Visible and Invisible Barriers: Evidence from Foreign Joint Venture and Domestic Brokerages in China

Abstract

This paper examines how foreign joint venture brokerages in China decide on their strategies when facing with two entry barriers: (1) ownership restriction barrier that discourages foreign partners from sharing superior technical capabilities with domestic partners, and (2) institutional barrier that prevents the joint ventures from incorporating politically sensitive information in their forecasts. By comparing the foreign joint venture and domestic brokerages' analyst reports for the same firm in the same year, we find that foreign brokerages incorporate significantly more technical capabilities into their reports and the technical capabilities contribute significantly more to their forecast accuracy than those of domestic brokerages. Our evidence also shows that there is more political content in domestic brokerages' reports and their political content contributes more significantly to their forecast accuracy. This suggests that the joint ventures are using foreign partners' superior technical capabilities as a competitive strategy. However, even with the help of domestic partners, the joint ventures cannot compete with domestic brokerages on the strategy of utilizing political information for forecasting due to the institutional barrier.

Keywords: trade barriers, institutional barriers, protectionist barriers, technology, political information, financial analysts, joint venture, regulatory restrictions, protectionist policy

JEL codes: O24; M48; G24; F23; F13; F21

1. Introduction

Foreign brokerages are faced with at least two types of entry barriers that hamper their competitiveness when entering into the emerging market. The first is a more visible barrier that relates to regulatory restrictions on market access. By requiring foreign brokerages to form joint ventures with domestic brokerages, it reduces the incentives of the foreign partners to utilize their technical capabilities since they will have to share them with the domestic partners. This issue is even more serious when the regulation further restricts the foreign partner's maximum ownership to be a minority partner in the joint venture (Arnand and Kogut 1997; Blomström and Sjöholm 1999; Müller and Schnitzer 2006). The second is a more invisible barrier that relates to the institutional distance between the foreign firms' host countries and the emerging economies (Zaheer 1995; Eden and Miller 2004).[1] This type of barrier is less tangible but often acts as a strong barrier to prevent the foreign joint venture brokerage from obtaining and incorporating important local information into its forecasts.

Empirical evidence on the dynamics between these barriers are rare and ex-ante predictions on how these barriers impact entry firms' strategies are difficult to form. On one hand, the foreign partners may be willing to share technical knowledge with their domestic partners in exchange for their help to access and incorporate local information (e.g., political information or information obtained through private social networks) into the forecasts.[2] On the other hand, the local information that is essential for forecasting

[1] There is a growing body of research in Accounting and Finance that studies language and cultural barriers in the access and dissemination of information e.g. Lundholm, Rogo and Zhang (2014), Brochet, Naranjo, and Yu (2016), and Du, Yu, and Yu (2017).

[2] Li, Wong, and Yu (2020) find that relational contracts in China could increase the information barrier for analysts that do not have social ties with the firms they follow.

earnings may be too secretive or sensitive to be shared with the foreign partners. Even if the joint venture gains access to the local information, it may be difficult to utilize it as a strategy to compete with domestic brokerages because it is difficult to effectively incorporate such information into the joint ventures' technical and standardized methods of forecasting. Yet, the extent to which foreign joint venture brokerages share their technical capabilities and/or incorporate local information in their forecasts will have important implications for policy setters and other foreign firms in emerging economies.

In this study, we focus on financial brokerages in China. This setting contains two salient features that highlight the wedge between the formal and informal barriers. First, during our sample period, a foreign brokerage is faced with significant regulatory restrictions and is only permitted to enter the market by taking minority ownership in a joint venture in which a domestic brokerage has majority ownership. Second, in China, politics has a first-order effect on firms' performance and information environment. However, the related political information is usually sensitive in nature, creating a strong institutional barrier for foreign brokerages.

To examine the effects of these barriers on foreign joint venture brokerages' competitive strategies, we compare the content and the earnings forecast accuracy of the analyst reports between the foreign joint venture brokerages and domestic brokerages (Huang, Zang and Zheng 2014; Huang, Lehavy, and Zang 2018). We posit that if the regulatory restriction barriers are strong (weak), foreign joint venture brokerages will not (will) contribute superior technical capabilities to the joint venture to form a competitive strategy in their forecasting. As a result, their analyst reports will not (will) contain more technical and quantitative analyses content than that of domestic brokerages, and this

content will not (will) contribute more significantly to the earnings forecast accuracy of foreign brokerages than domestic brokerages.

