so, they make sure that both the home market and the global cost-based competition is within their reach. Based on the above, we suggest:

P2. Chinese firms following an outside-in internationalization are more likely to develop a relatively higher level of product and brand innovations compared to process innovations.

Ambidextrous internationalization strategy and innovation. We also identified companies with ambidextrous internationalization strategies that balance "inside-out" and "outside-in" orientation. This is not to say that all companies try to achieve equal levels of both strategies like the case examples of ZTE and Tsingtao above illustrate, even though larger companies like Huawei have almost similar amounts of sales and assets both at home and abroad. The group of firms in our sample, using ambidextrous strategies share similarities in their industry affiliations or business models. Companies in telecommunications and utilities industries seem to favor ambidextrous strategies. For example, the nature of the shipping industry requiring product and brand upgrading explains the need for an ambidextrous strategy adopted by COSCO. As a state-owned company, COSCO's ambidextrous strategy may be further driven by the government, helping it to compete both at home and abroad while facing fierce cost competition. As COSCO explicitly reports, it "will also expand its overseas business networks and to develop innovate services and complement their business development. In addition, it covers the whole shipping value chain for both international and domestic customers through its various subsidiaries" (COSCO Annual Report, 2011). As we mentioned earlier, outside-in strategies seem to be adopted predominately in high-tech, household appliances, and electronics, while some of the

firms in these industries have moved to ambidextrous strategies (Huawei, Skyworth, BYD), so that outside-in orientation may be seen as a precursor to ambidexterity. Transition from one internationalization strategy to another may be due to internal or external contingency factors, such as, company size, governmental support, or economic downturns, which affect firms differently. While in our sample, state-owned firms were mainly engaged in inside-out strategy, and publicly traded companies adopted either outside-in or ambidextrous strategies, the number of firms in this sample is yet too small to generalize our findings.

In terms of innovation, our findings show that firms following ambidextrous internationalization strategies realize both process and product innovation that can only be achieved by crossing national boundaries and engaging with foreign multinationals in a process of learning (see Tables AI and AII). Several firms noted in their annual reports that they feel forced to directly learn from competitors, e.g., Skyworth, Huawei, or BYD. Overall, a closer look at internationalization processes and their related outputs suggests a need to complement firms' outside-in internationalization strategy and their focus on product development with an inside-out orientation to sustain profitability. Similarly, inside-out internationalization that allows firms to build on and exploit current opportunities in their domestic markets has limitations when it comes to competing with foreign brands in those domestic markets. In this case, firms with inside-out orientation might benefit from innovations in products or brands:

P3. Chinese firms following an ambidextrous international strategy are more likely to develop higher levels of both product and process innovations compared to Chinese firms following either inside-out or outside-in international strategies.

Internationalization strategies and international performance. Using changes in net profit, our two case firms with ambidextrous strategies exhibited higher international performance than benchmark firms in the same or similar categories that followed either inside-out or outside-in strategies (Table II; see Table IV for changes in FSTS). Given low number of firms following ambidextrous strategies in our sample, these results should be treated with caution. However, these findings allow us to suggest the following:

P4. Chinese firm following ambidextrous internationalization will have higher international performance than Chinese firms following either inside-out or outside-in strategies.

Discussion and conclusion

This study's focus on understanding how various internationalization strategies (inside-out, outside-in, and ambidextrous) drive different types of innovation of Chinese firms and their international performance is important as these firms often struggle to accomplish a dual task of competing at home and abroad with innovation-driven domestic and foreign rivals. This research focus was motivated by several questions that current research has yet to fully address including: first, what types of internationalization strategies do Chinese firms follow, i.e., inside-out, outside-in, or both? Second, do these internationalization strategies lead Chinese firms to develop different types of innovation and explain variance in their international performance? Below we discuss the implications of our findings for each of the above mentioned questions in light of existing theories of internationalization and relevant prior research on this subject.

What types of internationalization strategies do Chinese firms follow?

