Political connections, business strategy and tax aggressiveness: evidence from China

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Abstract

Purpose – The purpose of this paper is to investigate the effects of political connections on the association between firms' business strategy and their tax aggressiveness in an emerging economy such as China.
Design/methodology/approach – The authors study a large sample of Chinese public firms from 2011 to 2017 using a panel regression model. In addition, a change analysis, an instrument variable test and alternative measures/samples are implemented as robustness tests.
Findings – Firms adopting innovative business strategy are more tax aggressive overall. However, innovative firms with political connections are less tax aggressive compared to those without political connections.
Originality/value – This paper contributes to the understanding of firms' tax behaviors in an emerging economy setting. It suggests that there are costs associated with political connections, such as foregone tax saving opportunities, which are understudies in the prior literature.

Keywords Tax aggressiveness, Business strategy, Political connections, China
Paper type Research paper

1. Introduction

Using a hand-collected Chinese firm dataset, we investigate whether firms' political connections affect the association between firms' business strategy and tax aggressiveness. Prior research has taken a piecemeal approach to examine the association between business strategy and tax aggressiveness (Higgins, Omer, & Phillips, 2015) and between political connections and tax aggressiveness (Kim & Zhang, 2016) separately using samples of US firms [1]. However, few studies have examined the interplay between political connections and business strategy and its impact on tax aggressiveness, especially in emerging economies. This research question is important because political connections are more valuable to firms in emerging economies than to those in developed economies (Conyon, He, & Zhou, 2015; Fralich & Fan, 2018; Li, Meng, Wang, & Zhou, 2008). Political connections can help overcome institutional challenges such as poor institutional support, underdeveloped investor protection legislation, overreaching government interference and weak enforcement of contracts and property rights in emerging economies (Li *et al.*, 2008). Moreover, as the tax collector in most emerging economies, governments are also the ultimate provider of political connections. Therefore, it is plausible to expect that firms have to take political connections into account when considering their business strategy and tax planning.

For example, while innovation-oriented firms (i.e. *Prospectors*) are more tax aggressive because they are more risk-embracing with less reputational cost concern due to the

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uniqueness of their products and services (Higgins *et al.*, 2015), this association is likely to be impacted by political connections in emerging economies. Prior studies have shown that political connections help firms expand into more markets (Luo, 2003), with an easier access to capital (Claessens, Feijen, & Laeven, 2008; Wu, Wang, Luo, & Gillis, 2012), with a lower cost of capital (Boubakri, Guedhami, Mishra, & Saffar, 2012), with a greater likelihood of capturing government contracts (Goldman, Rocholl, & So, 2013) and with an enhanced monopoly status (Naughton, 2008). Therefore, political connections are of particular importance to *Prospectors* in emerging economies because these firms need governments to recognize their intellectual properties, enforce the protection of their copyrights and provide financial and technical assistance for innovation because of the underdeveloped legal system and institutional environment. To maintain the benefits offered by political connections, *Prospectors* need to prioritize the interests of governments, e.g. paying a fair amount of tax (Adhikari, Derashid, & Zhang, 2006; Kim & Zhang, 2016; Wu *et al.*, 2012). In other words, tax aggressiveness may result in *Prospectors* losing political connections and related benefits because being tax aggressive is not favored by governments, the providers of political connections (Bradshaw, Liao, & Ma, 2019; Fan & Chen, 2017; Zeng, 2010). As a result, one would expect political connections to mitigate the association between the *Prospector* strategy and tax aggressiveness for firms in emerging economies [2].

As the largest emerging economy in the world, China provides a good setting to examine our research question. First, unlike many other emerging economies, the Chinese stock market includes a good size of firms that pursue different types of business strategies. Second, the transition from a command economy to a market economy in China also gives us an opportunity to examine the importance of political connections on corporate policies during this transition. Third, with state-owned enterprises (SOEs) comprising nearly half of the market value in the Chinese stock market, their largest shareholders are also the tax revenue collector. Firms' tax aggressiveness practices in China could be very different from those in developed economies. These characteristics increase the likelihood that our statistical tests have sufficient power to examine our research question.

In this paper, we measure tax aggressiveness with cash effective tax rate (ETR), calculated as income tax paid as a proportion of pretax income (Bradshaw *et al.*, 2019). In a robustness test, we replace cash ETR with Generally Accepted Accounting Principles (GAAP) ETR as an alternative measure of tax aggressiveness, which is calculated as total income tax expenses divided by pretax income (Gupta & Newberry, 1997). Both cash ETR and GAAP ETR are arguably the most widely used measures of tax aggressiveness in both developed and emerging economies. The computation of the two measures relies only on data from financial statements, making them especially suitable for emerging economy studies, where the disclosure of information is limited.

Following extant studies (Bentley-Goode, Newton, & Thompson, 2017; Bentley-Goode, Omer, & Twedt, 2019; Bentley, Omer, & Sharp, 2013; Higgins *et al.*, 2015), we use Miles and Snow's (1978, 2003) framework to define business strategies. They classify firms into three categories based on how quickly firms develop new products and enter new markets (Chen, Eshleman, & Soileau, 2017). The most aggressive firms in adopting new products and entering new markets are classified as *Prospectors*. Their business strategy is to always lead the development of new products in order to enjoy the benefits of little competition. The least aggressive firms in adopting new products and entering new markets are classified as *Defenders*. Their business strategy is to retain their existing products and markets, and they have to continuously reduce their costs because there are many substitutes for their products. Firms that are in between defenders and prospectors are classified as *Analyzers*.

For political connections, we use three different measures to proxy political connections in China. The first measure is defined as whether a firm is an SOE because SOEs arguably have "naturally born" political connections. The second and third measures of political connections

are defined as whether a firm has at least one politically connected board member or has at least one politically connected top executive. Board members or top executives are considered politically connected if they worked in a government or military organization or are members of the National People's Congress (NPC) and the Chinese People's Political Consultative Conference (CPPCC).

We study all public Chinese firms for the period of 2011–2017. We start sample construction with all nonfinancial firms available from the China Stock Market and Accounting Research (CSMAR) database. After merging with the research and development (R&D) data from the Wind database, we have 10,830 firm-year observations. We find that overall prospector strategy is negatively related to cash ETR while defender strategy is not related to cash ETR with any statistical significance, similar to the results in Higgins *et al.* (2015). However, *Prospectors*' association with cash ETR is mitigated by *Prospectors*' political connections. In other words, *Prospectors* with political connections have higher cash ETRs compared to *Prospectors* without political connections. These results indicate that *Prospectors* are not always tax aggressive if they have political connections to consider. The findings also suggest that *Prospectors* face a choice between the benefits from political connections and the benefits from tax savings. In this trade-off situation, *Prospectors* are willing to "give up" the benefits from tax savings in order to maintain the benefits of political connections. This is consistent with the notion that political connections are of particular importance to firms in an emerging economy such as China. By paying a fair share of tax to satisfy governments, *Prospectors* are more likely to reap the benefits of political connections in the future.

