When I have to versus when I am able to: Behavioral and resource explanations for firms' international expansion via exporting

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ABSTRACT

This study investigates how the motivations of firms to expand internationally via exporting in rather different contexts can be explained through either the more traditional "ability to export" as held in the resource-based view of the firm or with a behavioral theory perspective. In a riskier context with numerous roadblocks to international trade and investment, this study found support for the behavioral perspective, showing that under- and over-performing firms in that challenging context tended to export more as a result of problemistic search and slack search, while the firms performing around their aspiration levels tended to export less. And this effect proved stronger for smaller firms and non-state enterprises. In contrast, when the conditions for international expansion turned less risky, due to reduced trade barriers, clearer rules and adjudication, the better-performing, larger, and state-owned firms with more resources tended to engage in more exporting activities than others, supporting the resource-based explanations for taking fairly bold strategic action. Based on data from China's pharmaceutical firms in a time of major institutional change during the pre- and post-WTO periods, this study revealed that firms' incentives and propensity for undertaking exports change, with changes in the context and the relevant risks. This underscores the importance of selecting and applying theories judiciously when examining firms' international expansion behaviors, particularly given significant contextual change.

1. Introduction

What explains the notable increase in exports that a country's firms can sometimes achieve? China's firms have been able to significantly boost their exports over the past two decades, particularly increasing them after China's accession to the World Trade Organization (WTO) in 2001. According to the China Statistics Bureau, exports from China more than doubled in the three years following WTO accession, rising from $249 billion in 2000 to $593 billion in 2004 and continuing up to $2.59 trillion in 2020 (China Statistics Bureau, 2023). This steady and substantial increase in exports compared to pre-WTO raises the question as to why certain Chinese firms were able to commit to international expansion via exports during the more challenging pre-WTO period rather than waiting to join the many firms in the more export-friendly post-WTO period. This paper identifies and compares the different export motivations of China's firms before and after China's WTO accession, when the export environment and its regulations changed considerably, becoming more standardized, ordered and predictable.

Exporting is seen as riskier than regular domestic expansion due to its inherent blend of challenges and hazards (Calof, 1994; Eduardsen & Marinova, 2020; Minetti & Zhu, 2011). Exporters have to bear higher costs to build up foreign distribution networks, often facing extended sales cycles and payment terms (Nguyen & Almodóvar, 2018). Exporting also entails heightened risks arising from disparities in languages, legal systems, institutional frameworks, and cultural norms between host and home countries, as well as difficulties in travel, communication, and collaboration with local partners (Agnihotri & Bhattacharya, 2015; Nguyen & Almodóvar, 2018). Additional complexities include volatile exchange rates, difficulties in bill collection (Dennis & Shepherd, 2011; Martínez-Zarzoso & Johannsen, 2017), the challenges of transferring certain capabilities overseas (Carney et al., 2016; Hastings, 1999; Lin et al., 2021), and exposure to various external shocks such as

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geopolitical tensions and trade conflicts (Ahlstrom et al., 2020; Ciravegna et al., 2023).

Given the many difficulties involved, the reasons and incentives for companies to export in the face of challenging trade barriers and idiosyncratic regulations (as seen in the pre-WTO period) differ from those encountered in somewhat more benign contexts with lower trade barriers and more standardized regulations (as observed in the post-WTO period in China). However, studies have rarely compared the exporting from a single country that varies with major institutional change regarding trade barriers and trade agreements (cf., Khandelwal et al., 2013). To understand firms' exporting behaviors in a given country but under different regulatory contexts, this research connects two independent lines of research that have notably contributed to our understanding of major strategic decisions (such as export intensity). That is, this study employs the behavioral theory of the firm (BTOF) (Cyert & March, 1963), in examining Chinese firms' exporting before China's accession to the WTO, and the resource-based view (RBV) (Barney, 1991), in explaining firms' exporting after China's WTO accession. The BTOF is helpful in explaining the pre-WTO rationale behind firms' risk-taking behaviors, such as exporting, by employing the concepts of aspiration levels and slack resources (Argote & Greve, 2007; Cyert & March, 1963; Dong et al., 2022; Ref & Shapira, 2017; Xu et al., 2019) as well as firm inertia, as firms prioritized incremental, adaptive adjustments to navigate the pre-WTO bureaucratic constraints and trade barriers. (Hao-Chen et al., 2013; Hannan & Freeman, 1984; Kelly & Amburgey, 1991).

Yet following China's accession to the WTO, the risks of exporting diminished due to reduced tariffs, and simplified regulation and adjudication, thus fostering greater predictability and consistency regarding export activities, while reducing the need for complicated transshipping or other awkward trading arrangements (Ahlstrom & Bruton, 2010; Ianchovichina & Martin, 2001; Lardy, 2004; Tian, 2022). This reduced risk and simplification of processes, coupled with the development of more internationally experienced human resources and related assets, facilitated a significant increase in exports (Brandt & Rawski, 2008; Xing, 2021). Consequently, in the post-WTO period, it could be inferred that the RBV would provide a better explanation for firm behaviors in the post-WTO period (e.g., Gaur et al., 2014; Miller et al., 2008; Paul et al., 2017) in suggesting that the larger, better-performing firms and those with more resources will exhibit a greater propensity to export compared to smaller firms with fewer resources (e.g., Dhanaraj & Beamish, 2003; Gan et al., 2016; Girma et al., 2009; Morgan et al., 2004; Todo et al., 2014).

Using data from 6387 Chinese pharmaceutical firms from the periods 1998–2001 (pre-WTO) and 2002–2007 (post-WTO) in a quasi-experimental manner, enabled by the significant institutional change of China's WTO accession in late 2001, this paper demonstrates that in the *pre-WTO context*, the firms were more likely to be motivated by behavioral incentives to export. Firms that underperformed or overperformed relative to their aspiration levels exhibited higher export propensity compared to those with acceptable performance. Furthermore, compared to larger firms and SOEs, the smaller firms and non-state-owned enterprises (non-SOEs), characterized by lower inertia and greater flexibility, demonstrated a high willingness to export as either problemistic search or slack search. This finding contrasts somewhat with existing research, which generally suggests that the larger and more resourceful firms are more inclined to export. Conversely, in the *post-WTO context*, the results instead did align with the predictions of the RBV, indicating that the better-performing firms, larger firms, or SOEs were more likely to engage in export activities than smaller, less productive and non-SOE counterparts.

As such, this study makes several contributions. First, it complements research on international expansion by examining and elucidating the change in export behaviors from the same country but in two markedly different contexts: the pre- and post-WTO contexts in China. The pre-WTO context in China was characterized by greater risks and idiosyncrasies in exporting, compared to the post-WTO context. In addition, the study contributes empirically by demonstrating that export motivations at the firm level can undergo significant changes, resulting in increased export activities, such as in this case following China's accession to the WTO. This augments existing research at the macro level (Agarwal & Wu, 2004; Bhattasali et al., 2004; Lardy, 2004; Rose, 2004). Third, this study also sheds light on the reasons why firms may intensify their commitments to internationalization through exporting. This not only contributes to theory by providing further insights into theory regarding the Uppsala model of sequential internationalization but also delves deeper into the heightened emphasis that firms place on exports, as part of that early internationalization stage in the Uppsala model or in response to institutional changes (Johanson & Vahlne, 1977, 1990; Johanson & Wiedersheim-Paul, 1975; Meyer et al., 2009). By addressing questions of why, when, and to what extent, this study transcends the more basic assessment of internationalization stages and helps explain firms' differing reasons for international expansion across institutional settings with changing trade barriers and regulations.

2. Theoretical background

2.1. The pre- and post-WTO export contexts in China

Institutional contexts play a pivotal role in shaping firms' capabilities and strategies for internationalization (Chidlow et al., 2021; Meyer et al., 2009). Certain institutional settings are more institutionally conducive to internationalization than others (Meyer et al., 2014; Surana, Chavan, Kumar, & Chirico, 2024). Higher trade barriers, numerous regulations and other informal barriers can compel clumsy workarounds by exporting firms, such as the conducting of final assembly or packing in a different country to get around export restrictions that impede trade between countries (Ahlstrom & Bruton, 2010; Rodrik, 2017; Peng, 2022). China, one of the most active trading countries in recent years, faced a particularly challenging institutional environment for trade in the pre-WTO time period before 2001. Characterized by high trade barriers, idiosyncratic regulations, and trade discrimination, China's exports (and imports) had long been severely hindered. In contrast, the post-WTO period has helped to create a much more open economy through the principles of freer and nondiscriminatory trade with enforceable commitments, and the availability of mediation and review of disputes. These changes enabled Chinese firms to increasingly pursue exports while also facing heightened competition from imports (Brandt & Rawski, 2008). For instance, before 2001, firms in China's pharmaceutical industry endured high tariffs, unfavorable terms, and cumbersome regulations in their early export endeavors (Shen, 2008). Total exports from the pharmaceutical industry in those years had increased by only about 25 percent over a 5-year period from 1997 to 2001. Following China's WTO accession in late 2001, however, the pharmaceutical industry benefited from a significant reduction in tariffs and other trade regulations, leading to a sharp increase in total exports, which was to quickly double over the next four years.[1]

The WTO stands as the world's major multilateral trading system. Member governments endorsed formalized rules and agreements, establishing the legal framework for international commerce. China's WTO accession in 2001 resulted in both a considerable increase in global demand for Chinese goods and a reciprocal opening up of the domestic market to foreign companies. This was mainly attributed to the nondiscrimination policy among suppliers in accordance with the 'Most Favored Nation' principle, which increased the accessibility of products from China to foreign markets, particularly the U.S., and made trade more secure and less costly (Ianchovichina & Martin, 2001; Martin & Ianchovichina, 2001). Consequently, China's accession to the WTO

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[1] Calculated based on data from the China's Statistics Bureau website at https://data.stats.gov.cn/easyquery.htm?cn=C01.

significantly reduced the perceived risks and costs borne by firms in exporting. Exporting became less risky and less costly for firms compared to the pre-WTO period, suggesting that the BTOF may be less applicable in understanding firms' motives for exporting in the post-WTO period. To join the WTO, China had to conform to the three fundamental principles of the WTO: uniformity, transparency, and judicial reviewability (World Trade Organization, 2002). This significantly advanced trade liberalization in the Chinese domestic market, enabling all types of domestic firms to compete on more accessible and fairer terms (Agarwal & Wu, 2004).

Extant research at a more macro level has examined how China's accession to the WTO facilitated exports. For instance, Agarwal and Wu (2004) investigated the overall impact of China's entry to the WTO, and Lardy (2004) reviewed China's trade reforms pre- and post-WTO and assessed the benefits (and some downsides) of China's accession (cf. Bhattasali et al., 2004; Ianchovichina & Martin, 2001). However, less is known about how the motivations of the firms that engaged in exports in the pre-WTO period differ from those that increased their export activities in the post-WTO period.

The pre- and post-WTO contexts in China exhibit three significant differences regarding firms' exporting activities. First, contrary to predictions from much trade theory, exporters in pre-WTO China were not necessarily larger, more productive, or technologically more efficient than non-exporters. Many small- and medium-sized enterprises (SMEs) that were less productive were "born global" or started early as "international new ventures" (Oviatt & McDougall, 1994; Zhou et al., 2007). Feng et al. (2017) identified a reallocation effect after China's WTO accession, highlighting the significant differences in the characteristics of new exporters compared to those before accession.

Second, as noted, the risks in exporting were substantially higher in the pre-WTO context than in the post-WTO (Bown & Crowley, 2010). Higher export barriers at that time brought more risks and made exporting an idiosyncratic activity for firms, which negatively impacted the exporting of most firms (Shoham & Albaum, 1995). With the reduction of trade barriers, exporting became less subject to idiosyncratic factors, which has been shown in the significant increase in exports after China's accession to the WTO (Leonidou, 1995; Suarez-Ortega, 2003; Wilkinson & Brouthers, 2006). Compared to firms in post-WTO China, pre-WTO exporters bore more risk (Fan et al., 2018; Sonobe et al., 2004), suggesting significant differences in the motivations of exporters between the pre- and post-WTO contexts.

In addition, compared to firms in the post-WTO context, those of the pre-WTO days were subject to more regulations and had to navigate a more challenging domestic institutional environment (Ahlstrom et al., 2003). Although non-state-owned enterprises (non-SOEs) began to emerge in China during the economic reforms of the late 1970s and gradually played a larger role in China's economy (Naughton, 2018) pre-WTO, it was the SOEs and some other large firms with close government relations that had greater access to domestic business opportunities, bolstering their domestic expansion and performance (Hitt & Xu, 2016; Li et al., 2008; Park & Luo, 2001). Following China's accession, to comply with WTO regulations, many regulations and restrictions were ceased or loosened. For instance, the Chinese government relaxed its restrictions on entry modes in response to reciprocal rule changes overseas (Li & Li, 2010; Sun et al., 2010; Xia et al., 2008). SOEs were also partially divested from government control, with many transitioning to partial, reduced state ownership (Bruton et al., 2015; Fewsmith, 2001), which had a positive impact on China's institutional environment in the post-WTO years (Ahlstrom et al., 2003; Brandt & Rawski, 2008).