Our study shows that many Chinese firms adopt an inside-out approach to internationalization, which may be due to both their culture and the huge internal market to serve. Companies focus on domestic capability development driving foreign sales and eventual internationalization with respect to the acquisition of foreign assets and operations. This strategy is typical for many Chinese state-owned firms, which are supported by the government to internationalize (Amighini *et al.*, 2013; Wei *et al.*, 2015). Chinese Government provides SOEs with political support and capital from state-owned banks, and SOEs often enjoy a legacy monopolistic or dominant incumbent position at home (Amighini *et al.*, 2013). The purpose of state involvement in these sectors is to overcome inefficiencies in the local market, hence international expansion is rarely part of their primary activities (e.g. PetroChina, Baosteel). However, for some companies (e.g. CNOOC, COSCO) investing overseas to secure resources has become an important strategy supported by the government (Meyer and Thaijongrak, 2013). Furthermore, due to strong ties with the government, when making decisions, managers in SOEs are mindful of the possibility that further support will be either formally or informally available in contingencies (Cui and Jiang, 2012; Gammeltoft *et al.*, 2010). In sum, with actual and anticipated governmental promotion, SOEs are able to bear short-term losses and can afford to take greater risks in the internationalization process (Wei *et al.*, 2015). This is in line with our findings that many firms engage in a rather long-term process of inside-out internationalization.

In contrast, POE internationalization is largely motivated by institutional escapism (Deng, 2012) because POE often experience discriminatory policies in the domestic market, and with regard to the access to natural resources. As a result, they seek out foreign markets where policy discrimination against POEs and the institutions of discrimination are absent (Ramasamy *et al.*, 2012). In addition, compared to SOE, PEOs are largely motivated by commercial objectives alone in internationalization due to the lower degree of interdependence with the government (Child and Rodriguez, 2005; Luo *et al.*, 2010). Our findings show that especially firms that rely on high-tech products and international branding opt for outside-in or ambidextrous strategies whereby they can fully benefit from foreign competitors and engage in an accelerated process of technology acquisition and learning.

In addition, market saturation criteria determine whether a company engages in international expansion. While theoretical insights of both the OLI and the Uppsala theory (Dunning, 1981; Johanson and Vahlne, 1977) predict this phenomenon of sequential internationalization, they fail to describe the true drivers of Chinese firms' international strategies as firms following an inside-out strategy rarely internationalize based on unique assets or innovations developed at home. Several recent modifications to the OLI approach help explain the findings our study reported, including the argument that EMFs do possess ownership advantages, albeit of a different kind (Ramamurti, 2012). These ownership advantages include customer knowledge, operating experiences in volatile environments, ultra-low-cost production, which all give them advantages of coping with institutional voids (Luo and Tung, 2007) and accelerate rapidly in other less developed countries (Deng, 2004).

At the same time, existing studies suggest that EMFs' ownership advantage based on continuous improvement of their operations, and primary focus on inside-oriented process innovation while reinforces these companies' low-cost manufacturing position leads to lower focus on quality enhancement (Bichler and Schmidkonz, 2012). Our findings of lower relative international performance by Chinese firms following

inside-out internationalization strategy confirms the existing view that lower risk of pursuing cost optimization and process innovation is outweighed by higher benefits of differentiation based on product innovation.

The outside-in internationalization, from the perspective of the LLL model (Mathews, 2006) and entrepreneurship theorists (Oviatt *et al.*, 2004) is not a typical strategy for Chinese firms. Our empirical evidence suggests that Chinese firms (although in a smaller number) do implement this strategy, in particular, public firms with predominantly private ownership (POEs) which face restrictions at home (s.a.). Despite lower number of Chinese firms implementing outside-in internationalization strategy, firms that do, emphasize external learning via alliances and subsequently transfer back marketing, brand, and product innovation into the home country to enhance competiveness according to the explanations offered in existing research on EMEs internationalization (Tsang, 2002).

