Performance feedback and export intensity of Chinese private firms: Moderating roles of institution-related factors

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Abstract

Building on the behavioral theory of the firm and institutional view, we examine how performance feedback (i.e., a focal firm's performance relative to its industry peers) affects export intensity and how institution-related factors moderate this relationship. Using a sample of Chinese private manufacturing firms, we find that positive performance feedback lowers export intensity while the relationship between negative performance feedback and export intensity is insignificant. Moreover, outperforming firms are likely to decrease their export intensity even more when they are located in regions of better institutional development or have political connections. Underperforming firms with political connections tend to increase their export intensity. These findings enrich our understanding of the export behavior of emerging market firms.

1. Introduction

As "the world's factory," China's manufacturing sector contributed approximately one-third of global value added and 12% of the world's trade volume in 2019.[1] China's rapid economic growth and its significant role in world trade has been accompanied by the rise of private firms (i.e., enterprises whose largest shareholders are individuals or private organizations) (Li et al., 2017; Zhou et al., 2017). Despite their institutional disadvantages compared with state-owned enterprises (SOEs), private firms have not only competed fiercely for domestic market share but have also striven to build strong international footholds (Deng & Zhang, 2018). On average, private firms' exporting has risen steadily, surpassing that of SOEs in recent years.[2]

Compared with domestic businesses, exporting in general is riskier. Because exporting involves selling products abroad through foreign distribution networks, exporters face uncertainties resulting from longer trading times (Nguyen & Almodóvar, 2018), volatile exchange rates (Dennis & Shepherd, 2011; Martínez-Zarzoso & Johannsen, 2017), and external shocks (e.g., COVID-19). Further, due to differences in languages, institutions, and cultures between host and home countries, exporting incurs additional costs in terms of documentation, customs charges, and communication when transacting with foreign partners (Agnihotri & Bhattacharya, 2015; Nguyen & Almodóvar, 2018).

To understand the export behavior of Chinese firms, prior research has examined its drivers from different perspectives, such as firm competencies from the resource-based view (RBV) (Krammer et al., 2018; Yi et al., 2013), market competition from the industry-based view (Zhao & Zou, 2002), and legal development from the institution-based view (Gao et al., 2010;

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[1] Source: Ministry of Industry and Information Technology of the People's Republic of China; World Trade Organization.
[2] Source: National Bureau of Statistics of China.

Krammer et al., 2018). However, most studies have overlooked an important factor in risky decision-making: performance feedback. According to the behavioral theory of the firm (BTOF)—an influential perspective on risky firm decision-making—managers' motivations to engage in risk-taking behaviors are dependent on the performance of firms relative to their aspiration levels (Cyert & March, 1963). When performance falls below aspirational levels, managers start to seek solutions to the problem and become increasingly risk prone (Gavetti et al., 2012). In the BTOF literature, the widely used type of aspiration is reflected by comparisons with industry peers (e.g., Chen, 2008; Lin, 2014). Accordingly, *performance feedback* refers to the discrepancy between a focal firm's performance and industry average performance (Gavetti et al., 2012). Prior studies have demonstrated that negative performance feedback fosters risk-taking behaviors, such as organizational change (Greve, 1998), acquisition (Kuusela et al., 2017; Iyer & Miller, 2008), R&D (Chen, 2008), and bribery (Xu et al., 2019). Given the riskiness of overseas businesses, performance feedback may serve as a critical determinant that drives managers' decisions on export. In this study, we examine how performance feedback affects *export intensity*, defined as overseas sales of total sales, which reflects a firm's relative strategic focus on export (Agnihotri & Bhattacharya, 2015; Gao et al., 2010; Lee & Weng, 2013).

Furthermore, recent BTOF-based literature emphasizes that when using performance feedback to explain firms' risk-taking behavior, it is necessary to consider the contingencies of surrounding contexts (Rhee et al., 2019; Xu et al., 2019). Contextual factors influence managers' assessments of performance feedback and the selection of solutions (Audia & Greve, 2006; Vissa et al., 2010). In emerging markets such as China, the most salient context is institutional characteristics (Peng, 2003; Peng et al., 2008). Hence, we focus on *institutional development*, defined as the extent to which market-based fundamentals and legal systems support economic

activities at the regional level (Zhou et al., 2017), and *political connections*, defined as firm

executives' boundary-spanning activities and interactions with government officials (Peng &

Luo, 2000). Because both factors could affect managers' cognition of performance and risk, they

likely moderate the relationship between performance feedback and risk-taking behaviors.

Nevertheless, how these institution-related factors affect the impact of performance feedback on

export has received scant attention.

To address these gaps, we build on the BTOF and institutional view to assess two research

questions: (1) How does performance feedback influence Chinese private firms' export intensity?

(2) How do institution-related factors (i.e., institutional development and political connections)

moderate the above relationship?

We hypothesize that negative performance feedback increases export intensity, whereas

positive performance feedback lowers export intensity. We further propose that institutional

development and political connections positively moderate the relationship between negative

performance feedback and export intensity, but negatively moderate the impact of positive

performance feedback on export intensity.

Our empirical sample consists of 1,156 Chinese listed private manufacturing firms between

2008 and 2017. The results show that positive performance feedback is negatively associated

with export intensity, and such negative relationships are more salient at high levels of

institutional development and for firms with political connections. However, the relationship

between negative performance feedback and export intensity is not significant, and the

relationship turns positive only when firms have political connections.

Our study makes two contributions. First, it contributes to the export literature by

introducing performance feedback as an additional driver of the export behavior of emerging

market firms. This behavioral perspective adds to prior research that relies mainly on the RBV, industry-based view, and institutional view to identify the antecedents of exporting (Gao et al., 2010; Krammer et al., 2018). Insights from the BTOF partly reflect the different impacts of managers' expectations, which contributes to our understanding of why firms' export behaviors are heterogeneous, given similar resources and environmental conditions (Surdu et al., 2020).

Second, we enrich the BTOF literature by identifying export as a new risk-taking behavior and revealing the contingent roles of institutional contexts. Previous BTOF-based studies have mainly discussed risky behaviors, such as organizational change, R&D, acquisition, and bribery, as well as the contingent roles of CEO or firm characteristics (e.g., Audia & Greve, 2006; Blagoeva et al., 2020; Chen, 2008; Greve, 1998). In extending prior work, we respond to the call to examine the boundary conditions of institutional elements in the relationship between performance feedback and private firms' export intensity.

2. Theory and literature review

2.1. Export of emerging market firms

Compared with other foreign market entry modes, such as international joint venture, merger and acquisition, and greenfield investment, exporting is the quickest way for firms to expand overseas (Agnihotri & Bhattacharya, 2015; Gao et al., 2010). However, compared with domestic businesses, international expansion often entails higher transaction costs and uncertainties, which hold back a firm's decision to export (Agnihotri & Bhattacharya, 2015; Nguyen & Almodóvar, 2018).

Recent review papers point out that previous studies mainly use the RBV and institutional theory to explain the determinants of export behaviors (Chen et al., 2016; İpek & Bıçakcıoğlu-Peynirci, 2020; Kahiya, 2018). Based on the RBV, researchers find that firms are likely to

increase export when they develop capabilities that can address the risks of exporting (e.g., Gao et al., 2010; Kim & Hemmert, 2016; Krammer et al., 2018). From an institutional perspective, some suggest that the development of home country institutions increases firm efficiencies and thereby facilitates their exporting (Gao et al., 2010). Others argue that improved local institutions, such as economic freedom and preferential treatment, may increase the comparative riskiness of overseas expansion, and thereby reduce firms' willingness to export (Estrin et al. 2008; Lee & Weng, 2013; Zhou and Zou, 2002). In addition, several studies have identified the antecedents of firm export behaviors using the upper echelon theory (Agnihotri & Bhattacharya, 2015) and agency perspective (Lu et al., 2009). Despite these rich insights, prior research has largely neglected the drivers of firm export from a behavioral perspective (Cyert & March, 1963; Gavetti et al., 2012; Niittymies & Pajunen, 2019).