2.2. The behavioral theory of the firm (BTOF)

The BTOF emphasizes the role of managerial actions, routines, and experience-based heuristics in shaping firm behavior, particularly through key organizational processes such as performance evaluation, problem-search and solving, and decision-making, and how these can impact organizational change in actual organizations (Cyert & March, 1963; Davis, Eisenhardt, & Bingham, 2009; Greve, 2003). Scholars employing elements of the BTOF have specifically examined managers' risk-taking behaviors in response to performance feedback (Argote & Greve, 2007; Cyert & March, 1963; Ref & Shapira, 2017; Xu et al., 2019) and importantly, under real conditions facing decision-makers in the field (Bingham & Eisenhardt, 2011; Sull & Eisenhardt, 2015). Recent research further suggests that the BTOF offers helpful insights for understanding firms' export behaviors and foreign direct investment (FDI) activities (Deng et al., 2022; Dong et al., 2022).

Exporting was considered fairly risky in China's pre-WTO period, and tended to be an idiosyncratic activity whereby the exporter gradually developed practical, functional heuristics and rules to simplify the export process, even across new and numerous diverse markets (Brandt & Rawski, 2008; Sull & Eisenhardt, 2015). For instance, Chinese firms exporting to various European countries during the pre-WTO period of the 1990s encountered numerous idiosyncratic practices, regulations, and currencies. Early exporters devised basic heuristics for consumer goods by grouping, for example, northern European countries together versus southern or eastern Europe. The BTOF aids decision-makers in their experienced surroundings in developing heuristics for managing varied challenges, particularly with respect to firms exploring growth opportunities in new export and product markets (Bingham & Eisenhardt, 2011; Bown & Crowley, 2010; Sull & Eisenhardt, 2015).

Moreover, behavioral theorists posit that decision-makers utilize a specific aspiration level as a heuristic reference point to evaluate performances (Hoffmann et al., 2013). *Aspiration level* is "the smallest outcome that would be deemed satisfactory by the decision maker" (Schneider, 1992: 1053). The aspiration level is essential because decision-makers are subject to bounded rationality. It aids them in distinguishing between success and failure (or gain and loss) and guides the decision-makers' subsequent actions (March & Simon, 1958; Posen et al., 2018). Indeed, much past work has demonstrated that performance relative to aspirations influences strategizing, resource allocation, and organizational action (e.g., Bromiley & Harris, 2014; Chen & Miller, 2007; Christensen & Bower, 2006; Tyler & Caner, 2016).

When performance falls below the aspiration level, firms may initiate a problemistic search for solutions. Problemistic search is thus the attempt to transition from failure to success; it is "stimulated by a problem and is directed toward finding a solution to that problem" (Cyert & March, 1963: 121; Greve, 2003). When performance rises above the aspiration level, firms may accumulate abundant slack resources as they search for new opportunities (Hamel and Prahalad, 1996; Posen et al., 2018). The existence of slack resources further encourages firms to experiment and take risks in idiosyncratic activities, including internationalization (Carneiro et al., 2018). Firms performing better than expected or possessing excess slack resources engage in slack search, seeking "innovations that would not be approved in the face of scarcity but have strong subunit support" (Cyert & March, 1963: 279).

The problemistic search emphasizes firms' risk-taking behavior as a response to problems, while the slack search stresses the capacity and willingness for risk-taking. The BTOF has gained solid empirical support based on these two logics as heuristics and rules in explaining firms' engagement in a variety of often idiosyncratic activities in navigating day-to-day problems. For instance, recent research has found that firms were likely to undertake riskier behaviors such as mergers and acquisitions or divestments (Desai, 2016; Iyer & Miller, 2008; Kuusela et al., 2017), research and development (R&D), and innovation (Chen & Miller, 2007; O'Brien & David, 2014; Tyler & Caner, 2016), as well as business expansion (Audia & Greve, 2006; Barreto, 2012; Ohad & Zur, 2017) in response to problems and/or as a slack search. Therefore, in the pre-WTO period, when exporting tended to be a more idiomatic and risky activity for Chinese firms testing the trading waters in a variety of markets, the BTOF proved to be a helpful framework for examining firms' export behaviors, given its widespread use in explaining various risk-taking behaviors.

2.3. The resource-based view and firms' export behaviors

Extant research has consistently shown that exporters are generally larger, more productive and resourceful than non-exporters (e.g., Bernard & Jensen, 2004; Helpman, 2006; Melitz & Redding, 2014; Redding, 2011). Firms that outperform others in terms of capital intensity, skilled labor intensity, financial health, technical efficiency, and innovation are also found more likely to export (Johnson, 2012; Manova, 2013), hence supporting the Resource-based View (RBV) (Dhanaraj & Beamish, 2003; Gaur et al., 2014; Miller et al., 2008; Paul et al., 2017; Tallman & Fladmoe-Lindquist, 2002).

Studies on post-WTO Chinese firms mainly adopted an RBV approach and found that Chinese exporters tended to be larger and more productive than non-exporters. They also proved more resourceful than non-exporters and showed more of a learning effect (Ma et al., 2014; Yang & Mallick, 2010). Other studies revealed some unique factors in the Chinese context, such as competition from MNEs and political connections, both of which could help encourage (or even push) firms to export (Wang et al., 2014) as well as China's "Go Out" policy, which also encourages export and other internationalization efforts (Murphy, 2022).

Research on China exports indicates that studies frequently used the RBV or related theories, such as the knowledge-based and capability-based views, to explain firms' exports (see Table 1). However, most of these studies mainly examined firms' exports in the more open post-WTO period in China (Naughton, 2018). Consequently, the RBV is commonly considered an appropriate framework for explaining firms' exports in a rules-based context such as with the WTO. However, little research has investigated the incentives and motivations of firms in contexts characterized by higher trade barriers and risks, such as the pre-WTO period.

The BTOF and RBV are thus employed to explain firms' exports in the pre- and post-WTO periods, respectively. They differ in the sense that the BTOF focuses more on decision-making within the firm under field conditions, and the development of risk assessment, heuristics and rules in response to various situations and challenges encountered by firms. It underscores managerial decision-making under conditions of bounded rationality and limited information wherein decisions are crafted and their outcomes assessed (Bingham & Eisenhardt, 2011). In contrast, the RBV places greater emphasis on the internal capabilities and resources of the firm, rather than heuristics and rules. It explains how strategies and major decisions, as opposed to idiosyncratic activities, are pursued based on resource allocation and deployment (Foss & Klein, 2012). Thus, the BTOF focuses more on the managers' heuristic decision-making process in making risky idiosyncratic decisions while the RBV emphasizes how the available resources and firm capabilities focus managerial attention and drive major decisions.

3. Hypothesis development

3.1. Behavioral explanations of exporting in the pre- vs. post-WTO contexts

3.1.1. Performance below aspirations and problemistic search

Performance that falls below the aspiration level translates into problems for the firm and triggers the problemistic search (Cyert & March, 1963: 121; Posen et al., 2018). Firms operating below their aspiration levels are driven by dissatisfaction with their underperformance and thus will strive to enhance their chances of surpassing the aspiration level and achieving their target performance (March & Shapira, 1992; Miller & Chen, 2004; Posen et al., 2018). Accordingly, earlier studies have also found evidence that troubled firms are more inclined to take risks (Angus, 2019; Greve, 2003; Xu et al., 2019). For example, Deng et al. (2022) observed that firms are more likely to conduct outward foreign direct investment when there is a performance shortfall.

Table 1
Extant Studies on Exports from China.

Study	Pre- or Post-WTO	Theoretical Perspective	Data Sources	Key Findings
Chou (2000)	Pre-WTO	N/A	China's Customs Statistics, 1981–1996	Exchange rate variability has a long-run negative effect on exports.
Chao, Chou & Eden (2001)	Pre-WTO	N/A	China's Customs Statistics, 1985–1999 and other data sources	Export tax rebates on imported foreign intermediates can boost exports but only in the short run.
Zhao & Zou (2002)	Pre-WTO	Location theory	China's Leading Companies, China Statistical Yearbook on Science and Technology, China Industrial Economic Statistical Yearbook	Industry concentration and firm location are predictors of Chinese firms' export propensity and export intensity.
Buckley et al. (2002)	Pre-WTO	N/A	The Third Industrial Census	Inward FDI can generate technological and international market access spillover benefits for Chinese non-state-owned collective firms.
Gan, Hernandez & Ma (2016)	Both pre- and post-WTO	N/A	Annual survey of manufacturing firms, 1998–2007	The increase in the minimum wage is associated with a decrease in the probability of exporting goods and a decline in export sales.
Feng, Li and Swenson (2017)	Both pre- and post-WTO	N/A	China's transaction-level customs data, 2000–2006	New entrants post-WTO are more productive than exporters pre-WTO.
Wang & Ma (2018)	Both pre- and post-WTO	Resource-based View; Institutional-based view	Annual Census on Industrial Enterprises (ACIE) Database (1998–2007)	The improvement of the domestic institutional environment has different impacts on the export intensity of firms with different types of export strategies.
Kim & Xin (2021)	Both pre- and post-WTO	N/A	Chinese Industrial Enterprises database (1998–2007)	There are positive spillovers from FDI to exports only after China joined the WTO.
Zou et al. (2003)	Post-WTO	Resource-based View	Survey	An exporter's product development capability, distribution capability, communication capability, and pricing capability can positively affect its export

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Table 1 (*continued*)

Study	Pre- or Post-WTO	Theoretical Perspective	Data Sources	Key Findings
Ling-Yee (2004)	Post-WTO	The theory of social capital	Survey	financial performance. Four types of social capital can increase firms' export intensity by positively affecting the creation of foreign market knowledge.
Charoenrat & Amornkitvikai (2023)	Post-WTO	Multiple theories including the Resource-based View	World Bank's Enterprise Survey of China	Foreign direct investment (FDI), chief executive officer (CEO) gender, research and development (R&D), innovation, and foreign, imported technologies positively influence Chinese manufacturing firms' export intensity.
Lu et al. (2009)	Post-WTO	Corporate governance theories; institutional theory	WIND database; SinoFin database; Customs General Administration of China (CGAC) database	Export propensity is higher the better the institutional environments of their locations. Corporate governance variables have mixed effects on export behavior.
Efrat, et al. (2018)	Post-WTO	Dynamic capabilities	Survey	Innovativeness, unpredictability and task-flexibility are positively related to export performance.
Dong et al. (2022)	Post-WTO	The behavioral theory of the firm (BTOF); Institutional View	WIND dataset; China Stock Market and Accounting Research (CSMAR) dataset	Positive performance feedback significantly reduces a private firm's export intensity, while negative performance feedback has no impact on export intensity. The effect of positive performance feedback is more salient for high levels of institutional development and for firms with political connections.
Filatotchev et al. (2009)	Post-WTO	Knowledge-based View	Survey	Export orientation and performance depend not only on the development of capabilities

Table 1 (*continued*)

Study	Pre- or Post-WTO	Theoretical Perspective	Data Sources	Key Findings
				through R&D and technology transfer, but also on entrepreneurial characteristics, such as the founder's international background and global networks.
Wang et al. (2014)	Post-WTO	Knowledge transfer	Annual Industrial Survey Database	The presence of foreign multinational enterprises has a positive impact on the exports of domestic firms in China.
Girma et al. (2009)	Post-WTO	N/A	Survey	Production subsidies have a positive impact on export activity, and this relationship is strongest among profit-making firms, firms in capital-intensive industries, and those located in non-coastal regions.
Li et al. (2019)	Post-WTO	Institutional theory	Data from Production and Construction Corps" (XPCP)	China's Belt and Road Initiative (BRI) has a positive formal institutional effect on the export performance of Xinjiang Uygur Autonomous Region (XUAR) firms that target the "Belt" countries. Both cultural friction and ethnicity serve as the unique cultural contingencies that moderate the relationship between the BRI and export performance.
Li et al. (2013)	Post-WTO	Institutional theory	The 2005 edition of the Annual Census of industrial enterprises and the World Bank's "Investment Climate Survey" in China	Effective legal institutions in their home cities contribute to better performance of exporters. These effects of the quality of local legal systems are more pronounced when firms face high volatility in export markets, or when they trade high

Table 1 (*continued*)

Study	Pre- or Post-WTO	Theoretical Perspective	Data Sources	Key Findings
				technology products.