Finally, while both inside-out and outside-in strategies have been discussed in detail in existing international business research, the notion of dual or ambidextrous internationalization process (Goldstein, 2007; Guillén and García-Canal, 2009) has only recently emerged. Given the specificity of the Chinese context, the need for Chinese multinationals to adopt ambidextrous strategies may be high because of the raising attractiveness of Chinese market prompting domestic competition and outside-in trajectory and because of the need to catch up and compete in foreign markets, which requires inside-out approach. Our study contributes to the research stream adopting an ambidexterity lens (Prange, 2012; Hsu *et al.*, 2013) in that it suggests a measure and empirical evidence of the possible effects of Chinese firms' ambidextrous internationalization strategies. In particular, our findings reveal that dual or ambidextrous internationalization strategies are relatively rare in Chinese firms compared to inside-out and outside-in trajectories, and that they yield mixed results in terms of international performance. A low number of Chinese firms adopting ambidextrous strategies that our study revealed may imply that firms find it difficult to simultaneously balance various tensions associated with ambidexterity (e.g. exploration vs exploitation, internal vs external focus, etc.) (Luo and Rui, 2009; Hsu *et al.*, 2013). Limited international experience of Chinese firms compared to their Western counterparts might create additional challenges for these firms to balance the above mentioned tensions, which is reflected in mixed performance outcomes we found for these firms. Related to the previous point, a lower number of Chinese firms adopting ambidextrous internationalization strategies may also suggest that Chinese managers are not aware of the benefits of such dual strategies. In this case, our study also has a practical value.

Do these internationalization strategies lead Chinese firms to develop different types of innovation and differ in their international performance?

One of the key conclusions from our study is that a focus on innovation types is inextricably linked to a firm's internationalization trajectory and each – whether inside-out or outside-in internationalization, or both – yields specific and different innovation and performance outcomes. Previous research emphasized either product or process innovation through internationalization (e.g. Kongmanila and Takahashi, 2009). However, both types have only rarely been linked and our study provides new ground in suggesting the ambidexterity perspective for linking different types of internationalization and innovation, that is firms are supposed to apply both inside-out and outside-in internationalization to develop both types of innovation, which are

conducive to their performance. This insight adds to research on multinationals in China, especially as the Chinese context that drives these types of research questions. For instance, weak innovativeness of many Chinese firms leads to low competitiveness on the global market and threatens their market position in the domestic market because of increased competition from Western companies (Bichler and Schmidkonz, 2012). Thus, internationalization is required for catching up on the world market. Our research shows that both types of innovation, process innovation at home and product innovation abroad, are inextricably linked to increase performance, an insight that has not been fully explored in previous research (Molero, 1998; Boermans and Roelfsema, 2012).

From an innovation perspective, He and Wong (2004) suggest that ambidextrous strategies link process and product innovation, while outside-in and inside-out strategies each seems to emphasize one type of innovation being developed as a result.

Given the erosion of cost advantages, firms are likely to engage in a dual capability and innovation development process that incorporates both product and process innovation (Onkvisit and Shaw, 2001; Luo and Rui, 2009). Researchers have argued that the combination of innovation types has positive effects on performance (Damanpour *et al.*, 2009).

We used net performance (FSTS) as an indicator to show that firms following ambidextrous international strategy make use of the combination of both product and process innovation, which reinforces both success at home and abroad and which is likely to increase their overall level of competitiveness. However, looking at industry affiliation, our sample shows mixed results with high-tech, telecommunications, and internet firms in both the category of outside-in and ambidextrous international orientation groups of firms. This may lead to the tentative conclusion that outside-in strategies may be a precursor to ambidexterity.

Further, complementing existing research that defines a "balanced" approach of ambidexterity (Cao *et al.*, 2009), we add insights into different degrees of international ambidexterity, e.g. low-level ambidexterity or high-level ambidexterity that have not yet been suggested in the literature. Especially low-level ambidexterity is an important indicator for catching-up firms as they gradually shift their center of innovation from home-based process innovation to foreign-based product innovation. Industry wise, low-level ambidexterity seems rather typical for food, drink, and fast moving consumer goods sectors.

Limitations and future research

Future research may build on the limitations of this study, which are largely due to its conceptual and qualitative nature. Given the low number of companies studied, the suggested relationships between ambidextrous internationalization-innovation-performance needs to be further investigated as they may be subject to industry specifics (requiring within- and across-industry comparisons) or economic contingency factors (requiring longitudinal investigation to account for these changes).