2.2. Behavioral theory of the firm and export

The BTOF posits that a manager's motivation to assume risk is triggered by performance feedback—i.e., the difference between actual performance and the selected aspiration level (Cyert & March, 1963). Firms can evaluate performance relative to their own past performance (i.e., historical aspirations) or peer performance (i.e., social aspirations) (Greve, 2003b). In this study, we focus on social aspiration, which leaves less room for managers' self-enhancing justifications for poor performance relative to historical aspirations (Chen, 2008; Tarakci et al., 2018). Moreover, discontinuous and inevitable environmental changes reduce the comparability between current and past performance, and thus render historical aspirations less effective (Chen, 2008; Greve, 2003b). Accordingly, when performance rises above the industry average, managers receive positive performance feedback; otherwise, they face negative performance feedback.

Generally, negative performance feedback shifts managers' attention to problems and makes them more risk prone (Gavetti et al., 2012). However, previous research fails to reach a consensus regarding the effects of positive performance feedback on risky behaviors. Some studies argue that satisfactory performance leads to managers' being content with current strategies, which results in organizational inertia and risk aversion (Greve, 1998). Others contend that positive performance feedback attracts resources that allow firms to engage in risk-taking and aspirational practices (Xu et al., 2019).

Several studies have used the BTOF to explain emerging market firms' internationalization. Specifically, Lin (2014) finds that larger performance shortfalls lead to faster, wider, and more irregular internationalization of Taiwanese public firms. Xie et al. (2019) show that both positive and negative performance feedback increase Chinese listed firms' subsequent outward foreign direct investment (OFDI). However, these findings may not directly apply to exporting, because exporting has a market-seeking motive, while other forms of internationalization may also aim to gain strategic assets (Agnihotri & Bhattacharya, 2015; Lyon & Ferrier, 2002). Hence, given the riskiness of exporting compared with domestic business, we seek to link performance feedback to Chinese private manufacturing firms' export behavior.

2.3. Institutional contingencies

Research based on the BTOF highlights the need to consider surrounding environments as the boundary conditions that affect the impact of performance feedback on risk-taking behaviors (Audia & Greve, 2006; Rhee et al., 2019). As the most salient environmental factor in China, institutions largely shift a manager's cognition of performance and evaluation of risk toward certain behaviors (Gao et al., 2010; Iriyama, et al., 2016). For example, Xu et al. (2019) find that the development of legal institutions affects managers' risk perception of R&D and bribery, and

thus moderates the relationship between performance feedback and those risk-taking actions. Given that institutions significantly affect how managers view firm performance and the expected risk in international business, we consider the contingent role of institutional factors in the effect of performance feedback on export.

In the export literature, increasing research has examined the moderating role of institutions by showing how institutional elements complement other theories in explaining firm export intensity (see Table 1). For instance, by adding institutional arguments to the RBV perspective, prior research has shown that institutional features influence firms' willingness and ability to commit resources to exporting, and thereby affect the relationship between resources and export intensity (Manolopoulos et al., 2018; Yi et al., 2013). Some studies have incorporated institutional factors in resource dependence theory and agency theory to show that institutions indirectly affect export behaviors through their interplay with firm governance and ownership, respectively (Lu et al., 2009; Wu & Zhao, 2015). In their review of the literature, Chen et al. (2016) and İpek and Bıçakcıoğlu-Peynirci (2020) call for research on the moderating role of institutional factors in this research field.

Extending this stream of work, we argue that institution-related factors moderate the link between performance feedback and export intensity by influencing a manager's awareness of performance and risk perception toward exporting. On the one hand, institutional development reflects different levels of institutional transitions across regions, which affect the degree of pressure managers associate with performance decline (Huang & Li, 2019; Zhou et al., 2017). Also, the local institutional environment influences managers' risk perceptions of export versus domestic business (Estrin et al., 2008). By influencing managers' perceived pressures from performance feedback and risk perceptions of export, institutional development may alter the

performance feedback-export relationship.

On the other hand, although firms cannot change the surrounding institutional environment, they can forge political connections with government officials to obtain institutional privileges (Cheng et al., 2017; Haveman et al., 2016). Such political connections create dependence and exposure to government scrutiny, and thus politically connected firms are subject to government demands regarding performance (Haveman et al., 2016; Okhmatovskiy, 2010). Hence, political connections, functioning as an important moderator, may influence managers' attitudes regarding performance and thereby alter the impact of performance feedback on risky actions. Figure 1 depicts our conceptual model.

*** Insert Table 1 and Figure 1 here ***

3. **Hypotheses**

3.1. Performance feedback and export intensity

According to the BTOF, when performance falls below the aspiration level, the firm undertakes problemistic search in order to restore aspriation (Cyert & March, 1963). Large performance deficits lead to high pressure to achieve aspiration levels and encourage risk-taking (Audia & Greve, 2006). Based on this logic, we propose that the firm's export intensity increases in the face of negative performance feedback.

First, when performance falls, managers feel great pressure to seek strategic actions that may restore aspiration levels in a relatively short term (Greve, 2003a). Of various options, such as investing in R&D and acquisition (Chen, 2008; Iyer & Miller, 2008), shifting the strategic focus between foreign and local by expanding foreign sales (i.e., export intensity) is a particularly effective solution (Lin, 2014; Surdu et al., 2020). Compared with R&D and acquisition, which require significant investment and are time consuming, exporting can directly

increase sales and reduce marginal production costs (Vissa et al., 2010). Firms can increase export intensity by expanding sales in existing foreign markets and/or accesing new ones. Although exporting incurs additional costs and uncertainties compared with domestic business transactions, it enables market opportunities not available in the home country (Agnihotri & Bhattacharya, 2015; Lisboa et al., 2013). Given that exporting can assist in improving performance, underperforming firms may seek to increase export intensity.

More importantly, negative performance feedback increases managers' motivation to take risks, which allows for risky and aggressive strategic initiatives (Cyert & March, 1963) such as increasing export intensity. Although overseas operations entail higher costs and uncertainties compared with domestic ones, performance below aspiration levels increases managers' risk tolerance (Xie et al., 2019). Managers tend to focus more on the benefits of exporting than the potential losses or failures. The further a firm's performance falls below its aspiration level, the stronger the motivation of managers to improve export intensity. Hence, we hypothesize that:

Hypothesis 1a: *Negative performance feedback is positively associated with export intensity.*

A firm faces no immediate problem when it receives positive performance feedback (Levinthal & March, 1981). Managers tend to be content with current success and weigh the negative outcomes of strategic actions more heavily than the potential benefits (March & Shapira, 1987). As a result, they become resistant to changes and risk-averse. Accordingly, we argue that positive performance feedback reduces the export intensity of firms for two reasons.

First, when firms' performance exceeds aspiration levels, managers tend to attribute superior performance to their own capabilities and shift attention to aspirational strategies and actions that sustain competitive advantages (Park, 2007; Xu et al., 2019). Firms with performance above that of industry peers have necessarily attained a relatively superior market

position in their domestic markets (Kacperczyk et al., 2015). Given such market advantages, these firms view domestic markets as more attractive than overseas markets (Lee & Weng, 2013). Therefore, concentrating on the domestic market becomes a sound option compared with export.

Second, satisfactory performance reduces managers' incentives to take risks and motivates them to avoid risky strategic initiatives, such as expanding their export business (March & Shapira, 1987). Even though outperforming firms may have adequate resources for export, managers are typically extremely concerned regarding the adverse effects of the risks associated with international expansion (Jiang & Holburn, 2018). In this situation, risk-averse managers tend to downplay the potential benefits of export, thus further reducing firm export share. In sum, we predict that export intensity decreases as performance exceeds the aspiration level. Accordingly, we propose that:

Hypothesis 1b: *Positive performance feedback is negatively associated with export intensity.*

3.2. Moderating roles of institutional development

During its transition to a market-oriented economy, China's institutional development has been uneven (Peng, 2003). Coastal areas have generally undergone more comprehensive economic and legal reforms than inland regions (Haveman et al., 2016). Regions thus differ significantly in terms of their development of market-based mechanisms (Ma et al., 2013; Yang et al., 2021) and business opportunities and constraints. Thus, institutional development affects how local firms respond to performance feedback (Jia et al. 2019; Xu et al. 2019).