Similarly, if the institutional barriers are strong (weak), we expect domestic brokerages to have better access to political information and be more able to incorporate this information into their reports. Hence, we expect that the domestic brokerages' reports will (will not) contain more political information than that of foreign brokerages and such information contributes (does not contribute) more significantly to the earnings forecast accuracy of domestic brokerages than foreign brokerages.[3] Whether and how one or both of these barriers impact the joint ventures' strategic decisions in using technical capabilities and political information in their forecasts is an empirical issue. The final outcome is likely to depend on the dynamic relation between the foreign partners' willingness to share their technical capabilities, and the domestic partners' ability to gain access to political information and the joint ventures' ability to incorporate it into their forecasts.

To ensure that the content of the reports is comparable between domestic and joint venture brokerages, we limit our sample to firms that are covered by at least one domestic and one joint venture brokerage. Our sample consists of 97 domestic brokerage houses, 12 of which are foreign joint ventures. We examine 78,070 analyst reports (in Chinese) of 2,051 domestically listed Chinese firms between 2010 and 2015 from a vendor in China, Today's Investment Co.[4]

We begin our analyses by examining whether the joint ventures utilize their technical capabilities to compete with the domestic brokerages. We posit that if foreign

[3] Our results are robust to other measure of analyst performance such as price forecast (see subsection 6.4).
[4] All the analyst reports in our sample happen to be written by analysts with Chinese last names, which suggests that any documented differences are not driven by a difference in culture.

joint ventures employ technical capabilities to compete with domestic brokerages, there will be more technical and quantitative analysis in the former's analyst reports. We measure this using two separate metrics: (1) the non-textual content such as tables, charts, and figures, and (2) financial statement analysis and valuation-related keywords in the analyst reports. We find that when compared to domestic brokerages, joint venture brokerages use the two metrics more in their reports, and each metric contributes significantly to the earnings forecast accuracy only for joint venture brokerages and not for domestic brokerages. This is consistent with the conjecture that despite the ownership restriction, foreign joint ventures import technical capabilities into China and these capabilities enable them to compete with domestic brokerages in forecast accuracy.

Next, we examine whether institutional barriers impact joint ventures competitive strategies. We measure the amount of political content in the analyst reports based on the textual similarity between the analyst reports and political articles in the *People's Daily*, a political mouthpiece for the central government.[5] We find that, when compared to joint venture brokerages which are covering the same firm in the same year, domestic brokerages have more political content in their reports. This provides prima facie evidence that foreign joint ventures are not as proficient as domestic brokerages in accessing and/or incorporating political information into their forecasts. More importantly, we find that domestic brokerages' political content contributes significantly more to forecast accuracy than that of joint venture brokerages. This suggests that even if the foreign partners may gain access to political information through contributing technical capabilities to the joint

[5] There is a growing body of Accounting literature that examines readability, tone and topical content of the textual information in 10K, conference calls and analyst reports e.g. Li (2008), Miller (2010), Huang, Zang and Zheng (2014), and Davis, Ge, Matsumoto and Zhang (2015).

ventures, domestic brokerages are still more effective in using the political information in making earnings forecasts.

However, it is possible that domestic (foreign) brokerages may be just as accurate in their forecasts for firms that require technical analysis (political information) but they do not provide such content in the analyst reports.[6] We examine this possibility by examining if foreign (domestic) brokerages are more accurate when making forecasts for firms that are subject to greater technical capabilities (political forces), and compare the forecast accuracy of domestic and foreign brokerages using two sets of cross-sectional tests. First, we find that foreign brokerages' earnings forecasts are more accurate than those of domestic brokerages for firm-years that require technical capabilities to forecast. This is consistent with the conjecture that foreign analysts are better able in making forecasts for firms that are more marketized. Second, consistent with the conjecture that domestic brokerages can better forecast firms subject to more political influence, we find that their earnings forecasts are more accurate than those of foreign brokerages for highly political firm-years. Further analyses also indicate that our results are unlikely to be driven by clientele effects, such as customers from joint venture brokerages being different from domestic brokerages' customers.