Exporting has long been regarded as carrying more risks than domestic operations (Cadogan et al., 2002), especially for firms in China's pre-WTO period. However, it also serves as a potentially effective response to addressing performance problems and seeking higher returns. Compared to alternative ambitious activities such as increased R&D, new product development, and business diversification, increased export intensity requires lower investment and demands fewer capabilities, making it a quick short-term solution for problems of profitability or growth (Flammer & Bansal, 2017; Hoskisson & Hitt, 1988; Hoskisson et al., 1993). If firm performance falls below the aspiration level, firms become increasingly anxious to return to the aspiration level, problemistic search may become myopic and narrow, with increased risk-seeking in the decisions (Audia & Greve, 2006; Desai, 2016; Iyer & Miller, 2008; Xu et al., 2019). Other risk-seeking alternatives may be deemed more long-term oriented and, therefore, are less preferable for addressing the immediate problems of declining performance (Flammer & Bansal, 2017; Hoskisson et al., 1993).

This paper holds that exporting is an important problemistic search option for underperforming firms in the pre-WTO context due to two aspects that may exacerbate firms' pressure and anxiety when performance falls below the aspiration level. First, the formal and informal institutional constraints in the pre-WTO Chinese context may have impelled underperforming firms to choose exports as a solution for problemistic search (Luo & Tung, 2007). In response to these constraints, firms are more likely to turn to foreign markets via exports to address poor performance (Cooke et al., 2022; Cuervo-Cazurra, 2012; Gaur et al., 2018; Krammer et al., 2018; Luo & Tung, 2007; Witt & Lewin, 2007). Second, the domestic competition spurred by the entry of multinational corporations also prompts firms to consider exporting as a solution for the problemistic search (Wang et al., 2014).

In the post-WTO context, however, with the reduction of trade barriers, exporting is considered less risky and less subject to idiosyncratic factors, which has been illustrated in the significant increase in exports after China's accession to the WTO (Leonidou, 1995; Suarez-Ortega, 2003; Wilkinson & Brouthers, 2006). Exporting has also become an option not only for firms undertaking problemistic searches but also for firms performing around their aspiration levels. At the same time, due to the institutional change and trade liberalization in domestic markets (Agarwal & Wu, 2004), other activities become available for firms, which also leads to a decreased interest in exporting when underperforming firms seek problemistic search.

Thus, BTOF can be applied to explain the exporting of underperforming firms in China during the pre-WTO context but fails to explain firm export behavior in the post-WTO context. As firm performance falls more from their aspiration levels in the pre-WTO period, they become increasingly eager to return to their aspiration levels and will take risks to do so in seeking increased exports, despite all the challenges it carries. However, this effect will not be expected in underperforming firms during the post-WTO period. Therefore, we hypothesize:

Hypothesis 1. : When the firm performance is below the aspiration level, a positive relationship between export intensity and the absolute value of the difference between the firm's financial performance and its aspiration level is expected in the pre-WTO but not in the post-WTO period.

3.1.2. Performance above aspirations and slack search

In contrast to problemistic search, firms may initiate a slack search when they outperform the aspiration levels (Cyert & March, 1963; Greve, 2003; March & Simon, 1958). When performance is slightly above the aspiration level, managers are strongly risk-averse in order to maintain the current status because risk-taking increases the probability of dropping below the aspiration level (Miller & Chen, 2004).

In the pre-WTO context, exporting to foreign markets often entailed significant sunk investments and costs (Girma et al., 2009; Melitz, 2003), which disincentivized these firms from expanding into international markets. However, this downside risk may be mitigated when firm performance exceeds the aspiration level, giving firms the confidence to experiment and the resources to take risks. Managers become motivated to pursue new business opportunities, such as exporting, research and development, new product development, and diversification (O'Brien & David, 2014; Souder & Bromiley, 2012; Tyler & Caner, 2016; Xu et al., 2019), which may lead to further growth and market expansion. Among these opportunities, exporting is often considered a convenient option for international market expansion (Agnihotri & Bhattacharya, 2015; Gao et al., 2010).

After China's accession to the WTO, however, exporting became less risky and less costly due to the formal and informal institutional changes (Ianchovichina & Martin, 2001; Martin & Ianchovichina, 2001). Also, due to the reduction of information asymmetry, transaction costs, and trade barriers (Lardy, 2014; Pan, 2013; Tian, 2022), exporting also became more approachable and was no longer considered a highly risky activity that can only be undertaken by highly performing firms. Moreover, the institutional change and trade liberalization post-WTO (Agarwal & Wu, 2004) made other search options in domestic markets available for firms, which also led to a decreased interest in exporting when overperforming firms sought slack search.

In summary, it is argued that in the pre-WTO context, when firms perform at or near their aspiration levels, they expect a limited accumulation of slack resources and will tend to be risk-averse, making them less likely to engage in exports. However, this risk aversion diminishes as performance further improves, prompting firms to engage in more export activities as a slack search for new growth opportunities. However, this behavioral explanation is less applicable to firms in the post-WTO period due to the formal and informal institutional changes brought by the WTO accession. Therefore,

Hypothesis 2. When the firm performance is above the aspiration level, a positive relationship between export intensity and the difference between the firm's financial performance and its aspiration level is expected in the pre-WTO period but not in the post-WTO period.

To summarize, as the pre-WTO context fostered a focus on more reactive and adaptive behaviors, whereby firms prioritized survival and incremental adjustments to navigate bureaucratic constraints, trade barriers, and idiosyncratic adjudication (Bagwell & Staiger, 2010), this paper proposes that there is a positive relationship between export intensity and the absolute value of the difference between a firm's financial performance and its aspiration level. This suggests a "V-shaped" relationship between firm performance and the performance-aspiration difference. However, in the post-WTO context, due to institutional changes and increased regulatory cooperation and standardization, we expect that the BTOF will be less applicable. Therefore, no significant relationship between the aspiration-performance difference and firms' exporting would be expected.

3.1.3. The moderating effect of inertia

Although the need for problemistic and slack search encourages firms to export in the pre-WTO period, not all firms will respond to these incentives and intentions by engaging in export activities. Structural inertia theory (Hannan & Freeman, 1984; Kelly & Amburgey, 1991) defines inertia as the tendency for firms to continue previous behaviors

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or practices, creating resistance to change. For firms characterized by strong organizational inertia, transitioning from past practices to new behaviors can be challenging, even under the pressure of unsatisfactory performance or with the stimuli of better performance than expected. In addition, in the presence of perceived threats in the environment, firms with strong inertia tend to accumulate collective opposition within the firm and exhibit a slow response to change forces (Gilbert, 2005; Hannan & Freeman, 1984: 151).

In the pre-WTO context, as argued above, performances lower than aspiration levels would trigger problemistic searches. In response, firms tried to increase exports while bearing the associated risks in their search for better performance. Yet when firms significantly outperform their aspiration levels, they would then seek to further explore foreign markets via exports. Given that both problemistic search and slack search entail deviations from the firm's current activities, organizational inertia creates or magnifies the barriers that managers encounter in engaging in exports.

Organizational inertia can increase with firm size. In large firms, organizational routines become quite entrenched, and organizational flexibility is attenuated (Hannan & Freeman, 1984; Haveman, 1993). Consequently, compared to smaller, more agile firms, large firms are usually subject to stronger organizational inertia (Christensen & Raynor, 2013; Kelly & Amburgey, 1991; Ruef, 1997), which tends to constrain their ability to develop routines conducive to leveraging new and risky opportunities such as exporting (Audia & Greve, 2006; Hastings, 1999; Reuber, & Fischer, 1997). In contrast, smaller firms generally face less organizational inertia and are often better positioned to respond swiftly to the need for changes arising from performance-aspiration discrepancies, thereby increasing exports (Christensen & Raynor, 2013).

Moreover, to sustain solidity and stability, inertia inherent in firms encourages them to continue exploiting areas where they already possess advantages, extending their existing capabilities and product lines (Christensen & Raynor, 2013). In pre-WTO China, it was notably easier for large firms to exploit the domestic market, given their typically broader access and greater political resources compared to small firms (Choudhury & Khanna, 2014; Li et al., 2008; Peng & Luo, 2000; Xia et al., 2014). Government officials were inclined to help and even collaborate with large companies to bolster local economic development and alleviate financial burdens. These outcomes were considered beneficial for local and regional government officials with respect to their positions and promotions (Chen et al., 2005; Li & Zhou, 2005; Whiting, 2001). Regarding problemistic search, larger firms found it less risky and more feasible to enhance their performance through domestic market expansion due to their size advantage, thereby diminishing their interest in exploring international markets. Similarly, for slack search, large firms were more inclined to bolster their market position domestically rather than internationally. For instance, Lee et al. (2009) found that domestic market leaders in the domestic market lacked strong incentives to expand abroad due to their robust position in the domestic market. Therefore, relative to small firms, organizational inertia discourages large firms in China's pre-WTO period from engaging in exports and encourages them to further exploit the domestic market.

In the post-WTO period, however, organizational inertia might no longer be expected to display such a moderation effect. From one aspect, compared to the pre-WTO period, exporting is less seen as a risky activity, and therefore, organizational inertia is less likely to affect the decisions of large firms on exporting activities. In addition, smaller firms in post-WTO China are in a more equally competitive position because of trade liberalization in the domestic market (Ianchovichina & Martin, 2001; Khandelwal et al., 2013) and are able to choose from more options when they plan to implement search activities and expansion. Thus, compared to the pre-WTO period, smaller firms in the post-WTO period no longer exhibit a strong interest in exporting when they intend to do problemistic or slack searches.

Hypotheses 1 and 2 above proposed that in pre-WTO China, there is a V-shaped relationship between performance (relative to aspiration

level) and exports, indicating that the further away firm performance is from the aspiration level (either above or below), the more likely firms will take the risk of exporting. However, in the pre-WTO period, the propensity to increase exports is lower in large firms than in small firms due to stronger organizational inertia. However, this moderation effect may not exist in the post-WTO period. Therefore we hypothesize:

Hypothesis 3. : The positive relationship between export intensity and the absolute magnitude of the difference between the firm's performance and its aspiration level is negatively moderated by firm size in the pre-WTO period, but no such effect is expected in the post-WTO period.

Institutional inertia also tends to increase with an organization's complexity (Hannan and Freeman, 1984) and can be strengthened by the existence of strategic linkages and complementarities across organizations (Aoki, 2001). Chinese SOEs, which are wholly or partly owned by the government, maintain strong ongoing relationships with relevant government representatives (Li et al., 2004; Sheng & Zhao, 2020). Also, as SOEs are regulated by and operationally and financially dependent on the government, it is believed that they exhibit stronger organizational inertia than non-SOEs, especially before the Chinese government's reform of the SOE sector.

In pre-WTO China, SOEs benefited from their political resources and enjoyed a competitive advantage over other firms in the domestic market (Hitt & Xu, 2016; Lu & Yu, 2015; Park & Luo, 2001; Peng, 2003). Research has also indicated that an unfair domestic competition environment favors SOEs, making them less inclined to seek expansion overseas (Boisot & Meyer, 2008; Witt & Lewin, 2007). The government exerts tight control over SOE investment, production, and marketing, requiring them to adhere closely to state guidance. Thus, unlike non-SOEs, the SOEs must follow government guidance closely in their activities, especially concerning strategic and risk-taking behaviors such as international expansion (Funk et al., 2021). This was particularly evident in the pre-WTO period when the reform of SOEs was at an early stage. Heavy-handed government control tends to limit managerial autonomy and create soft-budget constraints, exacerbating agency problems in SOEs and impeding their responses to market conditions. This ownership-based inertia leads SOEs to favor their past choices and activity patterns (Jansen, 2004), making them less inclined to respond swiftly to behavioral motivations. When considering problemistic or slack search alternatives, inertial forces prompt SOEs to rely on organizational routines and regulations while discouraging them from adopting risky behaviors such as international expansion.

In addition, SOEs in the pre-WTO period were more reluctant than non-SOEs to make risky decisions in response to opportunities or threats due to high agency costs stemming from their interactions with multiple regulatory bodies and country governments (Cuervo-Cazurra & Li, 2021; Duanmu, 2014; He et al., 2016). The reluctance to take risks is further compounded by the fact that in the pre-WTO context, SOEs' export activities were largely influenced by political considerations and administrative orders (Cui & Jiang, 2012; Yi et al., 2013) rather than their performance-aspiration levels. Several studies have confirmed that SOEs are less inclined to engage in exports compared to non-SOEs (e.g., Todo et al., 2014). Thus, larger firms are subjected to stronger organizational inertia and are consequently less inclined to export as a solution to address problemistic or slack search needs.