Results of this study may be relevant for other emerging market countries to the extent that internationalization efforts of multinational companies from these countries (e.g. India, Brazil, China, Mexico, etc.) have intensified in the past two decades (Bonaglia *et al.*, 2007; Gammeltoft *et al.*, 2010). For example, Goldstein and Pusterla (2010) shows that both China and Brazil are moving toward the third stage on Dunning's investment development path, where domestic firms have acquired ownership and other advantages to go abroad and become leading outward investors. In the same vein, Gammeltoft *et al.*, 2010 and Milelli *et al.* (2010) noted that the emergence of multinationals from India shows similar

trends as the Chinese picture. At the same time, caution should be applied when generalizing our findings because of existent differences in institutions, government, and domestic firm characteristics. For example, the majority of Chinese multinational firms have a considerable degree of state ownership and may respond to government considerations to enhance Chinese defense, political and economic influence globally. Contrary to China, however, one of the most distinguishing features of Indian multinationals is that they are led by private entrepreneurs, driven by market parameters and business opportunities, rather than geo-strategic considerations (Gammeltoft *et al.*, 2010). In sum, while we expect that the three types of internationalization strategies described in our study could be observed in multinationals in other emerging markets, the percentages of firms adopting each type of strategy and their impact on these firms' innovation and international performance are likely to be different from our findings in the Chinese context. For several emerging market countries (e.g. Brazil), dual capability development, i.e., enhancing a home-based cost position, while striving for product innovation and quality improvements abroad is far from been an obvious strategic choice as multinationals in those countries continue to serve as low labor-cost production companies. Future research should further explore this matter.

Follow-up studies can build on our preliminary findings showing that while ambidextrous internationalization strategies allow firms to develop both process and product innovations, the effect of these strategies on these firms' international performance is mixed. This finding raises several questions worth exploring, including a mediating role of innovation types in the relationship between firms' internationalization strategies and performance, a question of a trade-off firms face between improving innovativeness and potentially damaging short-term performance, and a question of specific capabilities needed to appropriate value from ambidextrous strategies of internationalization among others. Furthermore, while we focussed our attention on how internationalization affects Chinese firms' innovativeness, this relationship is likely to be recursive. Further exploring this avenue of research can provide important insights for scholars and managers.

Another limitation of our study is that only selective examples were used from the existing data sources to generate propositions and compare financial results, which opens an opportunity for conducting large-scale quantitative studies to verify the validity of our propositions. Future research can build on our empirical approach to determining firms' inside-out, outside-in and ambidextrous strategies based on quantitative indicators (FATA and FSTS) complemented by the qualitative analysis of the firms' annual reports to match these firms' internationalization narratives with actual financial outcomes. Replicating our method would allow scholars to test our propositions on a bigger sample of firms by ensuring consistency of international strategy types classification. In addition, controlling for the firms' ownership (state-owned vs privately owned) among other characteristics would allow to further confirm whether state-owned companies are indeed more successful in implementing ambidextrous strategies than non-state-owned firms is another important issue because of state influence to develop China as an innovation nation.

Conclusion

This paper aimed to provide a nuanced understanding of the link between Chinese firms' internationalization strategies and their need to develop innovations to increase international performance. Specifically, the present study: first, analyzed how different internationalization trajectories lead to different types of innovation; second, how

Chinese firms use ambidextrous strategies to combine inside-out and outside-in internationalization; and third, provided empirical evidence of how ambidextrous strategies might influence performance. Drawing from the two illustrative case studies and the data on 30 Chinese companies representing a variety of industries and company profiles we showed that firms following a predominantly "inside-out" or "outside-in" internationalization strategy maintain high focus on one type of innovation (process or product, respectively), which falls short in preparing these firms to face global competition. At the same time, those firms that implement ambidextrous internationalization strategies develop both product and process innovations, but exhibit rather mixed international performance.

Overall, this paper provides several novel insights on the relationships between firms' internationalization, innovation, and international performance contributing to the literature on EMFs' internationalization in three important ways:

(1) Our study applies ambidexterity lens in order to explore the relationship between firms' internationalization and innovation. While ambidexterity theory has been considered in the literature on innovation often separately from considerations of ambidexterity in the literature on firms' internationalization, we bridge these two literatures in the context of EMFs. We also add insights into different degrees of international ambidexterity, e.g. low-level ambidexterity or high-level ambidexterity that have not yet been suggested in the literature.

(2) Our study is the first to our knowledge to consider differential impact of Chinese firms' internationalization strategies on different types of innovation – product vs process. While many studies on Chinese firms discuss the innovativeness challenges facing these firms as they attempt to compete domestically and abroad, there is so far little knowledge about the nature of the innovation these companies' internationalization efforts produce. Our study is the first step toward answering the above question.