Our results are robust to three different measures of political connections and two measures of tax aggressiveness. In addition, while this paper is not trying to establish causality between a firm's business strategy and its tax strategy, we recognize the potential endogeneity of political connections in our specifications. Nevertheless, we adopt an instrument variable strategy to mitigate the potential endogenous bias. Following previous studies (Chen & Qiu, 2017; Shi, Sun, & Peng, 2012), we use two instrumental variables for political connections: the province-level index of marketization developed by Wang, Fan, and Hu (2019), which measures the development level of the overall marketization of provinces in China, and the distance from a firm's headquarter to Beijing. Our results are robust to the instrumental variable approach and remain quantitatively and qualitatively similar.

The contribution of the study is threefold. First, our study contributes to the determinants of tax aggressiveness literature. Using US data, Higgins *et al.* (2015) find that *Prospectors* are more tax aggressive compared to *Defenders*, and Kim and Zhang (2016) show that politically connected firms are more tax aggressive than nonconnected firms. Our paper complements those studies by focusing on the interplay between business strategy and political connections on tax aggressiveness in an emerging economy such as China, where political connections are more valuable compared to those in developed economies. Our findings suggest that firms do recognize the potential costs of being tax aggressive and adjust their tax policies accordingly. Second, although the benefits of political connections are well documented in the extant literature (Bao, Johan, & Kutsuna, 2016; Boubakri *et al.*, 2012; Claessens *et al.*, 2008; Li *et al.*, 2008), the costs of political connections are almost ignored. Our study provides new insights into the tax costs that are associated with political connections. In order to maintain the benefits of political connections, firms may have to pay more tax even though this is seemingly not in the best interest of shareholders. Third, our paper also contributes to a large body of business strategy literature that examines business strategy as an important determinant of various firm characteristics, including tax reporting, by showing the importance of considering the interplay of business strategy and other firm characteristics. The findings in this paper should be of interest to global investors as well. China's A-shares markets are now a part of the Morgan Stanley Capital International (MSCI)

Global Indexes, and their weights are increasing. Our study highlights one difference in tax behavior between Chinese firms and firms in developed economies, adding to existing evidence highlighting other differences between developed and developing economies such as earnings management and corporate governance (e.g. Ye, 2014; Ye, Zhang & Rezaee, 2010).

The next section of the paper reviews the literature and proposes our main hypothesis. Section 3 describes our data and introduces our research methodology. Section 4 presents the descriptive results and regression results. Section 5 concludes.

2. Literature review and hypothesis development

2.1 Business strategy, firm characteristics and tax aggressiveness

Miles and Snow's (1978, 2003) strategy framework distinguishes different strategies based on the extent of firms' aggressiveness in innovating new products and expanding into new markets, and this framework defines business strategies as a strategy continuum. At one end of the strategy continuum, the prospector strategy is to actively develop new products and enter new markets. At the other end of the strategy continuum, the defender strategy is to maintain current products and markets. The strategy in the middle of the strategy continuum, the analyzer strategy, has features of both.

Many studies claim business strategy is a fundamental decision for a firm and determines various characteristics of a firm, such as firms' financial reporting (Bentley-Goode *et al.*, 2019; Bentley *et al.*, 2013; Hsieh, Ma, & Novoselov, 2018; Lim, Chalmers, & Hanlon, 2018), tax reporting (Higgins *et al.*, 2015), internal and external auditing (Bentley-Goode *et al.*, 2017, 2019; Bentley *et al.*, 2013; Chen *et al.*, 2017), CEO selection (Abernethy, Kuang, & Qin, 2019), executive compensation (Ittner, Larcker, & Rajan, 1997), corporate social responsibility (Kong, Yang, Liu, & Yang, 2020; Maniora, 2018; Yuan, Lu, Tian, & Yu, 2018), investment decisions (Navissi, Sridharan, Khedmati, Lim, & Evdokimov, 2017), wage premiums (Sheng, Huang, Liu, & Yang, 2019) and insider trading (Chen & Keung, 2019). Ultimately, it affects corporate value. (Cho & Tsang, 2020).

More specifically, Bentley *et al.* (2013) study whether firms following different business strategies exhibit differences in the occurrence of financial reporting irregularities. They find that *Prospectors* are more frequently involved in lawsuits, irregularities and restatements than *Defenders*. They attribute this finding to the uncertainty of intensive innovation activities in *Prospectors* (Miles & Snow, 1978, 2003), which increases firms' risk level. The riskiness of *Prospectors* draws the attention of auditors. Chen *et al.* (2017) find that *Prospectors* are more likely to receive going concern and material weakness opinions than *Defenders*. In addition to the risk levels of *Prospectors*, the readability of financial reports may contribute to auditors' concerns about these firms. Lim *et al.* (2018) find that the readability of *Prospectors*' 10-K is significantly lower than that of *Defenders*. *Prospectors* have a wider range of products and market domains than defenders, and the complexity of product lines also explains the low readability of their 10-K. Bentley-Goode *et al.* (2017) further explain that the high frequency of restatements found by Bentley *et al.* (2013) is likely caused by *Prospectors*' internal weakness. Navissi *et al.* (2017) echo Bentley-Goode *et al.*'s (2017) view regarding the less stringent monitoring inside *Prospectors* and find that *Prospectors* are more likely to overinvest.

Moreover, business strategy is also found to influence firms' tax reporting behaviors. Higgins *et al.* (2015) examine whether and how business strategy influences firms' tax behaviors. They find that *Prospectors* are more aggressive in tax savings and pay lower taxes than *Defenders*. Their reasoning for the findings adopts four perspectives. First, *Prospectors* have more tax planning opportunities than firms with other business strategies. Investments in R&D result in tax credits or government bursaries, and geographic markets can trigger global income-shifting opportunities as well. Second, *Prospectors*' products and reputational

costs are arguably lower than those of firms with other business strategies. *Prospectors*' products are more unique and have less viable substitutes. Therefore, *Prospectors* have less concern if tax aggressive activities are made public, compared to other business strategies. Third, *Prospectors* are more adapted to embrace risk and uncertainties than other firms. As a result, *Prospectors* are better equipped to deal with the uncertainty resulting from aggressive tax planning. Fourth, the decentralized organizational structure of *Prospectors* has better coordination between tax departments and business units, which leads to better tax planning because tax departments are considered profit centers.

2.2 Tax and political connections

In addition to business strategy, political connections are found to be an important determinant of tax behaviors as well. Alignment theory suggests that majority shareholders steer firms in the direction of their best interest (Fan & Song, 2019). For example, family ownership makes firms less aggressive in tax savings (Chen, Chen, Cheng, & Shevlin, 2010). Fan and Song (2019) suggest an extended alignment effect in which firms may be impacted not only by shareholder ownership but also by the significant influence of shareholders or stakeholders such as governments. Governments can affect firms' tax behaviors through political connections (Kim & Zhang, 2016).