In the last part of the study, we examine two additional aspects of the brokerage business. First, consistent with the joint venture brokerages facing institutional barriers when deciding on their strategies, we find that they are limiting their coverage to firms operating in provinces with less government intervention and stronger property rights protection. Second, we find that when hiring new analysts from domestic brokerages, they

[6] One possibility is joint venture brokerages may have the political sensitive information and incorporate it in their forecasts, but they do not reveal it in their analyst reports.

prefer to hire analysts who are more technically capable. That is, compared to other domestic analysts, the analysts that are hired by foreign joint ventures provide more technical analysis and less political information in their reports while they were still working at the domestic brokerages. This provides corroborative evidence that institutional barriers create a constrain for foreign joint venture brokerages to compete with domestic brokerages. Instead of mimicking domestic brokerages' strategy in incorporating political information in their forecasts, they build on their comparative strengths in utilizing technical capabilities to enhance performance.

Our research has policy implications and makes several contributions to the literature. First, our paper sheds light on the content of the analyst reports, the relative forecasting performance and competitive strategies of domestic and foreign joint venture brokerages. Our evidence shows that the foreign partners, despite the regulatory restrictions, are using their technical capabilities in the joint ventures as a competitive strategy. Also, even with the help of domestic partners, the hidden obstacles that are embedded in China's business environment prevent the joint ventures from competing with doemstic brokergaes in employing political information for forecasting. As the Chinese government has just removed the ownership restriction of all foreign financial service firms that want to enter its market, our paper can inform foreign financial firms in their entry and strategic decisions.[7] These results also have general implications for developed and emerging economies in their trade negotiations that aim to open up the emerging markets.

[7] The policy change is described in Financial Times on July 2, 2019: https://www.ft.com/content/802bf52e-9c7b-11e9-9c06-a4640c9feebb and Xinhua Net on April 1, 2020: http://www.xinhuanet.com/english/2020-04/01/c_138938273.htm

Second, our paper also contributes to the accounting and finance literature on local information advantage. Prior research has primarily examined the underlying contributing factors that explain the local information advantage, e.g., geographic distance (Malloy 2005; Bae, Stulz and Tan 2007; Cheng, Du, Wang and Wang 2016), country specialization (Sonney 2009), and cultural proximity (Du, Yu and Yu 2017). In this paper, we try to use the financial brokerages' research outputs to infer the knowledge difference between domestic and foreign brokerages. Compared to joint venture brokerages' reports, domestic brokerages' reports have significantly more political content, and only the domestic brokerages' political content can enhance the forecast accuracy. Also, we find that domestic brokerages have an information advantage over the joint venture brokerages when they follow firms that require more political information. Since the analysts in both foreign joint ventures and domestic brokerages in our sample are all ethnic Chinese and located within China, we demonstrate that the local information advantage is not a result of ethnic identity (Du et al. 2017) or geographic distance[8], but domestic analysts' ability to access and use political information in their forecasts.

Third, we have identified the lack of institutional knowledge in politics as an important reason for foreign brokerages' information disadvantage, which is consistent with the arguments of unfamiliarity with the local environment (Zaheer 1995) or institutional distance (Eden and Miller 2004) as the source of foreignness. Our results are consistent with the notion in Zaheer (1995) that as the costs of obtaining local institutional knowledge outweigh its benefits, the local subunits of foreign firms will not mimic local practice but will adopt a more global approach established by the home office.

[8] In all of our regressions, we also control for the distance between the analysts and the target company.

The rest of the paper is organized as follows: we present the hypothesis development in Section 2 and discuss the data sample in Section 3. The main analyses are presented in sections 4 and 5, and additional tests are reported in Section 6. We conclude in Section 7.

2. Hypotheses Development

2.1 Ownership Restrictions and Foreign Joint Ventures' Technical Capability

Technological advantage is considered a key factor for firms' decision to enter a foreign market (Anand and Kogut 1997). Foreign entrants from developed economies often possess technological advantage over domestic firms in emerging economies. Fearing this technological dominance, emerging economies set up regulatory policies to protect their domestic firms against foreign entrants' competition. One typical approach is to impose ownership restrictions on the foreign entrants, requiring them to enter joint venture agreements and transfer technology to their local affiliates (Blomström and Sjöholm 1999; Müller and Schnitzer 2006).