(3) Our study's qualitative approach based on content and textual analysis contributes to refining the methodology of identifying product and process innovation as well as distinguishing between predominantly inside-out, outside-in, or ambidextrous international strategies, which is a necessary first step before any large-scale quantitative studies are conducted.

In addition, this study findings suggest that managers need to assess which internationalization path would be optimal under a given set of conditions and depending on their firm's strategic objective (e.g. nature of innovation to be developed, focus on long-term innovative or short-term financial performance). Further, managers are advised to balance their firms' internationalization strategies in order to achieve a desirable combination of innovation types.

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Appendix 1

Category	Subcategory	Selected keywords/phrases
Internationalization strategy	Inside-out	Promote internal strength Grow from inside, homegrown strategy Internal strategic refinement International expansion as a long-term goal following incremental steps Risk-avoidance strategy, home focussed Intent to internationalize, market access Internal management and enhanced competitiveness
	Outside-in	Seeking foreign strategic assets for the purpose of solidifying and strengthening capabilities Seeking foreign resources to improve competitive advantages Learn abroad from foreign competitors Improve technological capabilities and brand building
	Ambidextrous	Expansion by including both internal and external aspects Global cooperation, extending internal, and external resources for globalization Simultaneous internal and external growth Integration and internationalization
Innovation focus	Cost based	Internal innovation Cost-efficiency innovation
	Marketing based	Brand innovation, brand innovation retail Customer-oriented innovation, channel innovation Chain innovation Systemic marketing innovation Design capabilities
Innovation type	Product	Product differentiation Product innovation Technological product innovation
	Process	IT service innovation IT innovation Technological process innovation Business process innovation Innovation of manufacturing and R&D
	Business model	Management innovation Business transformation Breakthrough research Corporate change/transformation
Internationalization performance	Growth	Increase in home-market penetration Expansion into regional (emerging) markets focus Global expansion New foreign subsidiaries, representative offices Increase in number of employees
	Profitability (Survival)	Consecutive increase in gross profit, net profit, profit margins

Table AI.
Keyword search for data interpretation (Internationalization)

Category	Keywords	Selected examples
Product innovation	Product differentiation Brand innovation Customer orientation Systemic marketing innovation Customer-centric innovation Design capabilities Brand promotion	"In 2008, Hisense began to see major breakthroughs in the globalization of its brand. By establishing a strategic alliance with the world's largest white goods manufacture, Whirlpool Corporation, Hisense pushed its high-end refrigerators and washing machines into the international market" (Hisense, Annual Report, 2009) "In Europe, the Group will continue to move ahead and create a more diversified product portfolio on top of an enhanced business model. In North America, the Group will seek to raise the profile of the TCL brand in line with its brand strategy adjustment […] it will focus on exploring business opportunities through partnership with established international brands […]" (TCL, Annual Report, 2009)
Process innovation	Efficiency and effectiveness Operational improvement Precision execution Cost savings Efficiency innovation Management process innovation Cost innovation	"To achieve profitable growth, we will continue to focus on precision execution, cost savings, efficiency improvement" (Shenhua, Annual Report, 2011) "Weiqiao Textile will consolidate its market share in China and maintain the competitive advantage of its products […] For the overseas market, the Group will continue to take advantage of its economy of scale and product mix to upgrade its products […] through the improvement of internal management, […] the stringent control of production cost and the optimization of product mix, we will be able to enhance the core competitiveness of the Group" (Weiqiao, Annual Report, 2009)

Table AII.
Keyword search for data interpretation (Innovation)

Appendix 2. Short company profiles

Air China

Originally founded in 1988, Air China was consolidated from two other entities in October 2002 under the Civil Aviation System Reform Program. Air China currently offers flights into over 30 countries, with approximately 500 aircrafts flying in excess of 320 routes. In December 2004, Air China was listed in Hong Kong (SEHK) and the London Stock Exchange (LSE), with the China National Aviation Holding Company (CNAHC) controlling 41 percent of Air China. Air China is headquartered in Beijing and employs over 23,000 people.