Political connections are especially important in an emerging economy because they compensate for weaknesses in the institutional environment (Conyon *et al.*, 2015; Li & Zhang, 2007). Moreover, political connections bring firms special resources, such as expansion to more markets (Du, Zeng, & Du, 2014; Luo, 2003), easier access to capital (Wu *et al.*, 2012), easier access to bank loans (Claessens *et al.*, 2008) and lower cost of capital (Boubakri *et al.*, 2012). Firms strive to maintain such resources via political connections with governments. As a result, they may voluntarily give up tax planning and pay a fair amount of tax. There is empirical evidence supporting this prediction (Zeng, 2010). For instance, Deng, Yan, and Sun (2020) find that SOEs controlled by the central government exhibit the weakest tendency to invest in tax havens compared to other firms, signaling central SOEs are less aggressive in tax planning. Central SOEs are followed by SOEs controlled by local governments, politically connected private firms and private firms without political connections, and these groups exhibit an increasing tendency to invest in overseas tax havens. The results indicate that the privileges offered by political connections alleviate international tax avoidance.

In contrast, Kim and Zhang (2016) find that politically connected firms are more tax aggressive, which can be explained by greater risk-taking behaviors induced by political connections. Due to the many benefits of political connections, including many tax benefits (Lin, Mills, Zhang, & Li, 2018), firms may be motivated to take on risker projects because they believe they can survive with the help of governments. Moreover, political connections work as a protective umbrella, as politically connected firms are less likely to be penalized, which also promotes risky activities. Lin *et al.* (2018) establish a negative relationship between tax enforcement effectiveness and political connections. Together, it is inconclusive in the literature whether political connections accelerate or restrict tax aggressiveness.

2.3 Hypothesis development

In this study, we examine whether political connections affect the association between tax strategy and tax aggressiveness in China. Despite the underdeveloped institutional environment in emerging economies, prospectors in these economies are still expected to have more opportunities for tax planning and a stronger willingness to engage in tax planning. Therefore, we expect that there is a positive association between the prospector strategy and tax aggressiveness, similar to the results from Higgins *et al.* (2015). In the paper, the authors argue that prospector are more aggressive in tax planning because prospectors

have more tax planning opportunities, have lower reputation costs, are better equipped to deal with risk and uncertainty and have better coordination with business units. These characteristics of prospectors are likely to be affected by political connections.

For example, although prospectors have more opportunities to save taxes, politically connected prospectors may believe that the benefits of political connections outweigh saving taxes and therefore voluntarily give up tax saving opportunities. Firms do not always make a "rational" choice to minimize their taxes, and they trade off tax savings with other benefits (Frank, Lynch, & Rego, 2009). In addition, reputation costs could be high for prospectors with political ties because governments and politicians are less likely to engage with firms with bad publicity such as aggressive tax planning. Moreover, extant studies show that political connections could increase firms' risk-taking attitudes (Boubakri, Mansi, & Saffar, 2013; Opper, Nee, & Holm, 2017). This is because political connections could help firms recover from failure more easily (e.g. more government subsidies, more government contracts), which encourages risk-taking behaviors.

In addition to the effects on firm characteristics that are related to Higgins *et al.* (2015), political connections can provide benefits that are more valuable in emerging economies because they can overcome underdeveloped legal system, institutional support and law enforcement. For example, concentrated on R&D innovation, prospectors rely on governments to legally recognize and enforce the protection of their intellectual properties. Arguably, recognition and enforcement are weaker in emerging economies, which makes political connections more important to prospectors. In addition, political connections are also valuable to prospectors when entering new markets because political connections can help overcome unpredictable barriers and obstacles that are not related to usual business practices.

To summarize, we posit that political connections should have a significant influence on the association between business strategy and tax aggressiveness. Political connections of prospectors could mitigate their incentives to be tax aggressive because the benefits of political connections outweigh the costs of higher taxes. Alternatively, political connections could make prospectors even more risk-taking and thus be more tax aggressive. Therefore, it is essentially an empirical question to examine how political connections affect the relationship between business strategy and tax aggressiveness in an emerging economy such as China. Based on the discussion above, we propose the following nondirectional hypothesis:

H1. Political connections have a positive or negative effect on the association between business strategy and tax aggressiveness in Chinese public firms.

3. Sample and methodology

3.1 Sample construction

To test our hypotheses, we require firms' financial data, firms' ownership data and data on firm executives' and directors' political connection backgrounds. Our sample construction starts with all firm-year observations available from the CSMAR database for the period between 2011 and 2017. Following the prior literature, we exclude financial firms and nonprofit organizations as they are highly regulated or not profit-seeking. Moreover, we exclude "special treatment" (ST) firms, which are firms that report losses for two consecutive years and have "ST" added to their stock names. We believe these firms strive to avoid delisting and may focus more on reporting higher income instead of saving taxes. Due to their potential unique behaviors, we exclude them from our test.

For the remaining firm-year observations, we first retrieve their financial data, financial market-related data and ownership data from the CSMAR. Then, we merge the R&D expenditure data that we obtained from the Wind database with the other data from CSMAR.

The R&D data are used to compute firms' strategy scores. Finally, we manually collected the political background of firms' executives and board members, and the details are presented in section 3.4. After we delete missing variables, the final sample consists of 10,830 firm-year observations (2,240 individual firms).

3.2 Measure of business strategy

We follow recent studies that use Mile and Snow's business strategy typology to measure firms' business strategies (Bentley *et al.*, 2013; Chen *et al.*, 2017; Higgins *et al.*, 2015; Lim *et al.*, 2018).

In the first step, we compute six variables to signal six dimensions of a firm's business operations, and each dimension contains certain elements of a firm's business strategies. The six variables are (1) R&D expenditures as a percentage of total sales; (2) the ratio of the number of employees to total sales; (3) the one-year growth of total sales (the difference between the current year's sales and the last year's sales divided by last year's sales); (4) marketing expenses as a percentage of total sales; (5) the standard deviation of the number of employees in the past five years and (6) the net property, plant and equipment as a percentage of total assets.

In the second step, we calculate the rolling average of each variable above in the past five years. Then, we rank the rolling average of each of the six variables by forming quintiles within each industry in each year. Within each industry year, the observations in the top quantile receive a score of 5, the observations in the next quantile receive a score of 4 and so on, while the observations in the bottom quantile receive a score of 1. Next, we compute the strategy score by summing up the ranking scores of the six variables for each firm-year observation. The higher the strategy score is, the more aggressive a firm is in adopting the prospector strategy. In the last step, we define *Prospectors* as firm-year observations with a strategy score of 24 or higher (the highest possible score is 30). We define *Defenders* as firm-year observations with a strategy score of 12 or lower (the lowest possible score is 6). Firm-year observations with a strategy score between 13 and 23 are considered as *Analyzers*.

3.3 Measure of tax aggressiveness

Cash ETR measures the income tax paid for every dollar of reported income, and it captures the degree of aggressiveness of a firm's tax planning. Prior literature calculated cash ETR as firms' income tax paid divided by the pretax income. However, Chinese firms do not explicitly disclose their income tax paid, instead they disclose total taxes and fees paid to governments (Zeng, 2010). To solve this issue, we follow Bradshaw *et al.* (2019) and estimate the income tax paid as the sum of the income tax payable at the beginning of the year and the income tax expense for this year, subtracting the income tax payable at the end of the year. *Cash ETR* is calculated as this estimated income tax paid divided by pretax income. In a robustness test, we use GAAP ETR to proxy tax aggressiveness. GAAP ETR is defined as current year's income tax expense scaled by pretax income. Following the extant tax literature (Gupta & Newberry, 1997; Higgins *et al.*, 2015), we set the range of the ETR to be within 0 and 1. If the ETR is larger than 1, we reset it to one; if the ETR is smaller than 0, we reset it to zero.