Institutional development improves regional market transparency and efficiency (Gao et al., 2010; Jiang & Holburn, 2018; Xie & Li, 2018), which increase the pressure on local underperforming firms; it also gives rise to economic and physical infrastructures that facilitate

export. Accordingly, we argue that regional institutional development strengthens the promotional effect of negative performance feedback on export intensity. First, in regions with developed institutions, local intermediaries—such as financial monitoring agencies and media—are more effective, which in turn increases market transparency (Gao et al., 2010; Graf-Vlachy et al., 2020). With effective intermediaries, stakeholders and the public are able to evaluate the firm in a timely manner (Nijkrake et al., 2015). In this scenario, if firms with negative performance feedback fail to restore their performance in a short time, they are more likely to face external challenges. Hence, underperforming firms in developed regions have a stronger motivation to conduct a problemistic search and be more accepting of the risks associated with export intensity than underperforming firms in less developed areas.

Second, advanced institutional environments provide easily accessed resources and appropriate infrastructures that enable underperforming firms to increase their export intensity. In more developed regions, the government exerts less control over local resource allocation (Du et al., 2019; Xiao & Park, 2018) and product and factor markets are better developed, which lower the costs of resource acquisition and subsequent economic transactions (Dau & Cuervo-Cazurra, 2014). These regions also tend to have built better infrastructures, such as highways, airports, and ports (Song & van Geenhuizen, 2014). As such, in regions with high levels of institutional development, firms that perform below industry peers are more likely to shift their attention to expanding export share in order to restore performance. Taken together, we predict that:

Hypothesis 2a: *The positive relationship between negative performance feedback and export intensity is stronger for firms in areas with higher levels of institutional development.*

Alternatively, we argue that local institutional development affects outperforming firms by heightening managers' risk perceptions of export, thus strengthens the negative relationship

between positive performance feedback and export intensity. Specifically, a high-quality institutional environment at home facilitates firms' operations in local markets (Gao et al., 2010). Firms that outperform their peers may have more growth opportunities based on their current position in the domestic market (Ito & Pucik, 1993; Lee & Weng, 2013). In this scenario, firms likely experience increased competitive disadvantages when expanding overseas (due to institutional and cultural differences) than when continuing to operate in familiar domestic markets (Estrin et al., 2008; Rahman et al., 2017). Accordingly, by comparing the relative risks associated with domestic and overseas markets, managers of outperforming firms in developed institutional environments are likely to perceive greater uncertainties surrounding exporting than those in less developed regions. Given that outperforming firms are risk-averse, managers in those firms tend to emphasize the negative outcomes of exporting and are thus unlikely to embark on such a course of action. Accordingly, we suggest that:

Hypothesis 2b: *The negative relationship between positive performance feedback and export intensity is stronger for firms in areas with higher levels of institutional development.*

3.3. Moderating roles of political connections

Although firms cannot change the institutional environment, they can forge political connections to obtain resources and preferential treatment (Sheng et al., 2011). Politically connected firms are likely to be closely monitored by the government and subject to its requirements and norms (Haveman et al., 2016; Okhmatovskiy, 2010). Accordingly, we argue that given negative performance feedback, firms with political connections may increase export intensity more than those without.

Underperforming firms with political connections have greater motivation to increase export intensity due to extra pressure from the government to improve their poor performance. In China, since regional economic growth is the most important determinant of officials' political

promotions, local governments are concerned about local firms' performance and want to avoid negative economic impacts (Marquis & Raynard, 2015; Wang & Luo, 2019). Due to frequent interactions with the government, the performance of politically connected firms is more likely to be noticed by local officials (Tihanyi et al., 2019). As a result, the government could exert pressure on these firms when their performance falls below that of industry peers. Meanwhile, given that such firms depend more on their government ties to obtain resources than peers, they must maintain a good relationship with officials and thus respond strongly to government demands to improve performance (Dieleman & Boddewyn, 2012; Haveman et al., 2016). Following Hypothesis 1a—that firms increase export intensity in response to performance shortfalls—we further propose that managers in politically connected firms are more likely to improve export intensity than those without such connections due to greater exposure to and pressure from the government. Thus, we predict that:

Hypothesis 3a: *The positive relationship between negative performance feedback and export intensity is stronger for firms with political connections than for those without.*

In contrast, when a firm's performance rises above that of peers, politically connected firms are more likely to feel that they have met the government's expectations—and thus decrease their incentive to search—than their non-connected counterparts. Whereas firms with political connections are subject to close scrutiny by the government (Okhmatovskiy, 2010; Wang & Luo, 2019), once firm performance rises above aspirations, managers may believe that they have met the government's requirements (Wang et al., 2021); this leads to a decline in their motivation to conduct problemistic search. Meanwhile, although local officials are concerned about the region's economic growth, they tend to be highly risk-averse and avoid making mistakes (Wang & Luo, 2019). Accordingly, politically connected firms likely become accustomed to such norms of risk-avoidance. Given positive performance feedback, firms with political connections worry

about risky decisions' potential to damage their current performance. Hence, firms with political

connections are more likely to be satisfied with superior performance and avoid risky initiatives,

such as increasing export intensity. Thus, we predict that:

Hypothesis 3b: *The negative relationship between positive performance feedback and export intensity is stronger for firms with political connections than for those without.*

4. Research methods

4.1. Data and sample

Our sample consists of Chinese private manufacturing companies listed on the Shanghai

and Shenzhen Stock Exchanges from 2008 to 2017. Chinese listed firms are appropriate for our

study for two reasons. First, companies that can be publicly listed in China must meet certain

criteria, such as minimum size and operating profits, and thus are comparable with each other.

Second, listed firms must disclose annual reports in a timely manner, so that they can track the

performance of their peers and make decisions based on performance feedback. Our data mainly

come from the following sources: (1) We collected data on firms' overseas sales from WIND

Data Services. (2) We obtained basic information on firms and industries from China Stock

Market and Accounting Research (CSMAR). (3) Institutional indices were developed by the

National Economic Research Institute (NERI) for different provinces in China. Both WIND and

CSMAR are publicly available databases on Chinese listed firms. All three data sources and

datasets have been widely used for strategy and international business research (Gao et al., 2010;

Xu et al., 2019; Zhou et al., 2017).

To ensure the reliability of our results, we excluded observations from B-share, ST, and *ST

firms as well as firm-year observations with missing values (Xu et al., 2019). To deal with

outliers, we followed Zhang et al. (2019) by winsorizing important continuous variables at the 1st

percentile in each tail (our results are robust at other cutoff points). Our final dataset consists of

6,539 firm-year observations for 1,156 listed private companies. Of these firms, 1,109 are fully owned by individuals or private organizations, while the rest have some state shares but are not ultimately controlled by the state or its agents. Our sample firms have an average of 1% of state share and a maximum of 11%. Our sample covers 31 provinces in China, and the number of private listed firms in each province ranges from 3 to 237. Provinces with the fewest firms are Xinjiang and Tibet, and Guangdong is the province with the most firms.

4.2. Measurements

Export intensity

Following previous studies (Gao et al., 2010; Lee & Weng, 2013), we measured export intensity by the ratio of overseas sales to total sales.

Performance feedback

For Chinese public firms, return on assets (ROA) is the performance metric they track most closely against their peers and is therefore widely used in BTOF-based studies (e.g., Lv et al., 2019; Xu et al., 2019). Accordingly, we measured performance using ROA. In line with established approaches (Greve, 1998, 2003a; Xu et al., 2019), a firm's social aspiration level was derived from the performance of its industry peers, which was measured by the average ROA of listed firms with the same three-digit industry code as the focal firm in a year. We then used a spline function to distinguish between negative performance feedback and positive performance feedback. Negative performance feedback equals the absolute value of the difference between firm ROA and industry average ROA if firm ROA was less than industry average ROA, and equals zero if firm ROA was greater than or equal to industry average ROA. Positive performance feedback equals the absolute value of the difference between firm ROA and the average ROA in the industry if firm ROA was greater than or equal to the industry average ROA,

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and equals zero if firm ROA was less than industry average ROA. The industry distribution of our sample firms is reported in Table 2.