ANTA

Established in 1994 and listed on the Stock Exchange of Hong Kong (SEHK) on October 27, 2007, Anta is a sports equipment retail and manufacturing company. Anta ranks as the number one sport shoe company in China in terms of market share, and it has the world's fifth largest market value of sports equipment and apparel companies, with Nike, Adidas, Puma, and Asics in front. Anta International, an associated corporation, controls approximately 55 percent of the stake of ANTA sports. Incorporated in the Cayman Islands, ANTA's main office is located in Hong Kong and employs nearly 12,000 people.

Baidu

Founded on January 1, 2000 and incorporated on January 18, 2000, Baidu is an internet-based company that offers a wide array of internet services and software products primarily in the Chinese language. Its main product is a Chinese language search engine, which receives over one billion visits each month. Baidu's directors and executive officers control approximately

16 percent of the company. Since its incorporation, Baidu has acquired several tech companies, employs nearly 3,300 people, and is headquartered in Beijing.

Baosteel
Founded by the Chinese Government in 1978, Baosteel is a steel and iron product manufacturer. It was first traded publicly in 2000 on the Shanghai Stock Exchange. Worldwide, Baosteel is the fourth largest producer of steel in tons, and the third largest steel producer in terms of earnings. Headquartered in Shanghai, the state-owned Baosteel Group Corporation controls nearly 80 percent of the company and employs about 130,000 people.

Bawang
Founded in 1994 and initially traded publicly in 2009 on the Stock Exchange of Hong Kong, Bawang is a privately owned company, which manufactures, trades, designs, and distributes Chinese herbal products. As recently as 2008, Bawang's market share of Chinese herbal shampoos comfortably exceeded its closest competitor. According to Bawang's annual report, the company maintains the minimum required 25 percent public float to be publicly traded, with the remainder being controlled by two owners. Bawang employs about 3,300 people.

BOE Technology Group
In 1993, BOE Technology group was founded under the name Beijing Orient Electronics Group, then changed to BOE Technology Group in 2001. BOE is a publicly owned company that makes LCD and LED screens as well as the components for those screens. Even though BOE has sales in Europe and the Americas, the majority of BOE's sales are in Asia. Three state-owned corporations control approximately 27 percent of the total shares. With its headquarters in Beijing, BOE employs nearly 27,000 people.

BYD
Established in February 1995, BYD specializes in IT, automobile new energy. It is the largest supplier of rechargeable batteries worldwide. BYD leads the field of electric vehicles energy storage stations, electric vehicles, and LED, etc. BYD has more than 150,000 employees and offices all over the world. The directors of BYD control approximately 43 percent of the company.

China Eastern Airlines
Founded in 1995, China Eastern has quickly become one of China's big three airlines alongside Air China and Southern China Airlines. China Eastern operates a fleet of approximately 250 aircrafts flying to 20 countries. In 1997, China Eastern listed on three stock exchanges: Shanghai, Hong Kong, and New York. CEA Holding company controls 40 percent of China Eastern. China Eastern employs 69,000 people and is headquartered in Shanghai with several other regional offices.

China Mobile Limited
Incorporated 3 September 1997, China Mobile was listed on the NYSE and the Stock Exchange of Hong Kong limited HKEx in October 1998. Since it controls nearly 70 percent market share of China's mobile service, China Mobile is not only the largest mobile carrier in China, but also in the world in terms of subscribers. Seventy-five percent of China Mobile Limited is controlled by China Mobile Group Limited, with the remainder of the company held by public investors. China mobile limited employs over 145,000 people.

China Southern Airlines
The airline is Asia's largest airline in fleet size and passengers carried. China Southern Airlines was established on July 1, 1988 following the restructuring of the Civil Aviation Administration of China. Since then, it acquired and merged with a number of domestic airlines, becoming one of China's "Big Three" airlines (alongside Air China and China Eastern Airlines). It employees

roughly 74,000 people. Half of China Southern Airlines' shares are held by CSAHC, i.e., the China Southern Airlines Holding Company.

CITIC Pacific
CITIC Pacific is a Hong Kong-based conglomerate holding company headquartered in the CITIC Tower, Admiralty, Hong Kong. It is 58 percent owned by the state-owned Citic Group in Beijing and has shareholders around the world. It is listed on the Hong Kong Stock Exchange and has around 6,000 employees.