3.4 Measures of political connections

Firms can form political connections via their owners or employees. In China, central and local governments control firms through various holding companies owned by the State-Owned Assets Supervision and Administration Commission (SASAC), which is a government agency that reports to governments (Fan & Song, 2019). In our study, we define our first type of politically connected firms, SOEs, as firms that are ultimately

controlled by central or local governments. The ultimate controller information is obtained from CSMAR.

Next, we define employees' political connections. Following the extant literature (Fralich & Fan, 2018; Peng, Sun, & Markóczy, 2015), we argue that an individual has political connections if they worked in government or military organizations or are a member of the NPC or the CPPCC. Our data collection began with gathering top executives' and directors' names from audited annual financial statements. Then following previous studies (Peng *et al.*, 2015), we manually collect their background information and NPC/CPPCC affiliation information from the Profile of Directors and Senior Managers sections in annual reports. An executive or a board member is coded as politically connected if they worked in a government or military organization or are members of NPC or CPPCC.

To summarize, we define three types of politically connected firms. First, SOEs (*SOE*) are firms that are ultimately controlled by governments. Second, a firm is politically connected via its board members (*PC_ Board*) if at least one board member is coded as politically connected. Third, a firm is politically connected via its executives (*PC_ MGT*) if at least one executive is coded as politically connected.

3.5 Control variables

We select our control variables following Higgins *et al.* (2015) and control firm size, return on assets (ROA), debt ratio, intangible assets intensity and inventory intensity in our model because these factors are found to influence firms' tax behaviors. We also control firms' cross-listing on another stock exchange outside mainland China because cross-listing signals firms' engagement in overseas business, which also influences firms' tax aggressiveness. Cross-listing (*Cross_List*) is a dummy variable which equals 1 if a firm is cross-listed in Hong Kong or a foreign exchange in a given year, and 0 otherwise.

A preliminary analysis of the data indicates certain extreme values. To reduce the effect of these outliers on the results, we winsorize all continuous variables by 1% at the top and 99% at the bottom, including firm size, ROA, debt ratio, intangible assets intensity and inventory intensity.

3.6 The model

Following Higgins *et al.* (2015), we use ordinary least square (OLS) to test our hypotheses and control for year and industry effects in the regression model. We cluster all standard errors at firm level. More specifically, we use the regression model expressed as equation (1) below to test hypothesis 1:

$$\begin{aligned} Cash\,ETR_{it} = {} & \beta_0 + \beta_1 Prospect_{it} + \beta_2 PC_{it} + \beta_3 Prospect_{it} * PC_{it} + \beta_4 Defend_{it} \\ & + \beta_5 Defend_{it} * PC_{it} + \beta_6 Size_{it} + \beta_7 ROA_{it} + \beta_8 Debt_{it} + \beta_9 Intan_{it} \\ & + \beta_{10} Inventory_{it} + \beta_{11} Cross\_List_{it} + \beta Years + \beta Industries + \varepsilon \end{aligned} \quad (1)$$

where

Cash ETR$_{it}$: cash effective tax rate, (income tax payable in year $t-1$ + income tax expenses in year t − income tax payable in year t)/(pretax income in year t);

Prospect$_{it}$: a dummy variable for prospector that equals 1 if the firm's *Strategy* score is equal to or higher than 24 and 0 otherwise;

Strategy$_{it}$: the computation of the strategy score is explained earlier in this section;

Defend$_{it}$: a dummy variable for defender that equals 1 if the firm's *Strategy* score is equal to or lower than 6 and 0 otherwise;

PC_{it}: the three measures of political connections, including *SOE*, *PC_Board* and *PC_MGT*;

SOE_{it}: a dummy variable that equals 1 if a firm's ultimate controller is a government, and 0 otherwise;

PC_Board_{it}: a dummy variable that equals to 1 if a firm has at least one board member who worked in a government or military organization or is a member of NPC or CPPCC, and 0 otherwise;

PC_MGT_{it}: a dummy variable that equals to 1 if a firm has at least one executive who worked in a government or military organization or is a member of NPC or CPPCC, and 0 otherwise;

$SIZE_{it}$: firm size, calculated as the natural log of total assets in year t;

ROA_{it}: return on assets, calculated as the pretax income for firm i in year t divided by total assets for firm i in year $t-1$;

$Debt_{it}$: debt ratio, calculated as total long-term debt divided by the beginning balance of total assets;

$Intan_{it}$: intangible asset intensity, calculated as intangible assets divided by the beginning balance of total assets;

$Inventory_{it}$: inventory intensity, calculated as inventory divided by the beginning balance of total assets;

$Cross\_list_{it}$: a dummy variable which equals to 1 if a firm is cross listed in a stock exchange outside mainland China in year t, and 0 otherwise.

Hypothesis 1 predicts that political connections affect the association between tax aggressiveness and business strategy; therefore, a significant β_3 will support Hypothesis 1. Higgins *et al.* (2015) find a negative association between cash ETR and prospector strategy; in other words, we should expect a negative $\beta 1$. We do not predict the sign of β_2 due to the competing theories and mixed empirical evidence regarding the relationship between tax aggressiveness and political connections.

4. Results

4.1 Descriptive results

Table 1 presents our sample descriptions. In the first three columns, we present the number of observations, the mean and the standard deviation of variables used in the regression analysis. The average of cash ETR in our sample is 25.9%, similar to Bradshaw *et al.* (2019). 38% of our samples are SOEs, and approximately 40% have at least one politically connected board member, consistent with prior studies (Bao *et al.*, 2016). Moreover, over 10% of firm-year observations have at least one politically connected top executive. In our sample, 6.4% of firms are classified as *Prospectors*, 8% are classified as *Defenders* and the rest are *Analyzers*. The weights of each group in the full sample are similar to the sample in Higgins *et al.* (2015), which comprise approximately 7% *Prospectors* and 7% *Defenders*. Overall, our summary statistics are comparable to the extant literature.