Institutional development

In China, institutional development differs significantly across subnational regions (Xu et al., 2019). Prior studies in the Chinese context mainly use the NERI index to reflect the institutional development of different provinces (e.g., Gao et al., 2010; Xu et al., 2019; Zhou et al., 2017). The NERI index contains five sub-dimensions: the relationship between the government and market, the development level of the non-state sector, the product market, the factor market, and intermediaries and legal framework (Fan et al., 2003; Xiao & Park, 2018). Accordingly, the NERI index provides an overall assessment of the province-level institutional environment in which the focal firm is located (Shi et al., 2012; Zhou et al., 2017). The higher the score, the more advanced the institutional development in the province. For our sample, the NERI index score ranges from -0.30 to 10.46.

Political connections

Following prior studies (Xu et al., 2019; Yang & Tang, 2020), we measured political connections as a dummy variable showing whether a firm's chairperson or CEO is a delegate to the People's Congress (PC) or the People's Political Consultative Conference (PPCC) in a given year. In China, the PC is the legislative body of state and the PPCC is the political advisory body of state. For Chinese private firms, being a delegate to the PC and the PPCC is the most important means to build connections with the government (Yang & Tang, 2020).

Control variables

We controlled for several factors that may influence export intensity. We first considered chairperson or TMT characteristics. *Chairman age* was measured by the age of the chairperson

(Cheng et al., 2010). *Female CEO* was coded as 1 if the CEO of a firm was female and 0 otherwise (Geiler & Renneboog, 2015). *TMT overseas experience* was measured by the ratio of the number of senior executives with overseas experience to the total number of senior executives (Herrmann & Datta, 2005).

At the firm level, we controlled for *firm size,* using the natural logarithm of the total number of employees. Since state ownership has a material impact on export activities (Wu & Zhao, 2015), we controlled for *state share* and measured it as the percentage of shareholdings owned by the government. We included firm slack, which tends to influence the capability to implement strategic decisions (Lin, 2014). *Absorbed slack* was measured by the ratio of selling, general, and administrative expenses to sales (Xu et al., 2019). We controlled for *foreign ownership* and measured it as the ratio of foreign-owned shareholdings to total shareholdings (Xie & Li, 2018). We also controlled for *location* and coded it as 1 if the focal firm is located in a special economic zone or open coastal city and 0 otherwise (Lu & Ma, 2008).

At the industry level, we controlled for *industry competition*, measured as 1 minus industry concentration (Herfindahl index), using sales revenue (Xu et al., 2019). *Industry export orientation* was measured by the percentage of exporters in a specific industry (Gao et al., 2010). We summarize our variable operationalization in Appendix 1. Table 3 provides the descriptive statistics and the correlation matrix. Overall, the magnitudes of the correlations are small, so multicollinearity is not a concern.

<div align="center">*** Insert Table 2 and Table 3 here ***</div>

4.3. Analyses

To deal with proportional dependent variables, we followed the existing literature (Gao et al., 2010) and constructed Tobit models to test our hypotheses. Tobit regression is appropriate for

dealing with proportional dependent variables in international business research (Wulff &

Villadsen, 2019).

All independent variables were lagged one year in order to address potential endogeneity.

Further, following previous studies (Zhang et al., 2010; Zhu & Chung, 2014), we regressed the

focal firm's performance (ROA) in year t on the export intensity in year t-1 to test for possible

reverse causality. Our results show that the coefficient of export intensity was not significant,

which indicates that reverse causality is not a big concern in our model. Model estimation

included year- and industry-fixed effects to account for intra-group variation over time (Zhou et

al., 2017). The industry effect was based on the three-digit industry classification (Xu et al.,

2019). Our formal model was as follows:

$$
\begin{aligned}
\text{Export intensity}_{t+1} \\
= \alpha_1 &+ \beta_1 \times \text{Negative performance peedback}_t \\
&+ \beta_2 \times \text{Positive performance peedback}_t \\
&+ \beta_3 \times \text{Negative performance peedback}_t \times \text{Institutional develpment}_t \\
&+ \beta_4 \times \text{Positive performance peedback}_t \times \text{Institutional develpment}_t \\
&+ \beta_5 \times \text{Negative performance peedback}_t \times \text{Political connections}_t \\
&+ \beta_6 \times \text{Positive performance peedback}_t \times \text{Political connections}_t \\
&+ \beta_7 \times \text{Institutional development}_t + \beta_8 \times \text{Political connections}_t \\
&+ \gamma \times \text{Controls}_t + \varepsilon_1
\end{aligned}
$$

$$(1)$$

where t refers to the year t and export intensity$_{t+1}$ indicates the ratio of overseas sales to total

sales for the firm in the year t+1. Table 4 summarizes the results. In Model 1, we included a set

of executive-, firm-, and industry-level control variables and moderators. In line with previous

BTOF-based research (Chen, 2008; Xu et al., 2019), we included negative performance feedback

and positive performance feedback in Model 2 to test how performance feedback affects firms'

export intensity. In Models 3 and 4, we added the interaction terms between performance feedback and two moderators: institutional development and political connections, respectively. Model 5 is the full model.

*** Insert Table 4 here ***

5. Results

Model 1 in Table 4 reports the effects of control variables and moderators. First, with respect to CEO and TMT characteristics, both female CEO and TMT overseas experience promote private firm export intensity at the 1% level (b = 0.06 and 0.29, respectively)[3]. Firms with female CEOs have 22.92% more export intensity than those with male CEOs, and a one-standard-deviation increase in TMT overseas experience increases export intensity by 13.76%. At the firm level, both firm size and foreign ownership relate positively to export intensity of private firms (b = 0.04 and 0.18, respectively, p < 0.01), whereas state share and absorbed slack are negatively related to export intensity (b = -0.31 and -0.45, respectively, p < 0.05 and 0.01). With respect to the effect size, each standard deviation increase in firm size and foreign ownership strengthens export intensity by 18.04% and 7.21%, respectively. A one-standard-deviation increase in absorbed slack reduces export intensity by 24.21%, and each standard deviation increase in state share decreases export intensity by 3.53%. At the industry and institutional levels, our results show that for each standard deviation increase in industry competition, private firm export intensity decreases by 14.30%. Meanwhile, institutional development is positively associated with private firms' export intensity (b = 0.03, p < 0.01), which is consistent with results from previous studies (e.g., Gao et al., 2010). Regarding the

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[3] We further tested the moderating effects of *female CEO, TMT overseas experience,* and *foreign ownership*，respectively; however, none are significant.

effect size, each standard deviation increase in institutional development increases private firms' export intensity by 18.45%. Based on the effect sizes, the top three antecedents of private firm export intensity are absorbed slack, institutional development, and firm size.

Hypothesis 1a proposes that firms' negative performance feedback is positively associated with export intensity. In Model 2 of Table 4, the coefficient of negative performance feedback is negative but not statistically significant ($b = -0.00$, $p > 0.05$). Thus, Hypothesis 1a is not supported. Hypothesis 1b proposes that positive performance feedback is negatively associated with export intensity. In Model 2, the coefficient of positive performance feedback is negative and statistically significant at the 5% level ($b = -0.28$, $p < 0.05$), which supports Hypothesis 1b. Regarding effect size, for each standard deviation increase in positive performance feedback, the private firm's export intensity in the following year decreases by approximately 3.86%. By comparison, the effect size of performance feedback is smaller than that of control variables such as firm size, industry competition, and institutional development.

Hypothesis 2a states that institutional development strengthens the positive relationship between negative performance feedback and export intensity. Model 3 in Table 4 shows that the interaction term between negative performance feedback and institutional development is positive but not significant ($b = 0.01$, $p > 0.05$). Hypothesis 2a is thus not supported.

Model 3 also shows that the interaction term between positive performance feedback and institutional development is negative and statistically significant ($b = -0.15$, $p < 0.05$), indicating that the negative relationship between positive performance feedback and export intensity is stronger for private firms in regions with higher institutional development. Therefore, Hypothesis 2b is supported.

Hypotheses 3a and 3b propose that for a firm with political connections, there will be a

stronger relationship between performance feedback and export intensity when the firm's performance is below or above its aspiration level. The coefficient of the interaction term between negative performance feedback and political connections is positive and statistically significant (b = 0.62, p < 0.05) in Model 4, which supports Hypothesis 3a. The interaction term between positive performance feedback and political connections is negative and statistically significant (b = -0.62, p < 0.05), which supports Hypothesis 3b.