CNOOC limited
Incorporated in Hong Kong in 1999 and listed on the New York Stock Exchange in 2001, CNOOC is China's largest producer of offshore crude oil and natural gas and one of the largest independent oil and gas exploration and production companies globally. It engages in exploration, development, production, and sales of oil and natural. Nearly 65 percent of CNOOC limited is controlled by CNOOC BVI, which is a subsidiary of Overseas Oil and Gas Company, which in turn is a subsidiary of CNOOC. The Group has 10,063 employees and operates worldwide.

COSCO
Founded in 1961, COSCO is China's largest Group that specializes in shipping, ship building, and logistics. With over 800 "merchant vessels," COSCO has the largest fleet of ships in China, and the second largest fleet in the world. China Ocean Shipping Group Company, which is a state-owned entity, controls 52 percent of the total shares of COSCO, with the rest being traded publicly. Employing over 130,000 people, the company is globally structured with its headquarters in Beijing, and has nine other major regional headquarters.

Digital China Holdings
In June of 2001, Digital China split from Legend Group Ltd (which then became Lenovo), and listed on the Stock Exchange of Hong Kong Limited. Digital China is one of the largest integrated IT corporations in the world. It provides IT support to a variety of industries both public and private. There is no single company that controls a majority share of Digital China, but directors control around 17 percent collectively. Digital China has approximately 10,000 employees.

Haier
Founded in 1984, Haier is a publicly traded company that focusses on the manufacture, design, and development of a variety of electronics. According to Euro Monitor, Haier is consistently the market share leader for major appliances (refrigerators, ranges, laundry machines, etc.). Haier also produces consumer electronics, such as cell phones, and small appliances, as well as heating and cooling equipment. The Qingdao Haier collective holds approximately 62 percent of Haier's shares. Haier is headquartered in Qingdao, China and employs around 70,000 people.

Hisense Kelon Electrical Holdings Co. Ltd
Founded in 1984, Hisense Kelon Electrical Holdings Co. Ltd is one of two publicly traded subsidiaries of Hisense Co. Ltd (the other is Hisense Electric). Its parent company, Hisense Co. Ltd, is a state-owned entity. Some of its products include: major appliances, televisions, and cell phones. It is headquartered in Shunde District, Foshan City, Guangdong Province, China but operates and has over 30,500 employees.

Huawei Technologies
Huawei was founded in 1987 as a manufacturer of phone switches and has since grown into the world's largest telecommunications manufacturer. Huawei's products and services are used in 170 countries and regions, and it is in the top 300 companies as for its revenues. Headquartered in Hong Kong, Huawei is a private, employee-owned company, and has around 170,000 employees.

Jardine Matheson & Co. (JM & Co.)
Founded in 1832, JM & Co. is one of the oldest foreign diversified trading companies remaining in Hong Kong. In the 1830s, JM& Co. started out by sending tea to England. Now, it has interests in many industries, including supermarkets, motor companies, and real estate. JM & Co. is a publicly traded company, is operated from Hong Kong, incorporated in Bermuda, and listed on the London, Singapore, and Bermuda Stock exchanges. Jardine Strategic Holdings Ltd controls a 55 percent stake in JM & Co. It has over 260,000 employees.

Lenovo
Lenovo officially came into existence in 2004 when Legend Holdings, which was founded in 1984, changed its name to Lenovo. Lenovo is the world's largest PC vendor ahead of HP and Dell, and produces a wide range of consumer electronics. It has over 33,000 employees working in over 60 countries. Publicly traded on the Hong Kong Stock Exchange, Legend Holdings still controls 30 percent of Lenovo.

Li Ning sportswear
Founded in 1990 by a gold medal gymnast, Li Ning designs, produces, and retails sportswear primarily for the Chinese market. Its main products are footwear and apparel, but also include manufacturer equipment and accessories. Li Ning is headquartered in Beijing with around 3,700 employees. It is publicly traded on the Stock Exchange of Hong Kong. Around 16 percent of Li Ning is controlled by Viva China Holdings Ltd.