However, in the post-WTO period, governmental control of SOEs has significantly relaxed, leading to a reduction in agency costs (Sheng & Zhao, 2020). Consequently, the organizational inertia traditionally associated with SOEs has been substantially mitigated. Simultaneously, the progression of SOE reforms after the accession has liberalized the domestic market (Ianchovichina & Martin, 2001; Khandelwal et al., 2013), thereby diminishing the political resources and competitive advantages these enterprises once enjoyed within the domestic context (Sheng & Zhao, 2020). Consequently, compared to the pre-WTO period, state-owned enterprises (SOEs) in post-WTO China have been increasingly incentivized or pressured to engage in export activities. This shift

suggests that SOEs may no longer function as a moderating factor in the relationship between performance-aspiration levels and exporting in the post-WTO context.

Therefore we present Hypothesis 4 as follows:

Hypothesis 4. : The positive effect of the absolute magnitude of the difference between the firm's performance and its aspiration level on export intensity is lower for state-owned firms than for non-state-owned firms in the pre-WTO period, but there is no such effect in the post-WTO period.

3.2. Resource-based explanations of exporting in the pre- vs post-WTO contexts

Resource-based arguments suggest that firms with more resources, such as large firms, more productive firms, and SOEs, are more likely to engage or engage more in exporting (e.g., Bernard & Jensen, 2004; Helpman, 2006; Melitz & Redding, 2014; Redding, 2011; Yang & Mallick, 2010). Much extant research on more developed, open economies, supports resource-based explanations of firms' exporting (e.g., Dhanaraj & Beamish, 2003). Firm size and profitability have long been studied as key resource-based factors associated with a firm's international expansion. Size and profitability are commonly used indicators of resources, slack, capability, market credibility, and market power (Haveman, 1993; Park & Luo, 2001). In the Chinese context, SOEs are also further regarded as controlling more market and political resources than non-SOEs (Bass & Chakrabarty, 2014). SOEs benefit from state ownership; they enjoy preferential treatment and access to state resources, obtaining funds for investment directly from the state or indirectly from state-owned banks at lower rates not available to others (Kalasin et al., 2020; Li et al., 2014; Meyer et al., 2014).

However, considering the significant institutional differences between the pre- and post-WTO contexts, this study proposes that resource-based explanations are only applicable to the post-WTO context. In the pre-WTO context, while large firms and SOEs possess greater resources, they are less incentivized to pursue external opportunities compared to smaller firms and non-SOEs. This is largely due to the government and SOEs exerting control over key domestic market resources and inputs, as well as their tendency to collaborate with larger and more productive companies (Choudhury & Khanna, 2014; Li et al., 2008; Peng & Luo, 2000; Xia et al., 2014). As a result, SOEs and larger, more productive firms are not as inclined to export when engaging in problemistic or slack searches in the pre-WTO context, which deviates from the predictions of the Resource-based View (RBV).

In contrast, in the post-WTO context, the regulatory environment became more stable and predictable. This shift allowed firms to leverage their resources strategically, aligning more closely with the RBV of the firm. With reduced trade restrictions and clearer trade rules, firms could focus on building competitive advantages through unique resources and capabilities, such as technology and skilled labor. Consequently, the strategic orientation of firms shifted from reactive adaptation to proactive resource appraisal and optimization, making the RBV a more fitting lens for understanding export behavior in the post-WTO era. The literature on international trade in post-WTO China provides support that larger and more profitable firms are more likely to export (Ahlstrom & Bruton, 2001; Gan et al., 2016; Girma et al., 2009; Li et al., 2008; Todo et al., 2014). Similarly, studies focused on the exporting activities of Chinese SOEs agreed that they are more engaged in exports after China's WTO accession (Elliott & Zhou, 2013; Luo et al., 2011; Parente et al., 2019; Wang et al., 2012).

Thus, from both the Resource-based View and traditional international business perspective, larger, more productive firms and SOEs are more likely to exhibit higher export intensity than small firms (Benito et al., 2016) in the post-WTO period. However, this argument cannot be equally applied to the pre-WTO period. Based on the above, we propose the following three hypotheses:

Hypothesis 5. Firms with higher profitability have higher export intensity than those with lower profitability in the post-WTO but not in the pre-WTO period.

Hypothesis 6. Larger firms have higher export intensity than smaller firms in the post-WTO but not in the pre-WTO period.

Hypothesis 7. SOEs have higher export intensity than non-SOEs in the post-WTO but not in the pre-WTO period.

Fig. 1 illustrates the theoretical arguments of this study in the pre- vs. post-WTO periods, which shows that the motives of firms' engagement in exporting in the pre-WTO period are significantly different from those in the post-WTO period.

4. Methods

4.1. The pharmaceutical industry in China

This study uses data from the Chinese pharmaceutical industry in the years bracketing the WTO agreement, from 1998 to 2007. We select the pharmaceutical industry as our research setting for three reasons. First, during the pre-WTO period of 1998–2001, the pharmaceutical industry in China exhibited a relatively high degree of marketization. Compared to other heavy manufacturing industries such as automobile manufacturing, machinery and equipment manufacturing, energy, and mining-related industries, there were fewer restrictions on the operations and management of pharmaceutical companies. Government regulations primarily aimed firstly to enhance the accessibility of the domestic pharmaceutical market by improving transparency as well as increasing scrutiny of drug approvals, and secondly to prevent price manipulation and over-prescription by standardizing prescription procedures. additionally, during the 1990s, the Chinese government relaxed regulations of foreign direct investment into the pharmaceutical industry. This led to the pharmaceutical industry becoming one of the industries with the largest amount of foreign investment and the largest number of projects (Jiang et al., 2001). Therefore, focusing solely on the pharmaceutical industry enables us to exclude potential unseen impacts from domestic government regulations during our research period.

Second, the Chinese government has been actively encouraging companies in the pharmaceutical industry to export since the 1990s, with minimal export restrictions in place before 2007 (Shen, 2008), enabling us to exclude the potential impact of changes in domestic government institutions. However, in 2008, as requested by the United States (US), the Chinese government implemented a quota scheme for pharmaceutical firms' exports (Shen, 2008), which is why we excluded data after 2008.

Third, focusing on the pharmaceutical industry allows us to test for any potential learning effects (Bustos, 2011; Gkypali et al., 2021; Ma et al., 2014; Tse et al., 2017; Yang & Mallick, 2010) from companies' exports. Extant studies have demonstrated that companies can learn during the export process and improve their performance, which will, in turn, encourage them to export more (Bustos, 2011; Gkypali et al., 2021; Wei & Liu, 2006). Learning and innovation are particularly crucial, and also easier to measure in research-intensive pharmaceutical companies than companies in many other manufacturing industries; metrics such as research and development investment, revenue from new products, and patent-related indicators serve as all potential proxies for learning and innovation in the pharmaceutical industry.

4.2. Data and measures

The data used in this study were drawn from the Annual Census on Industrial Enterprises (ACIE) Database, also known as the "Database of All State-Owned and Non-State-Owned Industrial Enterprises Above Designated Size," spanning the years 1998–2009. This dataset was compiled by the National Bureau of Statistics and mainly comprises data
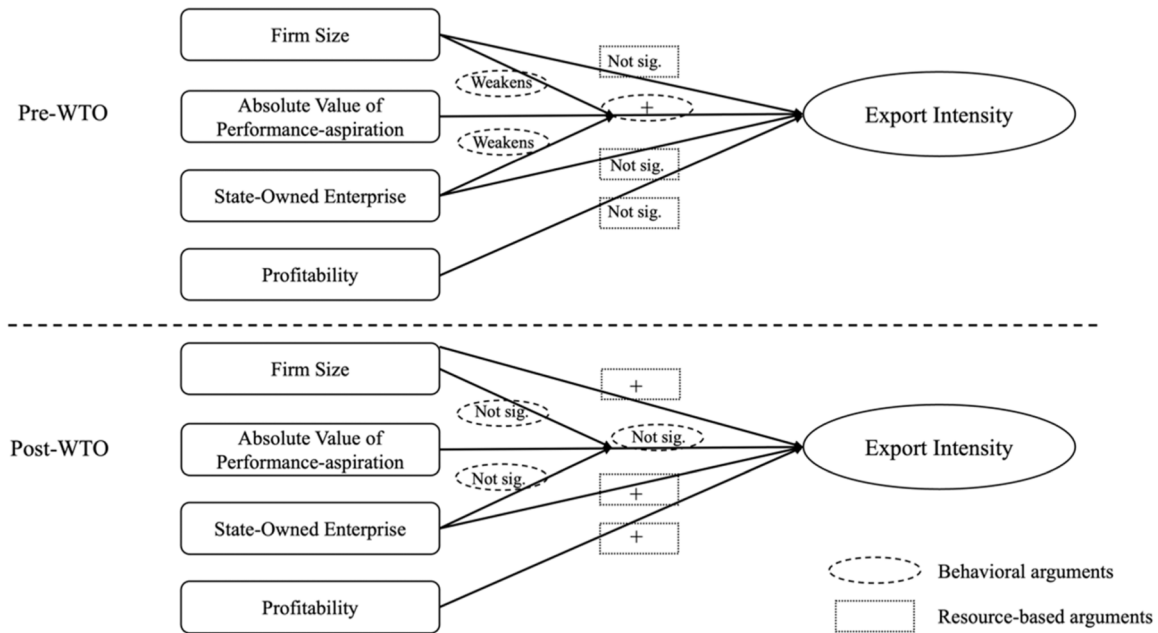
Fig. 1. Illustration of the Conceptual Model.

from the annual reports submitted by enterprises to their respective local statistical bureau between 1998 and 2009. It includes all state-owned and non-state-owned industrial enterprises with a main business income exceeding 5 million RMB (711,400 US dollars). The term "industrial" encompasses three industries: the extractive industry, the manufacturing industry, and the production and supply of electric power, gas, and water. These sectors are defined by the National Economic Industry Classification (GB/T 4754–2017), the latest version of which was jointly issued by the former Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) and the National Standards Administration in 2017. More than 90 % of the companies included in the dataset are classified under the manufacturing industry.

An unbalanced panel dataset of pharmaceutical companies spanning the period from 1998 to 2007 was used for our empirical analyses. Data from 2008 and 2009 were excluded since the US issued a new quota regulation on pharmaceuticals from China (Shen, 2008), which we believe significantly altered the export context for Chinese pharmaceutical firms. Consequently, including data from 2008 and 2009 may bring systematic bias to the empirical results of this study.

In total, 42,153 observations from 1998 to 2007 were identified. After excluding observations with missing values in key variables, 23,630 observations remained from 6387 firms.[2] The dataset was then separated into two subsamples: the pre-WTO period from 1998 to 2001 and the post-WTO period from 2002 to 2007. 9255 observations were obtained for the pre-WTO period while 14,375 observations were included for the post-WTO period.

As the calculation of historical aspiration level is based on the previous year's performance, observations from 1998 and firms with only one year's data were excluded from the regression model, resulting in a final sample of 22,412 observations from 6016 firms. In the pre-WTO subsample, there were 8037 observations from 3809 firms, with export activities observed in 21.3 % of firm-year observations. In the post-WTO subsample, 4939 firms and 14,375 observations were included, with export activities observed in 35.5 % of firm-year observations.

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[2] Observations for the year 2004 were removed from the sample because export data were missing for this year.

4.2.1. Dependent variable

Export intensity is calculated as the ratio of exports to total sales in year t (e.g., Bonaccorsi, 1992; Shinkle & Kriauciunas, 2010; Verwaal & Donkers, 2002), since using the simple value of exports or its logarithm may introduce bias. In the robustness check, we instead employed a dummy variable for export as the dependent variable, coded as 0 if the firm had no exports in year t, and 1 otherwise.

4.2.2. Explanatory variables

Aspiration level. Drawing on the work of Cyert and March (1963) and Greve (2003), we compute aspiration level (A) as a mixture of social and historical aspiration levels. The sample is first categorized into three groups by asset size. Social aspiration (*SA*) is the average performance (*P*) of other firms in the same group, calculated as the mean return on sales (ROS) in year t of all firms in the focal firm's category, excluding the focal firm itself. Historical aspiration (*HA*) is the focal firm's financial performance in the prior year. Therefore, using p_1 and p_2 as weights, the aspiration level is calculated as follows:

$$A_{ti} = p_1 SA_{ti} + (1 - p_1)HA_{ti}$$

$$SA_{ti} = (\sum_{j \neq i} P_{tj})/(n_m - 1), m = 1, 2, 3$$

where t denotes the observation year, and i and j are firms. Following Greve (2003), weight p_1 for social aspiration is attributed a value of 0.8, and weight p_2 for historical performance is attributed a value of 0.2. Performance is specified as a spline function to test for the effect of performance above and below the aspiration level on export behavior (Greene, 2012). The spline specification is constructed using separate variables for performance above and below the aspiration level.

Following previous BTOF studies (e.g., Greve, 2003; Hanifzadeh et al., 2018; Harris & Bromiley, 2007), firm performance is compared with the aspiration level of the firm. We use *ROS* instead of return on assets (ROA) to measure performance. *ROS* is a more appropriate variable of performance because the dependent variable, *export intensity*, is calculated on sales. Moreover, ROA and ROS are highly correlated ($\beta = 0.4351$, $p < 0.000$) and generate similar results.