For Hypotheses 2a, 2b, 3a, and 3b, we followed prior BTOF studies (e.g., Audia & Greve, 2006; Greve, 2003a; Chen, 2008) to plot the corresponding moderating effects in Figure 2 based on the results of Model 5 in Table 4. In Figure 2a, the solid line on the left side and the dotted line on the right side represent firms in regions with high institutional development (i.e., one standard deviation above the mean); the dashed line on the left side and the dot-dashed line on the right side represent firms in regions with low institutional development (i.e., one standard deviation below the mean). In conjunction with the marginal effect analysis in Table 5, we show that the relationship between negative performance feedback and export intensity is not significant in regions with high institutional development (b = 0.02; p > 0.05) or in regions with low institutional development (b = 0.01; p > 0.05). The relationship between positive performance feedback and export intensity is significantly negative when institutional development is high (b = -0.54; p < 0.01), but becomes nonsignificant when institutional development is low (b = -0.01; p > 0.05).

Figure 2b displays the interactive effects of performance feedback and political connections on firms' export intensity. In conjunction with the marginal effect analysis, we show that the relationship between negative performance feedback and export intensity is significantly positive for private firms that have political connections (b = 0.53; p < 0.05) but becomes nonsignificant

for private firms that have no political connections (b = -0.07; p > 0.05). Meanwhile, the relationship between positive performance feedback and export intensity is significantly negative for private firms that have political connections (b = -0.88; p < 0.01) but becomes nonsignificant for private firms that have no political connections (b = -0.17; p > 0.05).

<center>*** Insert Table 5 and Figure 2 here ***</center>

We performed several tests to assess the robustness of our results. First, we used two alternative measures of institutional development to retest the hypotheses. One is the shortest geographical distance between the province in which the focal firm is located and first-tier cities in China. We reverse-coded the geographical distance so that a larger number indicates better development. The other is GDP per capita of the province where the focal firm is located. As Models 1 and 2 in Table 6 show, the results are highly consistent. Second, to deal with the potential influence of firms that only sell overseas, we excluded those firms with a 100% export ratio from the sample. The results (Models 3–6 in Table 6) remain highly consistent. Third, considering that feedback effects may take time to have a meaningful impact on export intensity, we regressed firm export intensity in years t+2 and t+3 on performance feedback in year t. Both yielded consistent results, which are available upon request.

<center>*** Insert Table 6 here ***</center>

6. Discussion and Conclusion

Building on the BTOF and institutional view, we investigate how performance feedback affects Chinese private firms' export intensity and how institution-related factors moderate this relationship. Based on a sample of Chinese listed private firms between 2008 and 2017, we find that positive performance feedback significantly reduces a private firm's export intensity. However, negative performance feedback has no impact on export intensity, which may be due to

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the fact that that overseas expansion typically requires financial and managerial resources, such as close and direct relationships with overseas dealers. Although underperforming private firms are motivated to seek opportunities in foreign markets, they may lack adequate resources to do so.

Moreover, our results show that the effect of positive performance feedback is more salient for high levels of institutional development and for firms with political connections. The relationship between negative performance feedback and export intensity turns positive only when a private firm has political connections. The latter further validates our explanation for the insignificant direct effect of negative performance feedback. That is, politically connected private firms are less likely to encounter resource constraints when they are motivated to expand internationally, and therefore exhibit increasing export intensity as performance decreases. However, our results do not support the moderating role of institutional development for underperforming private firms. One possible reason may be that institutional development supports fair competition within domestic markets, which encourages underperforming private firms to compete locally to restore performance shortfalls and thus reduces their intention to export.

6.1. Theoretical contributions

Our findings make two main contributions. First, our study enriches the literature on firm export by introducing performance feedback as an important driver of emerging market firms' export intensity. Previous studies mainly draw on the RBV, industry-based view, or institutional view to explain firms' export behaviors (e.g., Gao et al., 2010; Kim & Hemmert, 2016). However, recent research suggests that export decisions are more complex than current models predict, and calls for the consideration of different decision-maker goals and aspirations (Surdu

et al., 2020). Following this view, our study draws on the BTOF to argue for the importance of performance feedback in firm export behaviors. The results show that positive performance feedback decreases firms' export intensity, which is consistent with arguments in the BTOF that performance above aspirations reduces managers' risk-taking (Greve 2003a). Accordingly, our findings support the relevance of performance feedback as a behavioral driver in explaining a series of risk-taking internationalization initiatives including exporting.

Second, we contribute to the BTOF literature by adding export as another risk-taking behavior and examining the moderating effect of institution-related factors in the performance feedback model. Prior empirical research has shown that performance feedback affects a wide array of risky behaviors, such as R&D (Chen, 2008) and bribery (Xu et al., 2019). Our findings confirm that exporting is also one of the risky behaviors adopted by firms in response to performance feedback, thus extending the BTOF-based research. Moreover, previous BTOF-based studies mainly examine how intra-firm factors such as CEO characteristics (Blagoeva et al., 2020) and firm size and structure (Audia & Greve, 2006; Gaba & Joseph, 2013) affect firms' response to performance feedback, with little attention paid to the influences of institutional contingencies (Xu et al., 2019). However, institutions significantly affect managers in private firms in terms of the cognition of performance and the evaluation of risk in emerging markets like China (Yang & Tang, 2020). Our study reveals that institutional development and political connections can moderate the performance feedback-export link by influencing private firm managers' perceptions of performance and risk (Iriyama et al., 2016; Xu et al., 2019). This finding suggests that in addition to the individual characteristics and firm structure that have been discussed in previous research, the motivational consequences of performance feedback can be significantly weakened or amplified by institution-related elements in the private sector.

Hence, introducing institutional characteristics as boundary conditions helps delineate a full picture of performance feedback-risk taking behavior, especially in an emerging market context.

6.2. Managerial Implications

Our findings carry important managerial implications. First, managers of private firms should be aware that decision-making with respect to exporting is susceptible to their cognitive perceptions. Our findings show that private firms with performance below or close to industry average levels export more, whereas those with better performance export less. In the case of China's garment industry, for instance, industry leaders (e.g., Toread) exhibit low export intensity. In contrast, some firms with below-average performance (e.g., Mailyard) actively expand overseas. However, if outperforming private firms react to positive performance feedback by reducing their exposure to overseas markets, they may not be able to take advantage of foreign trade and market opportunities. Hence, managers in outperforming private firms should overcome their inertia and watch global markets closely to spot potential opportunities.

Second, our findings suggest that regional institutional development affects Chinese private firms' export decisions. Managers of private enterprise should fully recognize and understand the role of institutional factors in their firm's export decision-making. Our results show that as institutional development improves, the export intensity of outperforming private firms decreases even more. Accordingly, when making export decisions, managers of private firms with positive performance feedback should be aware that improving institutional environments may lead to certain opportunity costs, with more attention being shifted to the domestic market. This may lead to missed opportunities in overseas markets. Hence, it is necessary for managers of outperforming private firms to carefully evaluate the costs of increasing their focus on domestic markets.

Private firms' political connections also influence the effect of performance feedback on export behavior. When receiving positive performance feedback, private firms with strong political ties tend to export less than firms without such ties. This should remind managers of politically connected outperforming firms to be careful not to become overly dependent on local markets and forgo opportunities in overseas markets. Further, the government should do more to encourage these private firms to expand their overseas business and use their resource advantages to compete with other firms in international markets. We also find that underperforming private firms with political ties are more likely to increase export intensity than those without. Hence, if private firms with poor performance want to export, hiring a politically connected chairman or CEO is a reasonable option.

6.3. Limitations and Future Research

Our study has several limitations. First, it is embedded in the context of China, an emerging economy with unique characteristics. Further research on different countries or regions would help determine the applicability of our findings to other contexts. In addition, given that private firms are more affected by local institutional environments and vary in their level of political connections compared to SOEs, we focus on private manufacturing firms listed in China in our study. We also ran separate regressions for the SOE sample, and the results for the link between performance feedback and export intensity are similar to the findings for private firms. It indicates that SOEs also compare economic performance with their industry peers to make export decisions. However, the moderating effects of institutional development and political connections are not supported by the SOE sample, which suggests that SOE managers' perceptions of performance and risk are not greatly affected by institutional environment and the firm's political connections. Hence, we encourage future research to explore more contingencies

that may influence the impact of performance feedback on risky behaviors for SOEs.