China has set up ownership restrictions as protectionist policies for its financial service firms (e.g. banks, insurance companies, investment banks, and brokerages). Starting on July 1, 2002, foreign ownership of the joint venture was limited to no more than 33%. It was later increased to 49% on January 1, 2008. It is common for countries to set up ownership and entry restrictions for foreign banks to enter their local markets. Barth, Caprio, and Levine (2004) document that South Asia has the highest foreign bank restrictions, followed by countries in the East Asian and Pacific regions.

Foreign financial service firms do have a technological advantage over their domestic counterparts. Althammer and Haselmann (2011) argue that foreign banks have a superior screening technology that allows them to obtain more hard information for evaluating the borrowers' financial health. Foreign brokerages, in our case, establish their technical capabilities through developing industry specialization that spans across countries, highly technical valuation models for forecasting earnings, stock prices, and management expertise. In this study, we examine whether joint venture brokerages exhibit superior technical capabilities over those of domestic brokerages when facing ownership restrictions. Demonstrating joint ventures' superior technical advancement can give indirect evidence that foreign partners are transferring technical knowledge to the joint venture brokerages.

2.2 Institutional Barriers and Domestic Brokerages' Information Advantage

Although China is the largest emerging economy with a GDP ranked only behind the U.S., its capital markets are heavily regulated and the majority of its listed firms, in market value terms, are controlled by the state. Recent research finds that the state has a significant influence on firms' corporate decisions and information environment. Political factors can determine firms' IPO decisions, post-IPO stock return performance, and their related party transactions (Piotroski and Zhang 2014; Fan, Wong and Zhang 2007; Jiang, Lee and Yue 2010). Government incentives are found to significantly impact media bias, firms' auditor appointment, suppression of firms' bad news and even manipulate GDP numbers (Piotroski, Wong and Zhang 2017; Wang, Wong and Xia 2008; Piotroski, Wong and Zhang 2015; Lyu, Wang, Zhang and Zhang 2018).

Together, these results suggest that having access to information about local politics in China is likely to provide a strong advantage to financial brokerages. However, the cost of acquiring this political information is not trivial, which may give rise to joint venture brokerages' institutional barriers. Furthermore, even if the local partner can acquire this information, it remains unclear whether the information can be effectively incorporated into the technical and standardized approaches introduced by the foreign partners. The difficulty could arise from the lack of knowledge in using the information or the incompatibility of the local and foreign approaches in making forecasts.[9] Understanding this difference in the use of political knowledge by the domestic brokerage and by joint venture brokerages can contribute to the literature on local knowledge and information advantage of financial intermediaries.

There is ample research in prior literature demonstrating that financial intermediaries gain an information advantage from geographic proximity to the firms with which they interact. Prior research has found that local or geographically proximate mutual funds gain better access to the information of firms in which they invest than foreign or distant funds (e.g., Brennan and Cao 1997; Coval and Moskowitz 2001; Grinblatt and Keloharju 2001; Hau 2001). This information asymmetry that is associated with geographic distance is also found in financial analysts in the U.S. in Malloy (2005), among seven European countries in Orpurt (2003), and across 32 countries, including many emerging economies, in Bae et al. (2007).

[9] The foreign approach may require more justification or verification in using political information in a standardized prediction model. Also, the supervisors in the joint venture brokerage, who are sent by the foreign head office, may not have the knowledge to monitor financial analysts in using political information in making the forecasts.

Although it is clear from prior literature that this local information advantage is associated with geographic proximity, we still do not know exactly what constitutes local information advantage. Sonney (2009) shows that in addition to geographic proximity, superior knowledge of country factors is also a significant determinant of analysts' information advantage. Similarly, Du et al. (2017) find that analysts' knowledge of the culture in which the firms operate affects their forecast accuracy. In this study, we attempt to extend the literature by examining whether the ability to access and/or integrate politically sensitive information into the forecasts also contributes to the information advantage of domestic analysts.

2.3 Hypotheses

We begin by examining whether the ownership restriction – the joint venture agreement – discourages foreign brokerages to import technical capabilities to the joint ventures and form their competitive strategy. We posit that if the impact is limited, then we will observe more technical capabilities in the joint venture brokerages' reports than in domestic brokerage reports, and the technical content in the analyst reports will have a significantly stronger positive impact on earnings forecast accuracy of joint venture brokerages than on that of domestic brokerages.