PetroChina
Founded in 1999, PetroChina was founded as part of the restructuring of the China National Petroleum Corporation. PetroChina is a state-owned company that specializes in the exploration, refining, development, production, and sale of crude oil and natural gas products. Over 90 percent of the company is controlled directly by China, however it is traded on the Stock Exchange of Hong Kong, the Shanghai Stock Exchange, and the New York Stock Exchange. PetroChina employs over 850,000 people and is headquartered in Beijing.

Semiconductor Manufacturing International Corporation (SMIC)
Founded in 2000, SMIC manufactures and designs integrated chips for use in a wide variety of applications. It is also the largest and most advanced foundry in Mainland China. Its IPO was in March 2004 and it is listed on the Shanghai and New York Stock exchanges. Almost 20 percent of SMIC is controlled by the China State-Owned Assets Supervision & Administration Commission. Its sales are nearly split evenly between the USA and Mainland China. SMIC is headquartered in Shanghai and has over 11,000 employees.

SAIC Motor Corporation Ltd (SAIC)
SAIC can trace its roots back to 1955, but was officially founded in 1995 as the Shanghai Automotive Industry Corporation then changed its name in 2011 to the SAIC Motor Corporation Limited. SAIC develops, manufactures, and sells automobiles and their parts. Also, SAIC provides financing for automobiles. It is a state-owned company, with the Shanghai State-Owned Assets Supervision & Admin Commission holding around 70 percent of the total shares. It employs 150,000 people through all of its subsidiaries and is headquartered in Shanghai.

Shenhua Group
The Shenhua Group Corporation Limited is a wholly state-owned company founded in October of 1995. It is a large-scale energy enterprise, which takes coal as its foundation, covers electric power, railway, port, shipping, coal-to-liquids and coal chemical engineering and integrates production, transportation and sale. It is the largest and most advanced coal enterprise of China and the largest coal distributor of the world. Nearly 90 percent of Shenhua is controlled by the China State-Owned Assets Supervision & Admin Commission. It currently employs 166,616 people.

Skyworth Group
Skyworth was established in 1988 in the Shenzhen High-Tech Park, but is incorporated in Bermuda. Through its subsidiaries, Skyworth engages in the design, manufacture, and selling of consumer electronics such as TVs and set-top boxes. Nearly 80 percent of its sales are in China, with the remainder in the USA, Europe, and the rest of Asia. Skyworth is publicly traded on the Stock Exchange of Hong Kong, and over 30 percent of the shares are held by the Wong family. It is headquartered in Shenzhen, China and has over 20,000 employees

TCL Communications Technology Holdings
TCL is one of the largest consumer electronics groups in China, and through its subsidiaries it manufactures consumer electronics, communication technology, electronic components, and multimedia technologies. The products are currently sold in China and in over 120 foreign countries. Since its foundation in 1981, TCL has rapidly become an industry leader in China and has more than 11,000 employees. Listed on the Hong Kong stock exchange, TCL Group currently is the largest shareholder.

TPV Technology
Founded in 1967 and listed on the Hong Kong and Singapore stock exchanges since 1999, TPV designs and manufactures TV screens and computer monitors. Not only does it produce these screens for other manufactures, it also distributes its own products under the brands AOC and Envision. TPV technology is headquartered in Hong Kong with over 31,000 employees.

Tsingtao Brewery
Tsingtao Brewery was founded in 1903 in Qingdao, China by a group of German settlers. It is one of China's largest beer producers, and is the largest exporter of Chinese beer. Tsingtao is controlled in part by the Tsingtao Brewery Group Company, which holds almost 31 percent of the shares. It currently has 44,016 employees.

Weiqiao Textile
Weiqiao Textile is a multinational producer, seller, and distributor of cotton yarn, fabrics, and denim. It is the largest textile manufacturer in China and was founded in 1955. Weiqiao textile is publicly traded on the Stock Exchange of Hong Kong. Approximately 63 percent of the group is controlled by Shandong Weiqiao Investments Holding Company Limited. The company has more than 100,000 employees.

ZTE
Founded in Shenzen, China in 1985, ZTE is a multinational corporation that designs, develops, manufactures, and sells telecommunication equipment and services. It is one of the top-five smartphone manufacturers in China, and among the top ten in the world. The controlling shareholder of ZTE is Zhongxingxin, holding about 38 percent of the total share capital of ZTE. ZTE currently employs over 75,000 people.

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