Second, our study examines two institutional contingencies, whereas other important contingencies may change the performance feedback-export intensity link, such as informal institutional characteristics and firm-level rules and culture (Kostova et al., 2008). We encourage future studies to examine how these factors impact the export activities of firms in emerging markets.

Third, regarding the operationalization of the variables, we measure political connections through visible formal relationships between executives and governments. Future research could adopt survey methods to measure informal connections. Also, we focus on export intensity because we are interested in identifying why Chinese private firms contribute such a large proportion to China's total exports. It would be interesting to investigate how performance feedback affects other indicators of exporting, such as export propensity and variety (Gao et al., 2010; Ivus, 2015; Zhao & Zou, 2002). Another promising avenue would be to differentiate between various types of export, such as customized (outsourcing) and non-customized (ordinary trade) exporting. Compared with ordinary trade, outsourcing exporters often act as factories but are not involved in other value-added activities such as design, development, marketing, sales, and services. Future studies can delve deeper by investigating how firms that engage in diverse types of export vary in their export decision-making. In addition, performance feedback in different domains may have different impacts on firm behaviors. For instance, differentiating performance feedback in domestic and overseas markets could be a promising way to further develop our model.

Fourth, recent studies show that manufacturing firms have increasingly grappled with environmental protocols, which have likely affected their export decisions (Shi & Xu, 2018; Wu

& Ma, 2016). More green and CSR engagement can help emerging market firms build foreign connections and access international markets. This motivates further research on how CSR or environmental concerns affect a firm's response to performance feedback and its export-led growth. Finally, although we consider managers' cognition as the underlying mechanism, we do not have data to directly test these arguments. To unpack the pertinent mechanisms, future research can investigate how managers' perception of risk acts as the mediator in performance feedback models.

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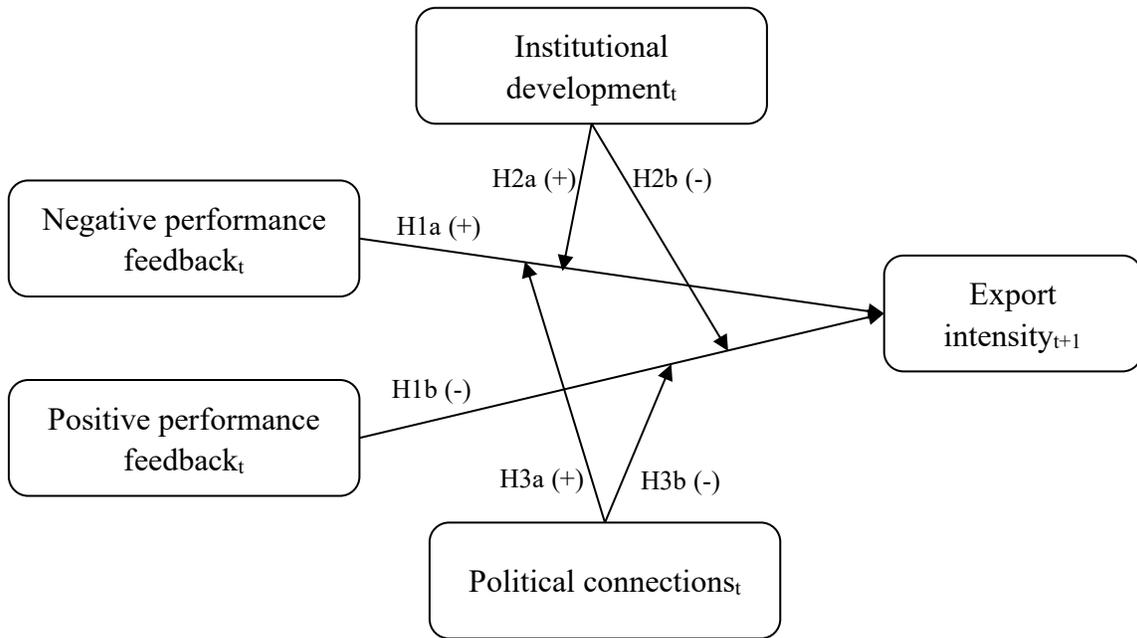
Figure 1 Conceptual model
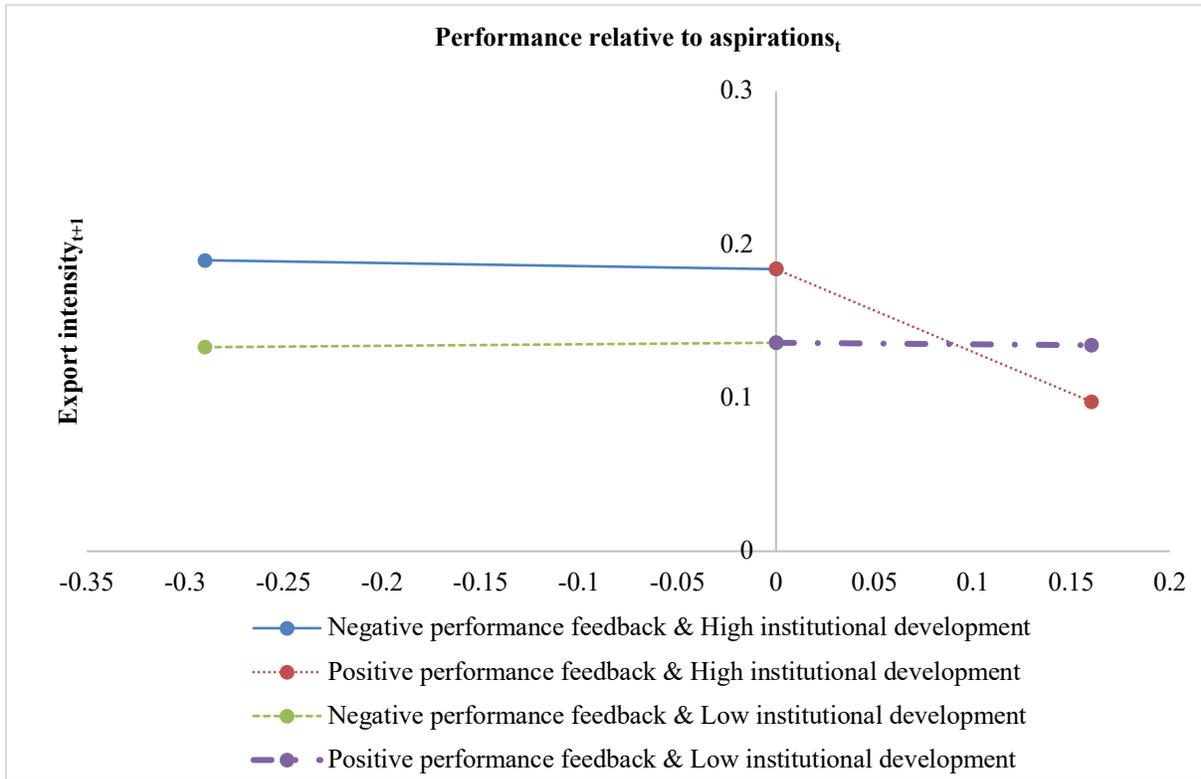
Figure 2a Performance feedback, institutional development, and export intensity
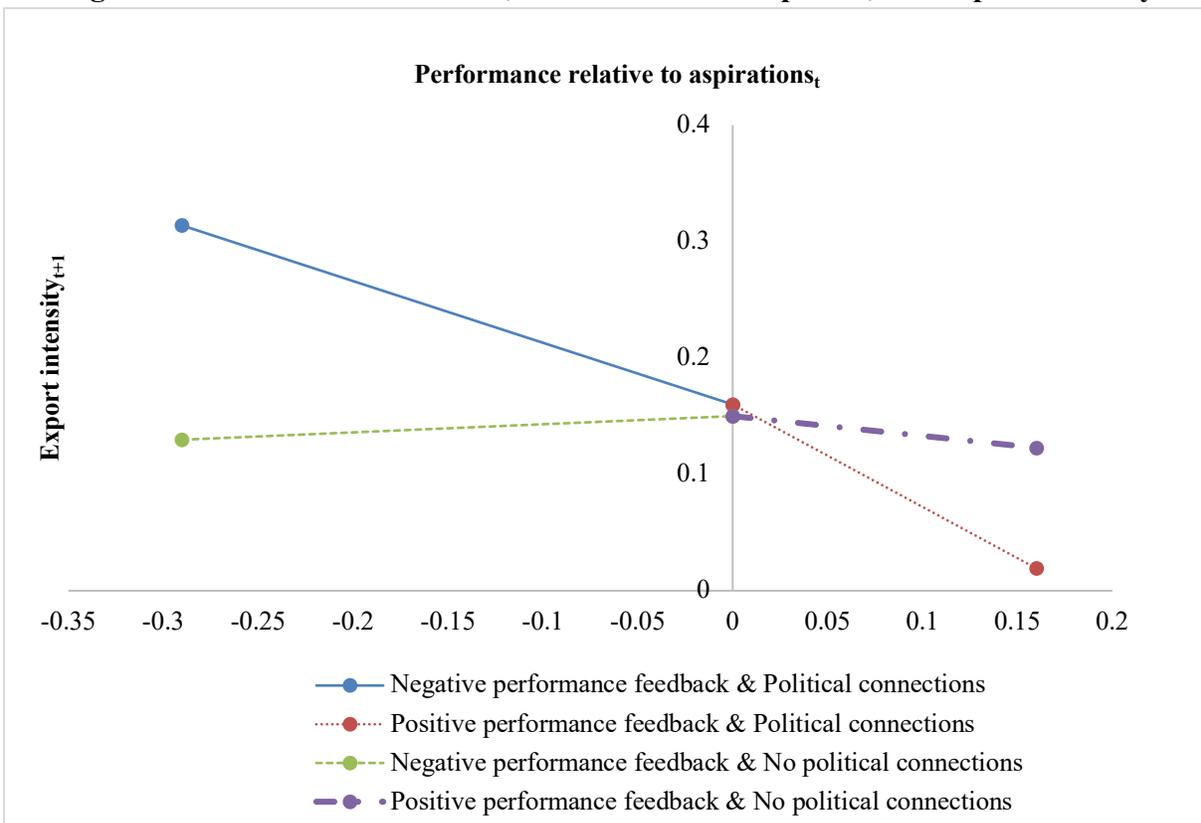
Figure 2b Performance feedback, political connections, and export intensity