We expect that the impact of the regulatory restriction barrier to be weak because joint venture brokerages need the technical capabilities to compete and foreign partners may use them to exchange for access to political information. However, the foreign partners may view the ownership restrictions in China as too restrictive and refuse to import any useful technical capabilities, hence the final outcome of the prediction remains an empirical issue. Our formal hypothesis is as follows.

H1: Technical capability contributes more to forecast accuracy of joint venture brokerages than to that of domestic brokerages

We next examine whether the presence of foreign partners will preclude joint venture brokerages from forming their strategy of employing politically sensitive information for forecasting. To do so, we compare the correlation of political information and forecast accuracy between the domestic brokerages and joint venture brokerages. Political information is measured based on the political content of analysts' reports using textual analysis.

We posit not only will there be more political content in domestic brokerage analysts' reports than in joint venture analysts' reports, but we predict that these political contents have a significantly stronger positive impact on the earnings forecast accuracy of domestic brokerages than on that of joint venture brokerages. We make this prediction because even if the foreign partners are willing to share their technical abilities with their domestic partners, it is difficult for the joint ventures to completely overcome the institutional barriers and gain access to the same level of information as that of the domestic brokerages. Further, even if the foreign joint ventures gain access to politically sensitive information, it may be difficult to incorporate such information into the foreign joint ventures' forecasting procedure that is more standardized and comparable across countries. Our formal hypothesis is as follows.

H2: Political information contributes more to earnings forecast accuracy of domestic brokerages than that of joint venture brokerages

3. Sample and Empirical Measures

Our sample spans from January 2010 to December 2015. We obtain 196,243 unique analyst reports from Today Investment Co. Each of these reports usually contains multiple

forecasts with quarterly and annual reporting periods or over different forecasting horizons. We first remove all quarterly forecasts and keep only the annual forecasts. If there are annual forecasts with various horizons—current-year, one-year, and two-year forecasts—we keep only the current-year forecasts. This is based on the assumption that the content of each report is most relevant to the earnings of the current year. For example, an analyst report filed on May 5, 2010, may contain forecasts for the year ending 2010, 2011, and 2012. Our selection procedure would limit our attention to the 2010 forecast only.

As the first line of Table 1 Panel A reports, we begin with a sample of 2,703 unique firms. To ensure that our results are not driven by the difference in coverage between domestic and joint venture brokerages, we limit our sample to 2,051 Chinese firms that have been covered by at least one joint venture brokerage and at least one domestic brokerage. As shown in Panel B, we begin with a sample of 196,243 analyst reports. Since our main analyses focus on the relative forecast accuracy of domestic and foreign brokerages, we restrict our sample to the *latest* report issued by each brokerage for each firm in each year. It is important to note that this requirement has reduced the sample by more than half (from 196,243 to 88,538). In addition to removing 8,951 analyst reports issued for firms that have not been covered by any joint venture brokerages in our sample, we also removed 1,517 analyst reports issued by foreign brokerage houses. We do so because these pure foreign brokerages are prohibited from serving domestic Chinese customers and as a result have a clientele very different from that of domestic and joint venture brokerages. After these data cleaning procedures, we are left with a final sample of 78,070 reports, of which 67,822 are from domestic brokerages and the remaining 10,248 reports are from joint venture brokerages.

As the first line in Panel C reports, we begin with 107 unique brokerages. We rely on the brokerage classification by Today Investment to identify pure foreign brokerages (10 brokerages) that cannot serve domestic clients and we remove them from our sample. Since Today Investment does not distinguish between domestic and joint venture brokerages, for the remaining 97 brokerages we manually search news releases to identify any joint ventures. Together these brokerage houses employ a total of 4,560 unique analysts, of which 3,843 (717) are employed by the 85 (12) domestic (joint venture) brokerages.[10] The lists of the two types of brokerages are presented in Appendixes A and B.

The last line of Panel C shows that joint venture brokerages employ on average 96 analysts, which is more than domestic brokerages that employ on average 59 analysts. In fact, as shown in Panel D, the majority of the joint venture brokerages are among the biggest brokerage houses (by the number of analysts) in China. For example, in 2015, all of our joint venture brokerages are within the top 50 brokerages and eight of these brokerages are within the top 25.