Consistent with prior BTOF research (e.g., Audia & Greve, 2006; Greve, 2003; Mishina et al., 2010; Xu et al., 2019), we use a spline function to distinguish between performance below and above

aspirations. Thus, two variables are generated, "|*performance - aspiration < 0*|" and "*performance - aspiration > 0*". When performance is below the aspiration level, the variable "|*performance - aspiration < 0*|" takes the absolute value of performance minus aspiration; otherwise, it equals zero. When performance is above the aspiration level, "*performance - aspiration > 0*" takes the value of performance minus aspiration; otherwise, it equals zero.

4.2.3. Moderators

Firm size is calculated as the logarithm of total assets. We did not use total sales since both the dependent and independent variables are calculated by using total sales, which may result in potential statistical bias when we also use total sales as a measurement of firm size. In addition, although the total number of employees is another commonly used measurement for firm size, it could not be utilized here due to data availability constraints; data for this variable is only available from 2004 onward.

SOE denotes whether or not a company is under the control of the Chinese government or other government-affiliated institutions. Non-SOEs, denoted by a value of 0 for this variable, refer to all the companies controlled by Chinese or foreign individuals and other entities such as Chinese or foreign private enterprises, as well as charity/not-for-profit organizations. Both firm size and SOEs are commonly used as indicators of organizational inertia (Li et al., 2020).

4.2.4. Control variables

Since this study is confined to a single industry in one country, it is not necessary to control for industry- or country-level variables. Nevertheless, we do include key firm-level variables as controls.

We control for **firm age**, measured as the number of years since the establishment of the firm. We included **foreign ownership** as a control variable, as some scholars argue that firms owned by foreign investors are more inclined to export (Filatotchev et al., 2008). This variable is binary, with a value of zero denoting firms that are wholly owned by domestic investors and one indicating firms with foreign investors.

We include the three slack measures commonly used in extant research as control variables: (1) **absorbed slack**, indicated by the ratio of selling, general, and administrative expenses (SGA) to sales (SGA/sales); (2) **unabsorbed slack**, indicated by the current ratio, the ratio of current assets to current liabilities; and (3) **potential slack**, indicated by the equity ratio, total equity divided by total debt (Greve, 2003; Iyer & Miller, 2008).

The ratio of **intangible assets** to total assets is also included as a control given extant studies suggesting that firms with a higher percentage of intangible assets export more than other firms (Mansion & Bausch, 2020). In addition, we also controlled for **innovation** level and **subsidy** from the government, as research indicates that both factors could positively influence firms' exports (Cassiman & Golovko, 2011). Innovation is measured as the percentage of revenue from new products in the firm's total revenue, and subsidy is measured as the percentage of subsidy received from the government in the firm's total revenue (Boeing, 2016; Sharma et al., 2020).

4.2.5. Instrumental variables

Four variables are employed as instrumental variables in this study. Foreign direct investment (**FDI**) is measured as the logarithm of the amount of foreign direct investment in the firm's province in year *t*. **Knowledge transfer** is calculated as the logarithm of the total amount of knowledge transfer contracts in the firm's province in year *t*. The **number of patents** is measured as the logarithm of the number of approved patents in the firm's province in year *t*. The **number of hospital beds** is measured as the logarithm of the total number of hospital beds in the firm's province in year *t*, as these are relevant to the development of the local pharmaceutical industry.

4.3. Methods and data analyses

Two-stage least squares (2SLS) regression models were employed to examine the impact of performance-aspiration levels on exports and the moderating effects of firm size and state ownership. We argue that this method is more appropriate for our analysis than the standard ordinary least squares (OLS) method, primarily due to concerns regarding endogeneity and reverse causality. In particular, the associations between exports and performance-aspiration variables may reflect causalities other than those we have postulated. For example, firms' export behavior is linked to knowledge acquisition and innovation (the learning effect), which may, in turn, affect the company's performance and performance-aspiration levels (Bustos, 2011; Gkypali et al., 2021; Tse et al., 2017).

For the pre-WTO period, our 2SLS models are estimated by first regressing the two performance-aspiration variables (|*performance - aspiration < 0*| and *performance - aspiration > 0*) on the control variables and the instrumental variables discussed in the above section (first stage). Results are shown in Appendix I. Then we use the predicted values of |*performance - aspiration < 0*| and *performance - aspiration > 0* from the first stage as the explanatory variables in the following regression (second stage):

$$
\begin{aligned}
Export_{i,\ t+1} = \ & \alpha_0 + \beta_1 \\
& * predicted(|performance - aspiration < 0|)_{i,t} + \beta_2 \\
& * predicted(performance - aspiration > 0)_{i,t} + \beta_3 \\
& * predicted(|performance - aspiration < 0|)_{i,t} \\
& * Firm\ size_{i,t} + \beta_4 \\
& * predicted(performance - aspiration > 0)_{i,t} \\
& * Firm\ size_{i,t} + \beta_5 \\
& * predicted(|performance - aspiration < 0|)_{i,t} \\
& * SOE_{i,t} + \beta_6 * predicted(performance - aspiration > 0)_{i,t} \\
& * SOE_{i,t} + \beta_7 * \ control\ variables_{i,t} + \varepsilon_{i,t}
\end{aligned}
$$

For the post-WTO period, the 2SLS models are estimated by first regressing *performance* on the control variables and instrumental variables (first stage). Results are shown in Appendix II. Then we use the predicted values of *performance* from the first stage as the explanatory variables in the following regression (second stage):

$$
\begin{aligned}
Export_{i,\ t+1} = \ & \alpha_0 + \beta_1 * predicted\ performance_{i,t} + \beta_2 \\
& * Firm\ size_{i,t} + \beta_3 * SOE_{i,t} + \beta_4 \\
& * Control\ variables_{i,t} + \varepsilon_{i,t}
\end{aligned}
$$

FDI, *knowledge transfer*, *the number of patents filed*, and *the number of hospital beds* were employed as the instruments for |*performance - aspiration < 0*| and *performance - aspiration > 0*. Local *FDI* in the firm's province can capture the spillover and learning effect from foreign companies (Bustos, 2011; Gkypali et al., 2021; Lyles et al., 2022; Wei & Liu, 2006; Wilkinson & Brouthers, 2000); local *knowledge transfer* in the firm's province captures the spillover and learning effect from local companies (Cano-Kollmann et al., 2016; Filatotchev et al., 2009); *the number of the patents filed* represents for the innovation environment in the province where the company is located (Cano-Kollmann et al., 2016; Malik et al., 2021), and the *number of hospital beds* captures the impact of the local healthcare facilities development. All four factors can significantly improve the financial performance of pharmaceutical firms, but it is unlikely that they directly affect firms' exports. The results of the first-stage regressions are presented in Appendices I and II.

In all models, variables with continuous measures were winsorized at the top and bottom 1 % to avoid the possible influences of outliers. We also examined Cook's distance (Cook's D) and found that all Cook's D values were much less than 1.0, confirming that influences of outliers

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were not a concern. We further tested for multicollinearity and found all variance inflation factors were less than 1.8 (average VIF is 1.5), well below the level indicating potential problems.

5. Results

Tables 2 and 3 present descriptive statistics and correlations for the pre-WTO and post-WTO subsamples, respectively. For the pre-WTO subsample in Table 2, |*performance - aspiration < 0*| has a positive and statistically significant relationship with export, whereas *performance - aspiration > 0* has a positive and statistically significant relationship with export. For the post-WTO subsample in Table 3, only |*performance - aspiration < 0*| is significant, but its coefficient is negative. This indicates that there are systematic differences between the pre- and post-WTO periods in the effects of performance-aspiration variables and firms' export behaviors. For control variables, *firm size* and *performance* are correlated significantly with exports, suggesting that larger and more productive firms are more likely to export, which is consistent with earlier findings (Bernard & Jensen, 2004; Helpman, 2006). *Foreign ownership* is also positively correlated with *export*, showing that firms with foreign ownership are more likely to be engaged in exporting than other firms.

The Durbin-Wu-Hausman test for both the pre- and post-WTO periods suggests that export and performance are endogenous ($Chi^2(10) = 650.68$, $p < 0.000$). To mitigate endogeneity concerns, we used 2SLS to run all models. As explained earlier, we employed multiple instruments for the endogenous variables in the first stage of the 2SLS model. The Kleibergen-Paap test and the Cragg-Donald-Wald F-test both show that our selected instruments are individually and jointly related to the endogenous variables with strong significance; Hansen's J-test suggests that our instruments are uncorrelated with the error term.

5.1. Behavioral explanations in the pre- vs. post-WTO periods

Table 4 and Table 5 present the results of the 2SLS models for testing the behavioral explanations in the pre- and post-WTO periods, respectively. In both tables, Model 1 reports the 2SLS estimates of the relationships between *export* and |*performance - aspiration < 0*| and *performance - aspiration > 0*. Model 2 presents the results for the interactions of *firm size* and the two performance-aspiration variables. Model 3 reports the results for the interactions of *SOE* and the two performance-aspiration variables. Finally, Model 4 reports the results when all variables are included in one model.

Hypotheses 1 and 2 were tested by including the two performance-aspiration variables in Model 1. In Table 4, the coefficient on |*performance - aspiration < 0*| in Model 1 (b = 0.468, p < 0.001) was positive and statistically significant, indicating that in the pre-WTO period, firms did export more as performance fell further below the aspiration level (i. e. when the value of *performance - aspiration < 0* was more negative). In Table 5, the same coefficient in Model 1 was positive and marginally significant (b = 1.166, n.s.). To compare the above coefficients in Table 4 and Table 5 statistically, we employed the suest command in Stata,[3] and results supported that there was a statistical difference ($Chi^2 = 14.20$, p < 0.001). These results supported our Hypothesis 1 that exporting was employed as a problemistic search in the pre-WTO but not in the post-WTO period.

Similarly, the coefficient on *performance - aspiration > 0* in Model 1 of

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[3] Given that the *suest* command cannot be applied to 2SLS analysis for panel data, we manually conducted the first stage and replaced the second stage with Tobit regressions on pooled data, clustering the *suest* analysis at the firm level. While we acknowledge that this approach is not without limitations, we believe the results are robust, as the manually conducted two-step analyses are highly consistent with the findings reported in our main analysis. All *suest* comparisons presented below were performed using this method.

Table 2
Descriptive and correlation matrix, Pre-WTO Period[a].

Variable	Mean	s.d.	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Export	6.64	23.16	0	92.43	1.000															
2. |Performance -aspiration < 0|	8.10	59.70	0	73.83	0.273	1.000														
3. Performance -aspiration > 0	6.74	36.30	0	119.68	0.292	0.366	1.000													
4. FDI	5.27	1.26	0.87	7.70	0.154	0.071	0.068	1.000												
5. Knowledge transfer	11.86	1.25	6.43	14.15	0.115	0.049	0.022	0.488	1.000											
6. Patent	7.63	1.33	2.30	9.67	0.132	0.070	0.036	0.459	0.537	1.000										
7. Hospital Beds	2.54	0.81	0.26	5.76	-0.050	-0.017	-0.017	-0.000	0.076	-0.342	1.000									
8. Absorbed	27.32	28.43	2.19	72.12	0.029	0.030	0.030	0.085	0.072	0.084	-0.035	1.000								
9. Unabsorbed	1.57	1.91	0.16	14.77	-0.138	-0.094	-0.035	-0.076	-0.091	-0.129	-0.030	-0.033	1.000							
10. Potential	65.45	30.71	2.04	172.79	-0.090	-0.035	-0.020	0.096	-0.023	-0.029	-0.014	0.148	0.380	1.000						
11. Firm Size	4.40	0.61	2.81	5.97	0.204	0.072	0.107	0.049	0.039	0.050	-0.059	-0.169	-0.180	0.194	1.000					
12. SOE	0.42	0.49	0	1	0.153	0.063	0.172	0.104	0.018	0.061	0.007	-0.151	-0.083	-0.059	-0.027	1.000				
13. Firm Age	16.35	13.31	2	44	0.074	-0.131	0.063	0.002	-0.080	0.024	-0.033	-0.069	-0.097	-0.151	0.109	0.043	1.000			
14. Foreign Ownership	0.10	0.30	0	1	0.073	0.002	-0.001	-0.076	-0.076	-0.071	0.079	0.190	0.151	-0.069	-0.132	-0.080	-0.467	1.000		
15. Intangible Asset	3.68	7.91	0	38.99	-0.036	-0.009	0.002	-0.030	-0.080	0.011	0.018	-0.082	-0.041	0.167	-0.001	-0.086	-0.025	-0.120	1.000	
16. Innovation	6.64	19.24	0	72.73	-0.001	0.010	0.010	0.015	0.021	0.008	-0.045	-0.020	-0.014	0.204	0.061	-0.068	0.008	-0.057	0.075	1.000
17. Subsidy	0.26	1.80	0	8.62	-0.011	-0.007	-0.002	0.028	0.022	-0.006	-0.057	-0.017	-0.015	-0.005	-0.013	-0.026	0.028	-0.023	-0.017	-0.011

[a] Significant at 0.05 level when Pearson correlations > 0.021 or < − 0.021. N = 9255 (firm-year).