In columns 4–11, we divide all samples in our regression into three categories based on their strategy: *Prospectors*, *Defenders*, and *Analyzers*. We present the number of observations and the mean for each type of firms. Then, we perform two tests to compare the means of the subgroups. We first test whether the means are significantly different between *Prospectors* and *Defenders*. Next, we test the equality of the means in the three groups. The two sets of p-values of t-tests are presented in columns 8 and 11, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Full sample			Prospector		Defender		*T*-test	Analyzer		Equality test
	Obs	Mean	St dev	Obs	Mean	Obs	Mean	*p*-value	Obs	Mean	*p*-value
ETR	10,830	0.259	0.322	696	0.190	888	0.261	0.000	9,246	0.264	0.000
Size	10,830	22.197	1.263	696	22.290	888	21.926	0.000	9,246	22.216	0.000
ROA	10,830	0.050	0.076	696	0.061	888	0.052	0.014	9,246	0.050	0.000
Debt	10,830	0.080	0.117	696	0.082	888	0.062	0.000	9,246	0.082	0.000
Intan	10,830	0.059	0.062	696	0.059	888	0.052	0.025	9,246	0.059	0.005
Inventory	10,830	0.168	0.143	696	0.165	888	0.186	0.009	9,246	0.167	0.000
Cross_list	10,830	0.033	0.180	696	0.032	888	0.028	0.688	9,246	0.034	0.632
SOE	10,663	0.379	0.485	692	0.328	876	0.306	0.350	9,095	0.390	0.000
PC_Board	10,830	0.413	0.492	696	0.407	888	0.374	0.185	9,246	0.418	0.038
PC_MGT	10,830	0.112	0.315	696	0.119	888	0.098	0.175	9,246	0.112	0.347

Table 1.
Summary statistics

Note(s): 1. The dependent measures and independent variables are defined in Appendix

The average cash ETR in the *Prospector* subgroup is 19%, which is lower than the mean cash ETR in the *Defender* subgroups (i.e. 26%). The two means are significantly different at the 1% level. *Prospectors* are significantly larger in size and more profitable, with a higher debt ratio, a higher intangible asset intensity and a lower inventory intensity than *Defenders*. The two subgroups are similar in the proportion of cross-listed firms. These results are generally consistent with Miles and Snow's (1978, 2003) framework. For instance, *Prospectors* are expected to have greater R&D investments, leading to a higher percentage of intangible assets as a proportion of total assets. There are no significant differences in the percentage of politically connected firms between *Prospectors* and *Defenders* regardless of how political connections are measured (i.e. SOEs, politically connected boards and politically connected executives).

The average ETR in the *Analyzer* subgroup is 26.4%, higher than *Prospectors* and *Defenders*. The ETRs in the three groups are significantly different at the 1% level. Moreover, the three groups are significantly different in terms of size, ROA, debt ratio, intangible intensity and inventory intensity, consistent with Miles and Snow's conjecture that different strategies result in different firm characteristics.

In Table 2, we present the correlations among the variables used in our regressions. The lower-triangular cells report Pearson's correlation coefficients, whereas the upper-triangular cells report Spearman's rank correlation coefficients. No correlations are higher than 50%, suggesting that multicollinearity is not a major concern in our study.

4.2 Regression results of hypothesis 1

We present the results of the Hypothesis 1 test in Table 3. In column 1, we report the results of re-testing Higgins *et al.*'s (2015) finding regarding the association between cash ETR and business strategy by excluding political connections and their associated interaction terms from equation (1). Similar to Higgins *et al.* (2015), the *Prospect* variable is negatively associated with cash ETR at the 1% level, whereas the association between *Defend* and cash ETR is not statistically significant. We also find that cash ETR is positively associated with firm size and negatively associated with ROA, consistent with Higgins *et al.* (2015).

In column 2, we add the first proxy of political connections, *SOE*, and its interactions with strategy variables *Prospect* × *SOE* and *Defend* × *SOE* to the regression. Our variable of interest, *Prospect* × *SOE*, is positively associated with cash ETR, and the association is significant at the 5% level, suggesting that SOE *Prospectors* are less tax aggressive compared

	CashETR	SOE	PC_Board	PC_MGT	Size	ROA	Debt	Intan	Inventory	Cross_list
CashETR	1	0.092***	0.014	0.041***	0.016	0.059***	−0.012	−0.022**	0.038***	0.042***
SOE	0.129***	1	0.058***	−0.130***	0.353***	−0.194***	0.228***	−0.053***	0.026***	0.146***
PC_Board	0.026***	0.058***	1	0.028***	0.085***	0.007	0.040***	0.003	0.027***	0.049***
PC_MGT	0.035***	−0.130***	0.029***	1	−0.032***	0.046***	−0.011	0.037***	0.038***	0.017*
Size	−0.012	0.370***	0.094***	−0.021**	1	0.018*	0.445***	−0.030***	0.028***	0.231***
ROA	−0.038***	−0.156***	0.012	0.032***	0.042***	1	−0.161***	0.023**	−0.009	−0.007
Debt	0.015	0.175***	0.038***	−0.004	0.459***	−0.042***	1	0.064***	−0.007	0.122***
Intan	−0.012	0.003	0.013	0.015	0.044***	0.093***	0.164***	1	−0.027***	0.028***
Inventory	0.051***	0.030***	0.035***	0.026***	0.082***	0.070***	0.097***	−0.034***	1	−0.039***
Cross_list	0.021**	0.146***	0.045***	0.022**	0.348***	−0.014	0.121***	0.056***	−0.040***	1

Note(s): 1. The dependent measures and independent variables are defined in Appendix
2. Lower-triangular cells report Pearson's correlation coefficients, and upper-triangular cells are Spearman's rank correlation
3. ***, ** and * denote statistical significance at the 1, 5 and 10% levels, respectively

Table 2.
Correlations

to non-SOE *Prospectors*. Therefore, hypothesis 1 is supported in the direction that political connections have a mitigation effect on the association between prospector strategy and tax aggressiveness in Chinese public firms. Additionally, our results show that after introducing political connections to the equation, *Prospect* is still negatively and significantly associated with cash ETR, suggesting that firms adopting prospector strategies are more aggressive in tax savings compared to other firms overall. *SOE* is positively and significantly associated with cash ETR, consistent with the extant literature that SOEs pay more tax than non-SOEs. Moreover, the coefficients on *Defend* and the associated interaction term are not statistically significant. These results suggest that firms adopting defender strategy do not exhibit a different level of tax aggressiveness compared to analyzers, and there is no significant difference in the extent of tax aggressiveness between politically connected *Defenders* and non-politically connected *Defenders*.

The estimated coefficients on *Prospect* and the associated interaction term *Prospect* × *SOE* in column 2 are −0.084 and 0.064, respectively. This suggests that all else being equal, non-SOE (i.e. *SOE* = 0) *Prospectors* on average pay 8.4% less tax compared to other non-SOEs. However, SOE (i.e. *SOE* = 1) *Prospectors* on average pay 2% (=−0.084 + 0.064) less tax compared to other SOEs. Considering that the mean value of cash ETR in our sample is 25.9%, we argue this 6.4% difference (i.e. coefficients on *Prospect* × *SOE* = 0.064) between the cash ETRs in non-SOE *Prospectors* and SOE *Prospectors* is economically significant. The untabulated mean of pretax income in our sample is 617 million RMB (97 million USD). This translates to an average difference in the income tax paid between SOE *Prospectors* and non-SOE *Prospectors* of 39.5 (=617 million × 0.064) million RMB (6 million USD).