Table 1 The moderating effect of institutions on firm export intensity

Illustrative studies	Sampling	Independent variable	Moderator	Dependent variable	Theory	Logics
Firm-level institution-related factors						
Yi et al., 2013	Chinese manufacturing firms, 2005- 2007	Innovative capabilities	1. Foreign ownership 2. Government relationship 3. Business group	Export intensity	RBV; Institution-based views	1. Knowledge spillovers improve technology, enhancing export prospects. 2. Government ties provide resources complement existing technologies, thus promoting export. 3. Internal markets facilitate innovation, thus improving export intensity.
Institutional environment						
Lu et al., 2009	Chinese listed firms, 2002-2005	Outside director ratio; CEO shareholding; Ownership concentration	Institutional environment (NERI index)	Export intensity	Agency perspective; Institution-based views	Governance mechanisms are more effective in developed institutional environments.
Yi et al., 2013	Chinese manufacturing firms, 2005-2007	Innovative capabilities	Institutional environment (NERI index)	Export intensity	RBV; Institution-based views	Firms in market-based mechanisms pursue externally oriented strategies and emphasize the role of innovation in internationalization.
Wu & Zhao, 2015	4,239 firms from 16 emerging economies, & 10,000 Chinese exporting firms	State ownership	Home country government effectiveness (Index from International Country Risk Guide)	Export intensity	Resource dependence theory; Agency theory	Government effectiveness attenuates the benefits and suppresses the costs of state ownership on export intensity.
Manolopoulos et al., 2018	150 small and medium-sized firms in Greece in 2014	Resources	1. Corruption 2. Export bureaucracy 3. Export regulations (questionnaires)	Export intensity	RBV; Institution-based views	1. Corruption leads to local market uncertainties, rendering firms commit resources to exporting. 2. Efficient bureaucratic system reduces resource-consuming and thus resources are effectively targeted at foreign markets. 3. To compensate for efficiency losses due to complex export regulations, SMEs commit resource surplus to enhance export.

Table 2 Industry distribution of the sample firms

Industry	N	Industry	N
Food processing industry	23	Rubber and plastic products industry	44
Food manufacturing industry	17	Non-metallic mineral manufacturing industry	41
Wine, beverage and refined tea manufacturing industry	13	Ferrous metal smelting and processing industry	4
Textile industry	23	Nonferrous metal smelting and processing industry	28
Clothing industry	25	Metal products industry	35
Leather, fur, feather and footwear industry	5	General machinery manufacturing industry	65
Wood, bamboo, rattan, palm and grass processing industry	6	Special machinery manufacturing industry	108
Furniture manufacturing industry	5	Motor manufacturing industry	52
Paper processing industry	15	Other transportation equipment manufacturing industry	17
Printing and recording media reproduction industry	10	Electrical machinery manufacturing industry	145
Education, industrial beauty, sports and entertainment manufacturing industry	6	Computer, communications and electronic equipment manufacturing industry	179
Petroleum processing, coking and nuclear fuel processing industry	5	Instrument manufacturing industry	31
Chemical manufacturing industry	111	Waste resource utilization manufacturing industry	3
Pharmaceutical industry	121	Other manufacturing industry	8
Chemical fiber manufacturing industry	11		

Table 3 Descriptive statistics and correlations

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Export intensity$_{t+1}$	1.00														
2 Negative performance feedback$_t$	-0.04**	1.00													
3 Positive performance feedback$_t$	-0.02*	-0.28**	1.00												
4 Institutional development$_t$	0.15**	-0.09**	0.01	1.00											
5 Political connections$_t$	0.02	-0.02	-0.02	-0.05**	1.00										
6 Chairman age$_t$	0.02*	-0.03*	0.01	0.04**	0.01	1.00									
7 Female CEO$_t$	0.06**	0.00	0.02*	-0.05**	0.04**	0.00	1.00								
8 TMT overseas experience$_t$	0.13**	0.01	0.01	0.09**	-0.02*	0.02	0.00	1.00							
9 Firm size$_t$	0.15**	-0.07**	0.04**	0.02	0.04**	0.13**	-0.01	0.05**	1.00						
10 State share$_t$	-0.03**	0.04**	-0.03**	-0.12**	-0.03**	-0.01	-0.03**	-0.02	-0.01	1.00					
11 Foreign ownership$_t$	0.11**	-0.05**	0.08**	0.03*	-0.03*	0.07**	0.04**	0.11**	0.08**	0.01	1.00				
12 Absorbed slack$_t$	-0.18**	0.15**	0.00	-0.06**	-0.07**	-0.04**	0.00	0.06**	-0.19**	-0.04**	-0.05**	1.00			
13 Industry competition$_t$	-0.01	-0.05**	0.00	0.01	-0.06**	0.02*	-0.04**	0.01	-0.08**	0.00	-0.07**	0.22**	1.00		
14 Industry export orientation$_t$	0.22**	-0.06**	-0.07**	0.27**	0.02	0.06**	0.02*	0.02	0.03*	-0.07**	0.03*	-0.23**	0.04**	1.00	
15 Location$_t$	0.05**	-0.01	0.03*	0.24**	-0.07**	-0.06**	-0.02*	0.13**	-0.03**	-0.02	0.11**	0.08**	0.02	0.03**	1.00
Mean	0.18	0.02	0.02	8.00	0.14	52.59	0.07	0.06	7.37	0.01	0.02	0.19	0.90	0.74	0.30
Std.	0.24	0.04	0.03	1.60	0.35	8.06	0.25	0.11	1.08	0.03	0.10	0.13	0.08	0.14	0.46
Min	0.00	0.00	0.00	-0.30	0.00	27.00	0.00	0.00	2.20	0.00	0.00	0.03	0.24	0.00	0.00
Max	1.00	0.29	0.16	10.46	1.00	86.00	1.00	1.00	12.19	0.11	0.89	0.68	0.98	1.00	1.00