Table 3
Descriptive and correlation matrix, Post-WTO Period [a].

Variable	Mean	s.d.	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Export	8.87	19.44	0	95.31	1.000															
2. |Performance -aspiration < 0|	3.83	10.15	0	68.41	0.038	1.000														
3. Performance -aspiration > 0	3.75	6.65	0	35.92	0.020	0.213	1.000													
4. FDI	5.78	1.31	1.87	8.08	0.152	-0.050	0.024	1.000												
5. Knowledge transfer	12.45	1.37	6.40	15.76	0.109	-0.032	0.012	0.545	1.000											
6. Patent	8.20	1.52	1.95	10.68	0.152	-0.063	0.032	0.584	0.610	1.000										
7. Hospital Beds	2.65	0.83	0.36	5.86	0.069	0.001	-0.053	0.165	0.163	-0.226	1.000									
8. Absorbed	25.90	20.72	2.37	73.34	0.178	-0.378	-0.026	0.115	0.082	0.123	0.046	1.000								
9. Unabsorbed	0.80	0.68	0.10	2.85	0.026	-0.128	0.254	0.094	0.060	0.068	-0.047	0.005	1.000							
10. Potential	57.49	40.28	10.52	176.59	-0.013	0.144	-0.137	-0.005	-0.000	-0.008	0.038	-0.081	-0.447	1.000						
11. Firm Size	4.68	0.58	3.28	6.21	0.061	0.007	0.218	0.067	0.050	0.080	-0.065	-0.279	0.058	-0.079	1.000					
12. SOE	0.23	0.42	0	1	0.031	0.067	0.002	-0.044	0.031	-0.059	-0.050	-0.146	-0.002	0.064	0.134	1.000				
13. Firm Age	13.41	12.43	1	57	0.027	0.002	-0.001	0.063	0.054	0.032	-0.012	-0.125	-0.029	0.071	0.220	0.315	1.000			
14. Foreign Ownership	0.10	0.31	0	1	0.154	0.018	0.107	0.083	0.069	0.135	-0.096	-0.006	-0.057	-0.034	0.079	-0.068	-0.061	1.000		
15. Intangible Asset	3.50	7.64	0	21.12	-0.047	0.075	0.026	-0.078	-0.043	-0.009	-0.123	-0.057	0.083	-0.019	0.203	-0.005	-0.005	-0.033	1.000	
16. Innovation	7.91	10.97	0	54.52	0.087	-0.026	0.074	0.036	0.071	0.083	0.021	-0.082	-0.110	0.021	0.034	0.036	0.003	0.026	0.038	1.000
17. Subsidy	0.29	1.19	0	8.75	-0.007	0.023	0.065	-0.029	-0.014	-0.021	-0.045	0.015	0.015	0.034	0.034	0.015	0.023	-0.026	0.018	0.008

[a] Significant at 0.05 level when Pearson correlations > 0.016 or < −0.016. N = 14,375 (firm-year).

Table 4
Two-stage Least Square Regression of the Behavioral Explanations on Export, Pre-WTO Period [a],[b].

VARIABLES	Model 1	Model 2	Model 3	Model 4
|Performance - aspiration < 0|	0.468***	0.441**	0.868**	0.834**
	(0.13)	(0.13)	(0.27)	(0.32)
Performance - aspiration > 0	0.364**	0.394*	0.352+	0.380
	(0.14)	(0.16)	(0.21)	(0.24)
Size * (|Performance - aspiration < 0|)		-0.098**		-0.087**
		(0.03)		(0.02)
Size * (Performance - aspiration > 0)		-0.213*		-0.260+
		(0.11)		(0.14)
SOE * (|Performance - aspiration < 0|)			-0.858**	-0.823**
			(0.27)	(0.32)
SOE * (Performance - aspiration > 0)			-0.205	-0.149
			(0.21)	(0.20)
Absorbed	0.050**	0.062***	0.073**	0.080**
	(0.02)	(0.02)	(0.02)	(0.03)
Unabsorbed	0.291	0.334	0.353	0.437
	(0.25)	(0.25)	(0.31)	(0.31)
Potential	0.081*	0.084*	0.053+	0.067+
	(0.03)	(0.04)	(0.03)	(0.04)
Firm Size	-0.861	-0.936	0.736	0.114
	(1.47)	(1.54)	(1.82)	(2.00)
SOE	0.450	-0.151	-0.349	-0.444
	(1.48)	(1.40)	(2.10)	(2.24)
Firm Age	0.001	0.007	-0.005	0.002
	(0.07)	(0.07)	(0.08)	(0.09)
Foreign Ownership	-1.277	-2.490	-6.350	-8.170
	(3.09)	(3.44)	(5.07)	(6.22)
Intangible Assets	0.020	0.017	0.041	0.038
	(0.07)	(0.07)	(0.08)	(0.08)
Innovation	-0.010	-0.002	0.014	0.026
	(0.03)	(0.03)	(0.03)	(0.03)
Subsidy	0.319	0.335	0.394	0.408
	(0.24)	(0.24)	(0.30)	(0.31)
Constant	9.341	9.477	5.224	6.982
	(7.06)	(7.48)	(9.60)	(10.49)
R-squared	0.162	0.156	0.155	0.148
Wald Chi2	55.72***	96.65***	194.23***	207.00***

[a] $N = 8037$ (firm number = 3809) in all models.

[b] Standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

Table 4 is positive and statistically significant (b = 0.364, p < 0.01), indicating that in the pre-WTO period, firms exported more as the performance improved further above the aspiration levels (i.e. when the value of *performance - aspiration > 0* was more positive). At the same time, this coefficient in Model 1 of Table 5 is again not significant (b = −0.783, n.s.). Statistical comparison of the two coefficients also showed that there was a significant difference (Chi^2 = 24.67, p < 0.001), which supported Hypothesis 2.

Hypotheses 1 and 2 were both supported, demonstrating that in the pre-WTO period, the effect of performance-aspiration level on exports follows a V-shape, as illustrated in Fig. 2. This supported a behavioral explanation that substantial differences between performance and aspiration levels would likely stimulate firms to take the risk of exporting. In contrast, the closer performance was to the aspiration level, the less likely firms would increase their exporting. However, the BTOF did not work equally in explaining firms' exporting activities in the post-WTO period.

Hypothesis 3 examined the interaction between firm size and performance-aspiration. For the pre-WTO period, in Model 2 of Table 4, the coefficient estimates on the interaction terms between firm size and both performance-aspiration levels were also statistically significant, so when firms performed *below* their aspiration levels, the coefficient on the interaction term was negative (b = −0.098, p < 0.01), indicating that larger firms exported less than smaller firms when confronted with underperformance. When firms performed *above* their aspiration levels, the coefficient of the interaction term was negative and significant (b = −0.213, p < 0.05), again indicating that larger firms exported *less* than

Table 5

Two-stage Least Square Regression of the Behavioral Explanations on Export, Post-WTO Period[a,b].

VARIABLES	Model 1	Model 2	Model 3	Model 4
|Performance - aspiration < 0|	1.166[+]	0.200	1.205[+]	0.567
	(0.71)	(0.22)	(0.71)	(0.39)
Performance - aspiration > 0	−0.783	−0.823	−0.768	−1.881
	(1.83)	(1.18)	(1.85)	(2.58)
Size * (|Performance - aspiration < 0|)		−7.754		−13.420
		(7.38)		(12.04)
Size * (Performance -aspiration > 0)		10.193		11.968
		(12.18)		(10.29)
SOE * (|Performance - aspiration < 0|)			13.319	13.908
			(10.45)	(12.92)
SOE * (Performance - aspiration > 0)			−1.094	−1.589
			(8.92)	(8.80)
Absorbed	0.004	0.001	0.004	0.003
	(0.00)	(0.00)	(0.00)	(0.00)
Unabsorbed	2.400	0.771	2.335	2.302
	(4.02)	(1.48)	(4.08)	(3.14)
Potential	0.004	0.012	0.004	0.027
	(0.01)	(0.02)	(0.01)	(0.03)
Firm Size	5.583	2.310	5.487	4.730
	(6.22)	(1.96)	(6.29)	(4.31)
SOE	−0.825	−0.656	−1.779	−2.000
	(0.64)	(0.40)	(1.24)	(2.00)
Firm Age	0.048*	0.029	0.052*	0.015
	(0.02)	(0.02)	(0.02)	(0.04)
Foreign Ownership	4.567**	1.140*	4.638**	1.944*
	(1.70)	(0.57)	(1.73)	(0.77)
Intangible Assets	−0.014	0.025	−0.019	0.044
	(0.06)	(0.04)	(0.06)	(0.08)
Innovation	0.032	0.007	0.033	0.021
	(0.02)	(0.01)	(0.02)	(0.02)
Subsidy	0.226	0.111	0.216	0.230
	(0.25)	(0.12)	(0.25)	(0.24)
Constant	−14.215	−1.586	−13.752	−9.396
	(21.46)	(5.66)	(21.70)	(12.43)
R-squared	0.015	0.007	0.015	0.006
Wald Chi2	91.84***	31.20***	95.70***	34.07***

[a] $N = 14,375$ (firm number = 4939) in all models.

[b] Standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, [+] $p < 0.1$.
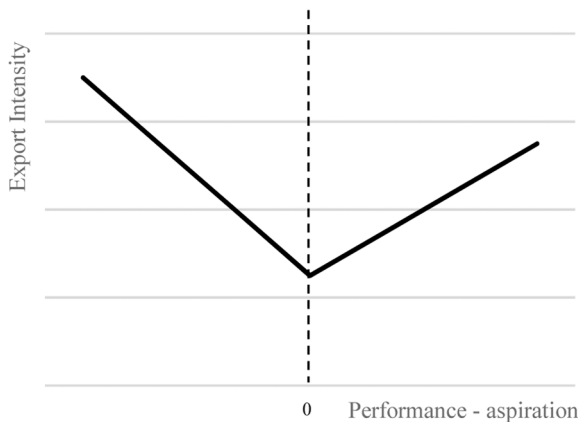

Fig. 2. Illustration of the V-shaped effects of *performance- aspiration < 0* and *performance - aspiration > 0* on export.

smaller firms when confronted with underperformance. For the post-WTO period, in Model 2 of Table 5, the interaction terms between firm size and the two performance-aspiration variables were not significant. Again, we applied the suest test to compare the coefficients in the two tables, and results showed statistically that there are substantial differences between the pre- and post-WTO periods for both moderation effects (Chi^2 = 14.14, p < 0.001; Chi^2 = 9.28, p < 0.01) Therefore, Hypothesis 3 is supported.

Model 3 in Table 4 and Table 5 presented the moderating effect of state ownership in the pre- and post-WTO periods, respectively. In Model 3 of Table 4, the interaction term between *SOE* and *|performance - aspiration < 0|* was negative and statistically significant (b = −0.858, p < 0.01), indicating that in the pre-WTO period, SOEs exported less than non-SOEs when their performance fell further below aspirations. However, the interaction term between *SOE* and *performance - aspiration > 0* was not statistically significant (b = −0.205, n.s.), indicating that in the pre-WTO period, SOEs did not differ from non-SOEs in their slack search when their performance rose higher than aspirations. In Model 3 of Table 5, the interaction terms between SOE and the two performance-aspiration variables were not statistically significant. For the interaction term of SOE and *|performance - aspiration < 0|*, the suest comparison result showed that there was a statistical difference between the pre- and post-WTO periods (Chi^2 = 19.47, p < 0.001). However, for the interaction term of SOE and *performance - aspiration > 0*, the suest comparison only provided weak support (Chi^2 = 6.46, p < 0.05). Therefore, Hypothesis 4 received partial support.

We further use Figs. 3 and 4 to illustrate the interaction effects of firm size and SOE in the pre-WTO periods. In Fig. 3, we split our pre-WTO sample into two groups using the median of firm size to better visually illustrate our findings. It is obvious that firm size has a weakening moderation effect on both *|performance - aspiration < 0|* and *performance - aspiration > 0* in the pre-WTO period, as H3 predicted. In Fig. 4, we split our pre-WTO sample into two sub-groups of SOEs and non-SOEs. As argued in H4, Fig. 4 indicates that state ownership has a weakening moderation effect on both *|performance - aspiration < 0|* and *performance - aspiration > 0*.