In column 3, we add the second proxy of political connections, *PC_Board* and its interactions with strategy variables *Prospect* × *PC_Board* and *Defend* × *PC_Board* to the regression. Consistent with the results in column 2, *Prospect* × *PC_Board* is positively associated with cash ETR, and the association is significant at the 5% level. The results support the notion that *Prospectors* with politically connected boards are less tax aggressive compared to *Prospectors* without politically connected boards. Therefore, hypothesis 1 is supported. Results in column 3 also show that *Prospect* is negatively and significantly associated with cash ETR, and *Defend* is not significant, consistent with the results in column 2.

In column 4, political connections are measured as politically connected executives, *PC_MGT*, and we introduce this variable and associated interaction terms to the regression. Our results remain qualitatively the same as the results in columns 2 and 3. The interaction

Variables	(1) CashETR	(2) CashETR	(3) CashETR	(4) CashETR
Prospect	−0.064***	−0.084***	−0.084***	−0.078***
	(0.000)	(0.000)	(0.000)	(0.000)
SOE		0.035***		
		(0.000)		
Prospect × SOE		0.064**		
		(0.014)		
PC_Board			−0.001	
			(0.796)	
Prospect × PC_Board			0.047**	
			(0.021)	
PC_MGT				0.032***
				(0.001)
Prospect × PC_MGT				0.110**
				(0.034)
Defend	0.001	0.007	0.008	0.006
	(0.906)	(0.451)	(0.479)	(0.545)
Defend × SOE		−0.014		
		(0.502)		
Defend × PC_Board			−0.020	
			(0.238)	
Defend × PC_MGT				−0.043
				(0.144)
Size	0.006**	0.001	0.006**	0.006**
	(0.043)	(0.659)	(0.044)	(0.048)
ROA	−0.337***	−0.297***	−0.337***	−0.341***
	(0.000)	(0.000)	(0.000)	(0.000)
Debt	−0.004	−0.002	−0.004	−0.003
	(0.884)	(0.943)	(0.882)	(0.904)
Intan	0.039	0.052	0.040	0.031
	(0.417)	(0.274)	(0.403)	(0.506)
Inventory	−0.007	−0.011	−0.007	−0.006
	(0.752)	(0.634)	(0.762)	(0.787)
Cross_list	0.001	0.001	0.001	−0.000
	(0.933)	(0.953)	(0.943)	(0.982)
Constant	0.829***	0.905***	0.832***	0.833***
	(0.000)	(0.000)	(0.000)	(0.000)
Industries	Included	Included	Included	Included
Years	Included	Included	Included	Included
Cluster	Firms	Firms	Firms	Firms
Observations	10,830	10,663	10,830	10,830
R-squared	0.237	0.243	0.237	0.239

Note(s): 1. The dependent measures and independent variables are defined in Appendix
2. *p*-values are presented in parentheses
3. ***, ** and * denote statistical significance at the 1, 5 and 10% levels, respectively

Table 3.
Tests of hypothesis 1

between *Prospectors* and politically connected executives (*Prospect* × *PC_MGT*) is positive and significant at the 5% level. Cash ETR is negatively associated with *Prospect* and positively associated with *PC_MGT*. Taken together, *Prospectors* are more aggressive in tax saving compared to other firms, but *Prospectors* with politically connected executives are less aggressive compared to *Prospectors* without politically connected executives. Therefore, our hypothesis 1 is again supported. In addition, *Defend* and its interaction term with political connections are not significantly associated with cash ETR, similar to previous results.

4.3 Robustness tests

We recognize the potential endogeneity of political connections in our regression models, i.e. a politically connected board of director or top executive could be an endogenous event within a firm while tax planning is conducted [3]. To alleviate this endogenous concern, we conduct three sets of robustness tests – a change analysis, an instrumental variable test and alternative measures/samples.

First, we perform a change analysis to re-examine hypothesis 1. In Table 3, we find a positive relationship between Cash ETR and the interaction terms of political connections and prospector strategy, suggesting that politically connected firms with prospector strategies are less likely to be aggressive in tax savings than unconnected prospector firms. This, we argue, is because the benefits of political connections outweigh the benefits of tax savings for prospector firms. If this is the case indeed, we should observe that cash ETRs increase significantly when a prospector firm switches from politically unconnected to politically connected compared to other prospectors, all else being equal. To this end, we perform a change analysis by creating two dummy variables [4]: *New_PC_Board* and *New_PC_MGT*, which equal 1 if a firm changes from being politically unconnected (*PC_Board*/*PC_MGT* = 0) in year $t-1$ to being politically connected (*PC_Board*/*PC_MGT* = 1) in year t, and 0 otherwise. These two dummy variables are used to replace *PC_Board* and *PC_MGT* in equation (1). Following Klassen and Mawani's (2000) change analysis, we use ETR's change (ΔETR) as the dependent variable and replace each control variable in equation (1) with its change value from year $t-1$ to year t. Additionally, we eliminate year and industry effects from our change analysis because they are constant (Klassen & Mawani, 2000). The test results are reported in columns 1 and 2 of Table 4, and we find that the change in ETR remains positively and significantly associated with the interaction of *Prospect* and *New_PC_Board* and the interaction of *Prospect* and *New_PC_MGT*, implying that the increase in tax payment is greater for prospector firms turning to be politically connected than for other prospectors.

In columns 3 and 4, we include year and industry dummies in the regression to account for any systematic change of tax in a given year or a given industry. Our test results still hold after controlling for year and industry effects, and the change in ETR is still positively and significantly associated with the interaction of *Prospect* and *New_PC_Board* and the interaction of *Prospect* and *New_PC_MGT*.

In addition to the change in ETR, we are curious whether the level of ETR is higher for firms becoming politically connected. Thus, in columns 5–8, we use the level of ETR (i.e. *CashETR*) as the dependent variable and use *New_PC_Board* and *New_PC_MGT* as the test variables. We eliminate (control for) year and industry effects in columns 5–6 (columns 7–8). We find that the coefficients of *Prospect* × *New_PC_Board* and *Prospect* × *New_PC_MGT* are positive and statistically significant across all four columns, indicating that when prospector firms become politically connected, they pay more taxes than other prospectors. These findings corroborate hypothesis 1.

In the second robustness test, we conduct an instrumental variable approach in a two-stage least square regression (2SLS) to alleviate the potential endogeneity in our empirical model. We choose two instrumental variables for political connections. The first instrumental variable is the province-level index of marketization developed by Wang *et al.* (2019) to track the overall degree of marketization environment of provinces in China (Shi *et al.*, 2012). Firms located in regions with a more developed institutional environment are expected to rely less on political connections (Zhang, Li, & Li, 2016), and there are no obvious theories to support a direct relationship between a region's level of institutional development and its level of tax aggressiveness. The second instrumental variable is the distance from Beijing to a firm's headquarter. This choice is motivated by prior research demonstrating the impact of a firm's location on political connections (Boubakri *et al.*, 2012). As discussed in Chen and Qiu (2017),