N = 6539; *p<0.05, **p<0.01, two-tailed test

Table 4 Performance feedback$_t$ and export intensity$_{t+1}$

		Model 1 Controls only	Model 2 Explanatory variables only	Model 3 Interaction terms included	Model 4	Model 5 Full model
Negative performance feedback$_t$	(**H1a**)		-0.00	0.01	0.00	0.02
			(0.10)	(0.11)	(0.10)	(0.11)
Positive performance feedback$_t$	(**H1b**)		-0.28*	-0.27*	-0.28*	-0.27*
			(0.11)	(0.11)	(0.11)	(0.11)
Negative performance feedback$_t$ × Institutional development$_t$	(**H2a**)			0.01		0.00
				(0.06)		(0.06)
Positive performance feedback$_t$ × Institutional development$_t$	(**H2b**)			-0.15*		-0.17*
				(0.07)		(0.07)
Negative performance feedback$_t$ × Political connections$_t$	(**H3a**)				0.62*	0.60*
					(0.29)	(0.29)
Positive performance feedback$_t$ × Political connections$_t$	(**H3b**)				-0.62*	-0.70*
					(0.32)	(0.32)
Institutional development$_t$		0.03**	0.03**	0.03**	0.03**	0.03**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Political connections$_t$		0.02	0.02	0.02	0.02	0.02
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Chairman age$_t$		-0.00	-0.00	-0.00	-0.00	-0.00
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Female CEO$_t$		0.06**	0.06**	0.06**	0.06**	0.06**
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
TMT overseas experience$_t$		0.29**	0.30**	0.30**	0.30**	0.30**
		(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Firm size$_t$		0.04**	0.04**	0.04**	0.04**	0.04**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
State share$_t$		-0.31*	-0.33*	-0.32*	-0.32*	-0.32*
		(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
Foreign ownership$_t$		0.18**	0.18**	0.18**	0.18**	0.18**
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Absorbed slack$_t$		-0.45**	-0.45**	-0.45**	-0.45**	-0.45**
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Industry competition$_t$		-0.42**	-0.41**	-0.42**	-0.42**	-0.42**
		(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
Industry export orientation$_t$		0.08	0.08	0.08	0.07	0.07
		(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Location$_t$		-0.01	-0.01	-0.01	-0.01	-0.00
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Constant		-0.19	-0.18	-0.18	-0.18	-0.18
		(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
Year and Industry dummy		yes	yes	yes	yes	yes
Log likelihood		-1573.29	-1569.79	-1567.39	-1563.87	-1560.92
R^2		0.330	0.332	0.333	0.334	0.336

N = 6539; *p<0.05, **p<0.01, two-tailed test

Table 5 Marginal effects of performance feedback$_t$ on export intensity$_{t+1}$

	Negative performance feedback$_t$		Positive performance feedback$_t$	
	dy/dx	Std.err	dy/dx	Std.err
Institutional development$_t$				
at				
Mean-2sd	0.01	0.21	0.26	0.26
Mean-sd	0.01	0.13	-0.01	0.16
Mean	0.02	0.11	-0.27*	0.11
Mean+sd	0.02	0.16	-0.54**	0.16
Mean+2sd	0.02	0.20	-0.69**	0.21
Political connections$_t$				
at				
0	-0.07	0.11	-0.17	0.12
1	0.53*	0.27	-0.88**	0.29

Statistical significance is reported based on two-tail tests: *p<0.05, **p<0.01.

Table 6 Robustness checks

		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
		Distance measure	GDP measure	Excluding export-only firms			
Negative performance feedback$_t$	**(H1a)**	0.03	0.02	0.02	0.04	0.03	0.04
		(0.09)	(0.09)	(0.10)	(0.10)	(0.10)	(0.10)
Positive performance feedback$_t$	**(H1b)**	-0.22*	-0.27*	-0.26*	-0.25*	-0.27*	-0.25*
		(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Negative performance feedback$_t$ $\times$ Institutional development$_t$	**(H2a)**	-0.02	0.30		0.01		-0.01
		(0.02)	(0.22)		(0.06)		(0.06)
Positive performance feedback$_t$ $\times$ Institutional development$_t$	**(H2b)**	-0.17**	-0.59*		-0.15*		-0.17*
		(0.03)	(0.25)		(0.07)		(0.07)
Negative performance feedback$_t$ $\times$ Political connections$_t$	**(H3a)**					0.61*	0.60*
						(0.28)	(0.28)
Positive performance feedback$_t$ $\times$ Political connections$_t$	**(H3b)**					-0.56*	-0.65*
						(0.31)	(0.31)
Institutional development$_t$		0.01**	0.07**	0.03**	0.03**	0.03**	0.03**
		(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Political connections$_t$		0.01	0.02	0.02	0.02	0.02	0.02
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Chairman age$_t$		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Female CEO$_t$		0.05**	0.05**	0.05**	0.05**	0.05**	0.05**
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
TMT overseas experience$_t$		0.30**	0.30**	0.30**	0.30**	0.30**	0.30**
		(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Firm size$_t$		0.04**	0.04**	0.04**	0.04**	0.04**	0.04**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
State share$_t$		-0.36**	-0.34**	-0.33**	-0.33**	-0.33**	-0.33**
		(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
Foreign ownership$_t$		0.19**	0.18**	0.19**	0.19**	0.18**	0.18**
		(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)
Absorbed slack$_t$		-0.48**	-0.46**	-0.44**	-0.44**	-0.44**	-0.44**
		(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)
Industry competition$_t$		-0.41**	-0.40**	-0.42**	-0.42**	-0.42**	-0.42**
		(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
Industry export orientation$_t$		0.07	0.08	0.05	0.06	0.05	0.05
		(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Location$_t$		-0.01	-0.00	-0.00	-0.00	-0.00	0.00
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Constant		0.05	-0.88**	-0.17	-0.17	-0.17	-0.17
		(0.14)	(0.17)	(0.13)	(0.13)	(0.13)	(0.13)
Year and Industry dummy		yes	yes	yes	yes	yes	yes
N		6539	6539	6516	6516	6516	6516
Log likelihood		-1572.88	-1591.89	-1359.54	-1357.08	-1353.82	-1350.81
R^2		0.331	0.322	0.381	0.382	0.384	0.385

*p<0.05, **p<0.01, two-tailed test

Appendix. Variable operationalization

Variables	Measures	References
Dependent variable		
Export intensity$_{t+1}$	Ratio of overseas sales to total sales in year t+1	Gao et al., 2010
Independent variable		
Performance feedback$_t$	Calculated as the difference between a firm's actual ROA and the average ROA of its industry peers in year t. We use a spline function to distinguish between negative performance feedback and positive performance feedback. Negative performance feedback equals the absolute value of the difference between firm ROA and industry average ROA if firm ROA was less than industry average ROA, and equals zero if firm ROA was greater than or equal to industry average ROA. Positive performance feedback equals the absolute value of the difference between firm ROA and the average ROA in the industry if firm ROA was greater than or equal to the industry average ROA, and equals zero if firm ROA was less than industry average ROA.	Greve, 1998, 2003a; Lin, 2014; Xu et al., 2019
Moderators		
Institutional development$_t$	NERI index of the province in which the focal firm is located in year t	Zhou et al., 2017
Political connections$_t$	Coded as 1 if either the chairman or CEO is a delegate to the PC or PPCC in year t and zero otherwise.	Xu et al., 2019
Controls		
Chairman age$_t$	Age of the chairperson in year t	Cheng et al., 2010
Female CEO$_t$	Coded as 1 if the CEO is female and zero otherwise	Geiler & Renneboog, 2015
TMT overseas experience$_t$	Ratio of the number of senior executives with overseas experience to the total number of senior executives in year t	Herrmann & Datta, 2005
Firm size$_t$	Natural logarithm of total number of employees in year t	Greve, 2003a
State share$_t$	Percentage of shareholdings owned by the government	Wu & Zhao, 2015
Foreign ownership$_t$	Ratio of foreign-owned shareholdings to total shareholdings in year t	Xie & Li, 2018
Absorbed slack$_t$	Ratio of selling, general, and administrative expenses to sales in year t	Xu et al., 2019
Industry competition$_t$	One minus industry concentration (Herfindahl index), calculated by sales revenues in year t	Xu et al., 2019
Industry export orientation$_t$	Percentage of exporters in a specific industry in year t	Gao et al., 2010
Location$_t$	Coded as 1 if the focal firm is located in a special economic zone or open coastal city and zero otherwise	Lu & Ma, 2008