5.2. Post-WTO period

Table 6 and Table 7 report the 2SLS regression results for the resource-based explanations in the pre- vs. post-WTO periods, respectively. In both tables, Model 1 presents the 2SLS estimates regressing *export* on *performance (ROS)*. Model 2 reports the results regressing *export* on *firm size*, and Model 3 regresses *export* on *SOE*.

In Model 1 of Table 6, *ROS* showed no significant impact on *export* (b = 0.250, n.s.). In comparison, Model 1 of Table 7 demonstrated that *ROS* had a positive and statistically significant impact on *export* (b = 0.693, p < 0.01). A subsequent suest comparison showed that there was a significant difference between the above two coefficients (Chi^2 = 8.86, p < 0.01), which supported Hypothesis 5.

Similarly, in Model 2, the coefficient on *firm size* was not significant in Table 6 (b = 1.425, n.s.) but was positive and statistically significant in Table 7 (b = 1.997, p < 0.001). We then again did a subsequent suest test and the result showed that the two coefficients were statistically different (Chi^2 = 9.03, p < 0.01), showing support for Hypothesis 6.

In Model 3 of Table 6, the coefficient on SOE was not significant (b = 0.085, n.s.), while that in Model 3 of Table 7 was marginally significant (b = 0.528, p < 0.10). The following suest test did not confirm a significant difference between the two coefficients (Chi^2 = 1.36, n.s.). Thus, Hypothesis 7 was not supported.

Therefore, our results provided strong support for Hypotheses 5 and 6 that the Resource-based View can explain firms' exporting activities in the post-WTO but not the pre-WTO period.

6. Additional analysis and robustness checks

6.1. Alternative estimation models

Considering that the dependent variable, export intensity, ranges from 0 to 100, a Tobit model for panel data may be a better choice for our second-stage regression analysis. To test whether using 2SLS introduced significant bias, we also manually ran a two-stage model employing xttobit regression in the second stage. The results are highly consistent with our main and moderation effects. We report our initial
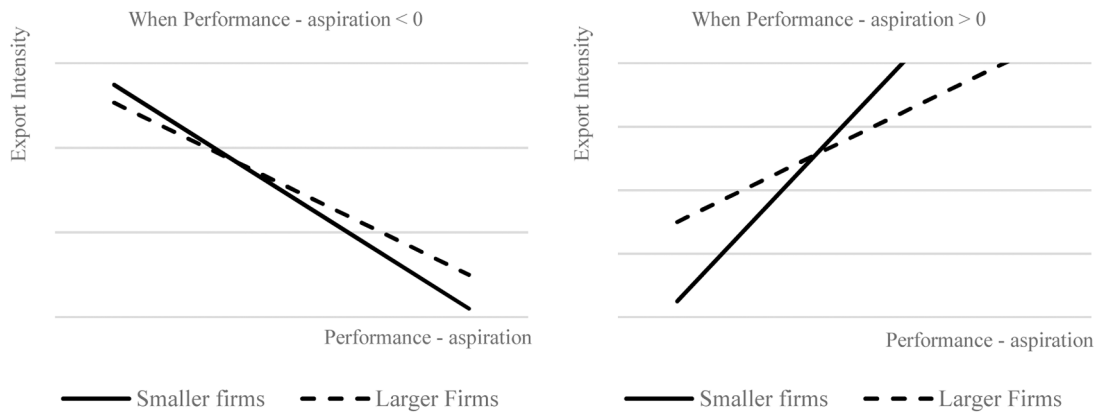
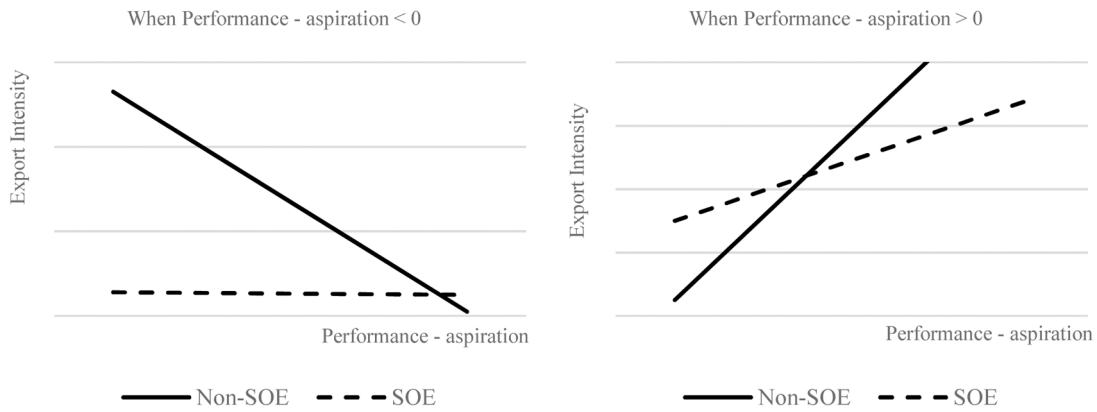**Fig. 3.** Illustration of the moderation effects of firm size.

Fig. 4. Illustration of the moderation effects of SOE.

Table 6
Two-stage Least Square Regression of the Resource Explanations on Export, Pre-WTO Period[a,b].

VARIABLES	Model 1	Model 2	Model 3
Performance (ROS)	0.250	0.313[+]	0.514[+]
	(0.19)	(0.17)	(0.22)
Firm Size		1.425	2.360
		(1.45)	(1.67)
SOE			0.085
			(0.78)
Firm Age	0.048	0.042	0.033
	(0.03)	(0.03)	(0.03)
Foreign Ownership	0.483	0.773	1.697
	(1.28)	(1.10)	(1.32)
Intangible Assets	0.024	0.001	0.002
	(0.02)	(0.03)	(0.03)
Innovation	0.046**	0.044**	0.046**
	(0.01)	(0.01)	(0.02)
Subsidy	0.027	0.024	0.024
	(0.10)	(0.09)	(0.11)
Constant	9.202***	15.261*	19.425*
	(1.12)	(6.76)	(7.54)
R-squared	0.002	0.002	0.002
Wald Chi2	15.67*	19.34**	22.66**

[a] $N = 8037$ (firm number = 3809) in all models.
[b] Standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, [+] $p < 0.1$.

Table 7
Two-stage Least Square Regression of the Resource Explanations on Export, Post-WTO Period[a,b].

VARIABLES	Model 1	Model 2	Model 3
Performance (ROS)	0.693**	0.385**	0.412**
	(0.25)	(0.14)	(0.14)
Firm Size		1.997***	2.074***
		(0.57)	(0.59)
SOE			0.528[+]
			(0.31)
Firm Age	0.033[+]	0.030*	0.032*
	(0.02)	(0.02)	(0.02)
Foreign Ownership	2.884***	2.215***	2.286***
	(0.77)	(0.57)	(0.58)
Intangible Assets	−0.022	−0.012	−0.013
	(0.02)	(0.01)	(0.01)
Innovation	0.013	0.007	0.008
	(0.01)	(0.01)	(0.01)
Subsidy	−0.008	0.002	0.001
	(0.04)	(0.03)	(0.03)
Constant	6.273***	−3.022	−3.260
	(0.69)	(2.57)	(2.63)
R-squared	0.098	0.127	0.127
Wald Chi2	90.13***	101.94***	101.22***

[a] $N = 14,375$ (firm number = 4939) in all models.
[b] Standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, [+] $p < 0.1$.

2SLS results instead of the manual two-step xttobit analysis results because there have been concerns that manually splitting 2SLS into two steps might introduce certain biases (Wooldridge, 2015).

6.2. Alternative measure of exports and performance

We further replicated Tables 4–7 by employing an alternative measurement of the dependent variable. We replicated our analysis by using

a dummy export variable denoting whether firms choose to export as an alternative measure of export intensity. Consistent with the earlier results, we found support for the behavioral explanation for the pre-WTO period but not the post-WTO period, that firms in pre-WTO China considered exporting as either problemistic search or slack search. In this period, large company size and state ownership weakened the search behaviors, which is consistent with our results in Table 4. For the post-WTO period, hypotheses developed from the Resource-based View displayed a strong explanatory power that larger and better-performing firms and SOEs were more likely to export than other firms, which was also consistent with our results in Table 7.

Additionally, the main analyses were replicated by using an alternative measurement of performance, as there may be potential spurious statistical bias in the regression models. We used total sales both in measuring the dependent variable (i.e., export intensity) and calculating the two independent variables (i.e., performance -aspiration differences). This may result in a spurious statistical correlation between the independent and dependent variables. To check the robustness of our models, we used return-on-asset (ROA) as an alternative measure of financial performance in calculating the independent variables. The results are highly consistent with those in Tables 4–7.

6.3. Alternative post-WTO period

As we used four-year data in the pre-WTO period and five-year data in the post-WTO period, one may argue that there are potential biases because of the unbalanced time ranges. In order to exclude any potential bias, we replicate our main analyses for the post-WTO period by using data from 2002 to 2006.[4] The results are consistent with those in our main analyses.

7. Discussion

This study has examined and compared factors impacting Chinese firms' motives to export in China's pre-WTO period using the BTOF (Bingham & Eisenhardt, 2011; Cyert & March, 1963) and in the post-WTO period using the Resource-based View (Barney, 1991). A key finding is that firms differed significantly in their propensity toward exporting before as opposed to after China's accession to the WTO, based on the changing trade and institutional environment initiated by the WTO.

In the pre-WTO period in China, exports were generally considered to be higher risk-seeking behaviors due to high trade barriers, information asymmetries, and numerous idiosyncrasies present in dealing with multiple overseas markets, as well as the limited experience of many exporters from the pharmaceutical sector studied here (Lardy, 2014; Tian, 2022). The pharmaceutical firms' exports were mainly driven by the behavioral incentives of problemistic search when their performance fell far below aspiration levels, and in turn, driven by slack search when performance rose far above aspirations. Both problemistic and slack search were moderated by organizational inertia, as proxied by firm size and state ownership, such that larger firms and SOEs were less likely to export than other firms, both in problemistic and slack search. We also tested for alternative RBV arguments, but the results did not show support, implying that the RBV has limited explanatory power in the pre-WTO context compared to behavioral theory factors (Cyert & March, 1963).

After China's accession to the WTO, trade barriers were significantly reduced, and institutional and policy changes further encouraged firms to stop perceiving exports as highly risky and pursue them more (Pan, 2013). Therefore, in the post-WTO period, export behaviors were more driven by the possession and further acquisition of firm resources rather

than behavioral reasons. The results also showed that larger firms, SOEs, and firms with better financial performance exported more than did smaller firms, non-SOEs, and firms with poorer financial performance.

It may also be asked how long it requires a major policy change such as WTO accession to show a real impact on local firm exports. In China's case, the accession to WTO in 2001 was the culmination of a lengthy process of negotiations stretching back to the late 1980s. As this required some significant changes to China's commercial law and economy, some firms had been long preparing for this change (Ahlstrom et al., 2003; Peng et al., 2017). That is why, for example, there was a relatively fast increase in both outward and inward FDI as well as healthy increases in exports by Chinese firms in the years immediately after China's WTO accession (China Statistics Bureau, 2023). These moves had been in the planning stages for years; in China, some firms had been contracting with international representatives and giving training (often in both English and Spanish, for example) to sales and support staff, and were thus ready to move with the new laws and the government support that emerged at the start of China's entry to WTO (Ahlstrom & Bruton, 2010; Bown & Crowley, 2010; China Statistics Bureau, 2023). Other firms started to export or exported more later after they confirmed the lowered risks with exporting.

7.1. Contributions

This study contributes to the theories by clarifying that there are different explanations for firms' exporting behavior, particularly under disparate conditions. The present research focused on the contexts of pre- and post-WTO China and the varied impetus for Chinese firms to export. The results specifically showed that in the pre-WTO context, firm exports were linked to behavioral factors at the firm level, as illustrated in the BTOF, as both under- and over-performing firms tended to export more, spurred on by problemistic search, and slack search, respectively. This complements prior work that used a Resource-based View primarily to explain exporting, and thus could only provide limited resource-seeking explanations for exporting, particularly in contexts such as the pre-WTO context (Wang & Ma, 2018; Zou et al., 2003). By showing the importance of behavioral theory aspects such as risk, goal formation and aspiration levels under conditions of a restrictive and a less predictable business environment, the addition of BTOF to the resource-based approach contributes to both theories by better specifying their application and augmenting the answer to a key question in international business as to what causes some firms to export much more than others.

In addition, this paper also responds to the call issued by researchers for more integration between the resource-based behavioral theory view with respect to major decisions (Cyert & March, 1963; Bjørnskov & Foss, 2016). By utilizing behavioral factors in well-grounded organizational situations along with the Resource-based View, this study provides a more fine-grained analysis of major firm decisions such as firm exporting. These results also contribute to theory in identifying key factors and conditions impacting major firm decisions, which go beyond basic resource explanations (Latapí Agudelo et al., 2019; McCloskey, 2006; Meyer et al., 2009; Surdu et al., 2021).