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ΔETR				CashETR			
Prospect	−0.024*	−0.024*	−0.041***	−0.040***	−0.076***	−0.075***	−0.072***	−0.071***
	(0.068)	(0.055)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
New_PC_Board	0.033**		−0.001		−0.086***		−0.015*	
	(0.023)		(0.967)		(0.000)		(0.096)	
Prospect × New_PC_Board	0.074**		0.089**		0.088***		0.094***	
	(0.046)		(0.023)		(0.003)		(0.001)	
New_PC_MGT		0.051*		0.021		−0.063***		0.003
		(0.068)		(0.376)		(0.001)		(0.885)
Prospect × New_PC_MGT		0.264*		0.337***		0.295***		0.302***
		(0.059)		(0.002)		(0.001)		(0.002)
Defend	0.008	0.013	−0.006	−0.004	−0.004	−0.001	−0.001	0.002
	(0.423)	(0.186)	(0.501)	(0.593)	(0.750)	(0.907)	(0.888)	(0.810)
Defend × New_PC_Board	0.031		0.005		0.020		0.028	
	(0.518)		(0.919)		(0.516)		(0.345)	
Defend × New_PC_MGT		−0.104		−0.060		−0.084***		−0.066**
		(0.238)		(0.146)		(0.002)		(0.014)
ΔSize	0.026***	0.027***	0.007***	0.007***	−0.007**	−0.008***	0.006**	0.006**
	(0.000)	(0.000)	(0.001)	(0.001)	(0.016)	(0.008)	(0.043)	(0.049)
ΔROA	0.123***	0.126***	0.133***	0.136***	−0.146***	−0.142***	−0.339***	−0.335***
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ΔDebt	−0.041*	−0.041*	−0.012	−0.013	0.060*	0.060*	−0.003	−0.003
	(0.098)	(0.096)	(0.588)	(0.583)	(0.058)	(0.058)	(0.903)	(0.902)
ΔIntan	−0.009	−0.006	−0.055	−0.055	−0.037	−0.043	0.038	0.038
	(0.802)	(0.869)	(0.130)	(0.125)	(0.474)	(0.409)	(0.431)	(0.431)
ΔInventory	−0.086***	−0.087***	−0.059***	−0.058***	0.121***	0.121***	−0.006	−0.006
	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.801)	(0.791)
ΔCross_list	−0.054***	−0.057***	−0.007	−0.008	0.053***	0.056***	0.002	0.001
	(0.000)	(0.000)	(0.491)	(0.422)	(0.002)	(0.002)	(0.919)	(0.948)
Constant	−0.677***	−0.680***	−0.161***	−0.157***	0.412***	0.422***	0.829***	0.833***
	(0.000)	(0.000)	(0.002)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)
Industries			Included	Included			Included	Included
Years			Included	Included			Included	Included
Cluster	Firms	Firms	Firms	Firms	Firms	Firms	Firms	Firms
Observations	11,247	11,247	10,830	10,830	11,247	11,247	10,830	10,830
R-squared	0.008	0.008	0.353	0.354	0.013	0.010	0.438	0.438

Note(s): 1. The dependent measures and independent variables are defined in Appendix
2. *p*-values are presented in parentheses
3. ***, ** and * denote statistical significance at the 1, 5, and 10% levels, respectively

Table 4.
Change of political connections

geographical distance matters to the cost of monitoring, and in our case, a longer geographical distance from Beijing means that (1) obtaining attention and support from the central government would be harder, making political ties even more valuable and (2) the monitoring of the central government would be weaker, enabling political ties to be more effective when serving as the protection umbrella for firms. Additionally, as the local government monitors the tax collection, we do not expect the distance between Beijing and a firm's headquarter to influence firms' degrees of tax aggressiveness directly. To determine whether the instruments are weak, we perform the Anderson-Rubin Wald test, and the *p*-values of 0.000 and 0.018 for *PC_Board* and *PC_MGT*, respectively, reject the hypothesis that the instrumental variables are weak. We also perform the Sargan test for over-identification restrictions to confirm the validity of the instrument variables. The *p*-values of 0.174 and 0.345 for *PC_Board* and *PC_MGT*, respectively, fail to reject the null hypothesis that the surplus instrumental variable is valid. The second stage of the 2SLS regression results of testing hypothesis 1 are reported in columns 1 and 2 in Table 5 for *PC_Board* (*PC_MGT*) [5]. Our results reported in Table 5 confirm that the results of hypothesis 1 withstand this robustness test by being qualitatively similar to the findings reported in Table 3.

Variables	(1) CashETR	(2) CashETR
Prospect	−0.447**	−0.209**
	(0.024)	(0.014)
PC_Board_Hat	−0.237**	
	(0.046)	
Prospect × PC_Board_hat	0.949*	
	(0.053)	
PC_MGT_Hat		−0.849**
		(0.045)
Prospect × PC_MGT_hat		1.277*
		(0.078)
Defend	0.008	−0.141*
	(0.941)	(0.062)
Defend × PC_Board_hat	−0.041	
	(0.887)	
Defend × PC_MGT_hat		1.317*
		(0.064)
Size	0.012**	0.006
	(0.019)	(0.131)
ROA	−0.346***	−0.244***
	(0.000)	(0.001)
Debt	−0.019	0.036
	(0.552)	(0.405)
Intan	0.046	0.064
	(0.394)	(0.346)
Inventory	0.034	0.043
	(0.248)	(0.206)
Cross_list	0.002	0.065*
	(0.904)	(0.074)
Constant	0.813***	0.836***
	(0.000)	(0.000)
Industries	Included	Included
Years	Included	Included
Cluster	Firms	Firms
Observations	10,735	10,735
R-squared	0.253	0.191

Note(s): 1. The dependent measures and independent variables are defined in Appendix
2. *p*-values are presented in parentheses
3. ***, ** and * denote statistical significance at the 1, 5 and 10% levels, respectively

Table 5.
2SLS for hypothesis 1

Finally, we perform two additional robustness tests by using alternative measures and subsamples. First, we change our measure of tax aggressiveness from cash ETRs to GAAP ETRs, defined as income tax expenses scaled by pretax income. GAAP ETRs are widely used in the tax literature for measuring tax aggressiveness (Lennox, Lisowsky, & Pittman, 2013), and using GAAP ETRs as a proxy for tax aggressiveness continues to support our finding from hypothesis 1 which states that politically connected *Prospectors* are less aggressive in pursuing tax savings than non-politically connected *Prospectors*. The results are reported in columns 1–3 of Table 6.

Second, following Higgins *et al.* (2015), we exclude analyzers from our regression sample, leaving only defenders and prospectors. This provides us with a direct comparison between the two groups. Based on the results reported in columns 4–6 of Table 6, we conclude that our findings of hypothesis 1 still hold when examining a smaller sample with only *Prospectors* and *Defenders*.

Variables	(1) GaapETR	(2) Alternative ETR GaapETR	(3) GaapETR	(4) CashETR	(5) Prospectors and defenders only CashETR	(6) CashETR
Prospect	−0.026***	−0.027***	−0.023***	−0.094***	−0.088***	−0.080***
	(0.000)	(0.001)	(0.004)	(0.000)	(0.000)	(0.000)
SOE	0.007			0.016		
	(0.298)			(0.482)		
Prospect × SOE	0.035*			0.092***		
	(0.067)			(0.006)		
PC_Board		−0.005			−0.022	
		(0.310)			(0.204)	
Prospect × PC_Board		0.030*			0.063**	
		(0.058)			(0.014)	
PC_MGT			0.008			−0.005
			(0.254)			(0.886)
Prospect × PC_MGT			0.067***			0.145**
			(0.005)			(0.015)
Defend	0.002	−0.005	−0.005			
	(0.825)	(0.541)	(0.409)			
Defend × SOE	−0.017					
	(0.238)					
Defend × PC_Board		0.005				
		(0.689)				
Defend × PC_MGT			0.022			
			(0.373)			
Size	0.011***	0.012***	0.012***	0.011	0.017*	0.016*
	(0.000)	(0.000)	(0.000)	(0.244)	(0.075)	(0.079)
ROA	−0.019	−0.026	−0.027	−0.227***	−0.270***	−0.271***
	(0.505)	(0.345)	(0.326)	(0.005)	(0.001)	(0.001)
Debt	−0.021	−0.018	−0.018	−0.043	−0.075	−0.059
	(0.364)	(0.431)	(0.443)	(0.643)	(0.418)	(0.509)
Intan	0.088**	0.090**	0.087**	0.112	0.111	0.064
	(0.024)	(0.021)	(0.025)	(0.428)	(0.436)	(0.623)
Inventory	0.051***	0.052***	0.053***	0.049	0.065	0.078
	(0.005)	(0.004)	(0.004)	(0.448)	(0.314)	(0.221)
Cross_list	−0.002	−0.005	−0.005	−0.015	−0.039	−0.030
	(0.902)	(0.716)	(0.705)	(0.719)	(0.392)	(0.513)
Constant	−0.159**	−0.176***	−0.175***	0.479**	0.372	0.371
	(0.011)	(0.005)	(0.005)	(0.042)	(0.109)	(0.105)
Industries	Included	Included	Included	Included	Included	Included
Years	Included	Included	Included	Included	Included	Included
Cluster	Firms	Firms	Firms	Firms	Firms	Firms
Observations	10,663	10,830	10,830	1,568	1,584	1,584
R-squared	0.043	0.042	0.043	0.167	0.156	0.163

Note(s): 1. The dependent measures and independent variables are defined in Appendix
2. *p*-values are presented in parentheses
3. ***, ** and * denote statistical significance at the 1, 5 and 10% levels, respectively

Table 6.
Robustness tests

5. Conclusion

In this paper, we investigate whether political connections affect the association between business strategy and tax aggressiveness in an emerging economy such as China. Similar to Higgins *et al.* (2015), we find that *Prospectors* are more tax aggressive compared to other firms. However, the novel results in the current paper are that the tax aggressiveness in *Prospectors* is mainly driven by *Prospectors* without political connections. Firms in emerging economies rely on political connections to overcome institutional underdevelopment, lack of

legal protection and enforcement and to protect copyrights and intellectual properties. Therefore, the potential costs of losing political connections outweigh the benefits of tax savings for firms in emerging economies such as China. Our results are robust to change analysis, instrumental variables approach to account for the potential endogeneity in our specification and alternative measures of tax aggressiveness.

In summary, we extend the recent tax literature that primarily uses US data by focusing on the role of political connections and provide new evidence on the determinants of tax aggressiveness in an emerging economy such as China. Our results also indicate the importance of investigating the interplay between determinants of tax aggressiveness (i.e. business strategy and political connections) that have been examined separately in previous studies. We call for more studies in the future to explore the potential interaction effects among the current known determinants of tax aggressiveness.

Notes

1. For example, Higgins *et al.* (2015) find that *Prospector* firms (e.g. firms focus on innovation and differentiation) are more tax aggressive than *Defender* firms (e.g. firms focus on cost reduction and stability). Kim & Zhang (2016) show that politically connected firms are more tax aggressive than non-connected firms.
2. Higgins *et al.* (2015) find that there is no significant association between defender strategy and tax aggressiveness. Following this result, our discussion of business strategy primarily focuses on prospector strategy. However, we do include defender strategy and its interaction with political connections in all our empirical specifications.
3. We believe that SOE suffers much less endogeneity as a measure of political connections because being an SOE is not a decision made at firm level. We therefore only use instrumental variables for political connected board members and political connected executives.
4. SOE lacks variation and thus cannot be tested in a change model.
5. In Tables 8 and 9, *PC_Board_hat* and *PC_MGT_hat* are predicted value of *PC_Board* and predicted *PC_MGT* from the first-stage regression.

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Appendix

Variable	Definition
$Cash\ ETR_{it}$	(Income tax payable$_{i,t-1}$ + income tax expenses$_{it}$ − income tax payable$_{it}$)/pretax income$_{it}$
$GAAP\ ETR_{it}$	income tax expenses$_{it}$/pretax income$_{it}$
$Strategy_{it}$	strategy score is computed following Higgins *et al.* (2015), and details are illustrated in Section 3.2
$Prospect_{it}$	a dummy variable for prospector that equals 1 if the firm's Strategy score is equal to or higher than 24 and 0 otherwise
$Defend_{it}$	a dummy variable for defender that equals 1 if the firm's Strategy score is equal to or lower than 6 and 0 otherwise
PC_{it}	political connections, proxied by *SOE*, *PC_Board*, and *PC_MGT*
SOE_{it}	a dummy variable that equals 1 if a firm's ultimate controller is a government, and 0 otherwise
PC_Board_{it}	a dummy variable that equals to 1 if a firm has at least one board member who worked in a government or military organization or is a member of NPC or CPPCC, and 0 otherwise
PC_MGT_{it}	a dummy variable that equals to 1 if a firm has at least one executive who worked in a government or military organization or is a member of NPC or CPPCC, and 0 otherwise
$SIZE_{it}$	firm size, calculated as the natural log of total assets in year t
ROA_{it}	return on assets, calculated as the pretax income for firm i in year t divided by total assets for firm i in year $t-1$
$Debt_{it}$	debt ratio, calculated as total long-term debt divided by beginning of the year total assets
$Intan_{it}$	intangible assets intensity, calculated as intangible assets divided by beginning of the year total assets
$Inventory_{it}$	inventory intensity, calculated as inventory divided by beginning of the year total assets
$Cross\_list_{it}$	a dummy variable which equals to 1 if a firm is cross listed in a stock exchange outside mainland China in year t, and 0 otherwise
$New\_PC\_Board_{it}$	equals1 if a firm changes from being politically unconnected (*PC_Board* = 0) in year $t-1$ to being politically connected (*PC_Board* = 1) in year t, and 0 otherwise
$New\_MGT\_Board_{it}$	equals1 if a firm changes from being politically unconnected (*PC_MGT* = 0) in year $t-1$ to being politically connected (*PC_MGT* = 1) in year t, and 0 otherwise
ΔETR_{it}	$ETR_{it} - ETR_{i,t-1}$
$PC\_Board\_hat_{it}$	predicted value of *PC_Board* from the first stage regression
$PC\_MGT\_hat_{it}$	predicted value of *PC_MGT* from the first stage regression

Table A1.
Variable definitions

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