Second, as a supplement to previous research conducted at a more macro level, the current study focuses on the company level of analysis to explain how exports were promoted by changed incentives for exporting after China's accession to the WTO. This contribution helps answer the call to study decisions and their execution at companies' higher and more fine-grained levels (de Oliveira et al., 2019; Rumelt, 2022; Thys et al., 2023). The research findings may, at the same time, shed further light on the impact of the recent rise in economic nationalism (Ghauri et al., 2021) along with the possible positive impact that subsequent successful trade negotiations can have on enhancing firm export behaviours, as seen with the WTO agreement and related arrangements regional trade agreements (Rodrik, 2017).

Third, this study provides an additional explanation for the firm's internationalization process. As originally proposed in the Uppsala

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[4] Observations for the year 2004 are removed from the sample because export data are missing for this year.

model (Johanson & Vahlne, 1977, 1990; Johanson & Wiedersheim-Paul, 1975), firms are typically assumed to follow specific steps in their internationalization process. However, a question that has largely been neglected is why and when firms progress from one step to another toward preparing and more aggressively seeking internationalization activities. Indeed, as noted, several factors impact firm internationalization, from the presence of slack resources at the firm level to formal and informal institutional factors at the country level, and even non-ergodic events reverberating across borders (Hitt et al., 2021; Li et al., 2021). By answering the questions of why, when, and to what extent, this study utilizes but then goes beyond basic stage models in explaining the varied motivating factors behind firms' pursuit of internationalization under varying and challenging conditions.

This study also contributes to the BTOF regarding the definition and calculation of aspiration levels. By combining behavioral factors with organizational inertia, this paper has found that these factors work together as managers employ or develop basic heuristics to handle the newer, often riskier situation of expanding exports. By showing that firm size and state ownership (as indicators of organizational inertia) can moderate the relationship between performance-aspiration level and exports, this work contributes by demonstrating that organizational factors can influence the link between performance-aspiration level and risk-taking behaviors. This further implies that organizational inertia is an important factor regarding the social aspirations of firms. Social aspirations are not only based on industry segments but also the key inertia elements such as firm size and ownership type.

There are also helpful empirical contributions that emerged. One is that the main effect of firm size on exporting proved positive and statistically significant in the post-WTO period but not significant in the pre-WTO period. Contrary to previous work which argues that larger and more productive firms tended to export more (Bernard & Jensen, 2004; Helpman, 2006), the current study demonstrates that this may not be true in contexts with high trade barriers where exporting can be perceived as problematic and risky. A related empirical contribution is the identification of moderating effects of firm size in the pre-WTO period, indicating that compared to larger firms, smaller firms are more inclined to consider exporting as a choice of slack search than as problemistic search, which also contrasts with previous work that assumes the larger firms and firms with more resources will export more.

Regarding the moderating effect of state ownership, this study contributes empirically in showing that this effect is stronger for problemistic search than for slack search. This indicates that when their performance falls below aspiration levels, non-SOEs are more likely to export than SOEs. However, this difference between SOEs and non-SOEs disappears when firms' performances rise above aspiration levels. This finding implies that whereas non-SOEs are more likely to export as both problemistic search and slack search, SOEs tend only to consider exporting when they perform significantly better than expected. This aligns with recommendations from research in a number of Asian economies, where weaker-positioned or firms with lower market share would tend to be more aggressive in their exports and other internationalization activities, and would generally perform better in doing so (Ito & Pucik, 1993; Keskin et al., 2021; Peacock et al., 2015).

7.2. Practical implications

This study also carries practical implications for firm export behavior, and global supply chains (Gereffi & Lee, 2012). It suggests insights into the development and application of multilateral trade agreements, particularly pertinent given the resurgence of economic nationalism (Ghauri et al., 2021). Traditionally, firms were presumed to export and internationalize when equipped with sufficient resources and supports (Dhanaraj & Beamish, 2003; Todo et al., 2014). Yet our findings suggest that firms lacking those advantages can still expand internationally through exporting under conditions of trade barriers and other limitations. This aligns with research from other parts of Asia, such

as studies on the internationalization choices of second-tier firms and in the services industry in Japan (Asakawa et al., 2013; Ito & Pucik, 1993). Even in riskier contexts with significant trade restrictions, smaller, underperforming firms in Japan managed to export despite some, like Honda, being discouraged by their government from doing so. Our study suggests that firms do not need to be market leaders or particularly resource-rich to export; smaller firms with fewer resources can also seek to export under conditions of trade restrictions. They should thus remain open to this option and plan for the necessary capabilities to conduct business across borders as opportunities arise (Asakawa et al., 2013; Hastings, 1999; Carney et al., 2016).

Implications for practice also emerge from a confirmation that when international expansion is considered less risky, such as in the presence of trade agreements, better-performing, larger, and/or state-owned firms will export more than others. This aligns with our findings, and other research, underscoring the policy implications of multilateral trade agreements in significantly promoting exports by reducing the risks associated with trade barriers (Bagwell & Staiger, 2010, 2012). Similarly, our study suggests that the recent resurgence of economic nationalism, by erecting new trade barriers and risks, could discourage exports globally and contribute to a form of "de-globalization" (Petricevic & Teece, 2019; Witt, 2019). In this situation, fewer firms would engage in exporting, leading to reduced efficiencies gained from trade and diminished benefits from technology transfer and effective organizational routines (Landes, 1998; Tomizawa et al., 2020). Policymakers should recognize the benefits of multilateral trade agreements and ensure the enforcement of their provisions, particularly regarding intellectual property protection and the removal of hidden trade impediments as well as major barriers (Bown & Reynolds, 2017; Gasiorek et al., 2019; Wolla & Esenther, 2017).

7.3. Limitations and future research

This study carries certain limitations that suggest directions for future research. First, the sample is confined to a single large industry in a single country, precluding the analysis of industry and country effects on exports although studies have identified them as two important factors (Ethier, 1982; Helpman, 1981; Helpman & Krugman, 1985; Krugman, 1980, 2008).

Second, the duration of the pre-WTO period is relatively short. Future studies may explore longer periods and include samples from multiple industries and countries to examine whether they yield consistent results. Additionally, investigating other major institutional changes beyond formal trade agreements could provide insight into whether the behavioral theory explains export choices, as observed in the Chinese context studied here.

Third, organizational inertia was measured using firm size to test Hypotheses 3 and 4 in the BTOF arguments, and the same measurement was employed as an independent variable in Hypothesis 5 to test the RBV arguments. Although firm size is commonly used as a proxy for organizational inertia in risky decision-making of the firm (e.g., Christensen & Raynor, 2013; Kelly & Amburgey, 1991; Hannan & Freeman, 1984) and as a measurement for resources in less risky decisions (e.g., Dhanaraj & Beamish, 2003; Haveman, 1993; Park & Luo, 2001), this approach may bring biases to the interpretation of the corresponding empirical results. Moreover, although two-stage least-square estimations were deemed most appropriate for this study, there is a possibility of potential bias, given that the dependent variable of the second-stage models is censored. The results should be interpreted with caution, despite supplementary analyses using alternative estimation models.

Finally, as noted above, it turned out that larger firms and/or more productive firms did not export more under conditions of higher trade barriers, where exporting can be perceived as problematic. This suggests that large firms may choose other international expansion options than exporting in the context of trade barriers. For example, when Japanese auto firms were faced with increased trade barriers and other anti-trade

sentiments in the US, they made major commitments to FDI into depressed regions of the US and opened auto factory complexes in poorer southern states such as Mississippi and helped those economies. Subsequent research suggested that the Japanese auto firms' market share of US auto sales actually rose in the face of trade barriers that were intended to give some reprieve to US auto companies (Sturgeon et al., 2008; Tasker, 2018). Future research in IB could examine different types of foreign expansion modes for firms under different environmental conditions and their effect on firm performance, supply chains, internationalization, outsourcing, and regional economies (Moran, 2011; Sturgeon et al., 2008). Additionally, future studies could also further examine SOEs' propensity to export under different conditions and in different countries and the performance implications (Bruton et al., 2015).

8. Conclusion

This study has sought to assess how the behavioral theory of the firm (Cyert & March, 1963) and the resource-based view (Barney, 1991) help explain the distinctive incentives influencing Chinese pharmaceutical firms' export in the pre- and post-WTO contexts. In the pre-WTO period, this paper found support for the behavioral perspective in that firms exported more as both problemistic search and slack search, especially for smaller firms and non-state enterprises. For the post-WTO period, support was found for the resource-based explanation that better-performing firms, larger firms, and state-owned firms export more than other firms. Thus, if this paper were to provide one main message, it would be the profound impact that institutions and environments have on firms' rationale for engaging in exporting activities. The fostering of changes in the external environment to diminish trade barriers, improve multilateral trade agreements (such as those embodied in the WTO), and encourage regulatory cooperation and dispute adjudication, can encourage further exporting and internationalization efforts by firms (Acemoglu & Robinson, 2012; Peng, 2003). This emboldens firms to employ their resources to export and make subsequent international commitments (Bagwell & Staiger, 2012), which in turn encourages increased technology transfer and the transmission of positive institutions across borders further facilitating productive investment and commercial activity (Moran, 2011; Tomizawa et al., 2020).

Appendix A. : First Stage Regression Results on Performance-aspiration Variables, Pre-WTO Period[ab]

VARIABLES	$|Performance - aspiration < 0|$	$Performance - aspiration > 0$
FDI	−0.038***	0.045***
	(0.01)	(0.01)
Knowledge Transfer	−0.011	0.016**
	(0.01)	(0.01)
Patent	0.004	0.021***
	(0.01)	(0.01)
Hospital Beds	−0.004	0.021**
	(0.01)	(0.01)
Absorbed	−0.191***	0.039*
	(0.03)	(0.02)
Unabsorbed	−3.75E−4	0.011***
	(4.29E−3)	(2.63E−3)
Potential	−0.205***	0.031[+]
	(0.03)	(0.02)
Firm Size	−0.045**	0.019*
	(0.01)	(0.01)
SOE	−0.083***	0.022*
	(0.02)	(0.01)
Firm Age	−1.585E−4	0.002***
	(6.89E−4)	(4.31E−4)
Foreign Ownership	1.53E−7	1.56E−7
	(5.21E−7)	(3.15E−7)
Intangible Assets	−0.121	−0.041
	(0.10)	(0.06)
Innovation	0.017	0.045[+]
	(0.04)	(0.02)
Subsidy	−0.267	−0.301
	(0.40)	(0.24)
Constant	−0.140	0.370***
	(0.11)	(0.07)
R-squared	0.148	0.125
Wald Chi2	236.10***	154.02***

[a] $N = 8037$ (firm number = 3809) in all models.
[b] Standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, [+] $p < 0.1$.

Appendix B. : First Stage Regression Results on Performance-aspiration variables, Post-WTO Period[ab]

VARIABLES	$|Performance - aspiration < 0|$	$Performance - aspiration > 0$
FDI	−0.003**	0.002*
	(1.49E−3)	(9.60E−3)
Knowledge Transfer	−0.001[+]	−1.037E−4
	(1.05E−3)	(6.91E−4)
Patent	−0.002*	0.003**
	(1.19E−3)	(7.65E−4)

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(*continued*)

VARIABLES	$|Performance - aspiration < 0|$	$Performance - aspiration > 0$
Hospital Beds	0.002[+]	0.002[+]
	(1.53E−3)	(9.79E−4)
Absorbed	−0.002***	2.47E−4***
	(4.72E−5)	(3.12E−5)
Unabsorbed	−0.013***	0.021***
	(1.39E−3)	(9.30E−4)
Potential	−0.012***	−3.129E−4
	(2.33E−3)	(1.56E−3)
Firm Size	−0.019***	0.026***
	(1.86E−3)	(1.20E−3)
SOE	−2.123E−4**	1.618E−4**
	(8.22E−5)	(5.39E−5)
Firm Age	0.005*	0.002
	(2.13E−3)	(1.43E−3)
Foreign Ownership	0.003	0.010***
	(3.08E−3)	(2.03E−3)
Intangible Assets	0.039***	0.037***
	(0.01)	(0.01)
Innovation	−0.012**	0.002
	(4.07E−3)	(2.75E−3)
Subsidy	−0.076**	0.099***
	(0.02)	(0.02)
Constant	0.052***	−0.087***
	(0.01)	(0.01)
R-squared	0.174	0.125
Wald Chi2	3002.38***	1335.47***

[a] $N = 14,375$ (firm number = 4939) in all models.

[b] Standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, [+] $p < 0.1$.

Data Availability

The authors do not have permission to share data.

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