We extract all forecast-related data from Today Investment, which includes: forecast EPS, report date, brokerage name, brokerage classification, the analyst name, company name, and forecast period. All other accounting data are obtained from The China Stock Market and Research Database (CSMAR). The analysts' external ranking (the star analyst status) is obtained from the *New Fortune* magazine. We manually match the analyst names in our sample with the *New Fortune* list in the year prior to the year when

[10] We excluded the two brokerages that are listed in the Hong Kong Stock Exchange (HKSE) as from our analyses because these brokerages can be subject to foreign influence. We have tried including them as joint venture brokerages. The (untabulated) results remain qualitatively the same.

the list of the star analysts is published. This enables us to correctly capture the year in which the analysts are exhibiting star quality performance.

4. Ownership Restrictions

We hypothesize that a barrier for joint venture brokerages is the ownership restrictions that induce disincentives for foreign partners to contribute advanced technology to the joint ventures. In this section, we directly examine the amount of technical capabilities embedded in the analyst report and their effect on forecast accuracy for each type of brokerage (*H1*).

4.1 Measuring Technical Capabilities using Content in the Report

First, we posit that when a large amount of numerical analysis such as valuation modeling and industry comparison is used, the report will contain more non-textual content such as tables, charts, and figures. Hence, our first metric is to use the amount of non-textual content to proxy for the level of technical capability being employed to make the forecasts. We use two measures to capture non-textual content in the reports: 1) $Size\_\#Words_{i,j,t}$, which is the size (in kilobytes) of the latest analyst report issued by brokerage i for firm j in year t divided by the number of words in the document, and 2) $Table\_Page_{i,j,t}$, which is the number of pages of non-textual in the latest analyst report issued by brokerage i for firm j in year t.[11]

In addition to non-textual content, we posit that technical analyses will also increase the percentage of valuation-related keywords in the analyst reports. Hence, we also proxy

[11] We estimate the number of non-textual pages within a report, by taking the difference between the actual number of pages and the expected number of pages based on the word count in the report. The expected number of pages is calculated as the total word count divided by 276.

for the amount of technical capabilities embedded in the analyst reports with $Valuation_{i,j,t}$, which is the percentage of valuation-related keywords in the analyst reports. We obtain our list of valuation-related keywords from two master degree level financial statement analysis and securities valuation textbooks that have been translated into Chinese: Penman (2016) and Fridson and Alvarez (2016). In particular, we include words from the following three sections of the textbooks: (1) key concepts from the end of each chapter, (2) the summary of formulas, and (3) the glossary.

Table 3, Panel A, presents the summary statistics for the technical capability proxies. The mean value for $Size\_\#Words_{i,j,t}$ is 0.37, indicating that on average each word is around 0.37 kilobyte. This suggests that on average 43% ((0.37-0.21)/0.37) of the content of the analyst reports is non-textual, since the average size per word is around 0.21 kilobyte in a pure textual document.[12] The mean value for $Table\_Page_{i,j,t}$ is 1.34, indicating that on average 1.34 pages are dedicated to non-textual content such as tables, charts, and figures. The mean value for $Valuation_{i,j,t}$ is 0.01, indicating that on average 1.3% of the words in the analyst reports are related to financial statement analysis and valuation.

Panel B provides the correlation between these two measures and some firm characteristics. Consistent with expectation, the three technical capability measures are lower for firms subject to more political influence (i.e. firms that experience a politician turnover in their provinces or are SOEs), and higher for firms subject to more market forces (i.e. firms in provinces with less government intervention or better property rights

[12] This 43% of document content could contain non-textual materials such as tables, figures, charts, and company logos. A potential source of error in this proxy is colorful charts or figures or company logos that occupy more space but contain less technical information than tables. Our second measure, *Table_Page*, can help to correct this potential measurement error.

protection). This provides support that our content-based proxies are indeed capturing technical capabilities.

Panel C provides further analyses to validate our measures of technical capabilities. We examine whether analysts with a finance or MBA degree will generate more non-textual content in their reports. We measure the technical content of the analysts at the analyst-year level: 1) Avg[*Size_#Words_DM*]$_{k,t}$, which is the mean of *Size_#Words_DM*$_{i,j,t}$ across all reports written by analyst *k* for year *t*, where *Size_#Words_DM*$_{i,j,t}$ is the *Size_#Words*$_{i,j,t}$ of each report written by analyst *k* in year *t* adjusted for the mean of the *Size_#Words* of the reports written by *all* the analysts for the same firm in the same year (see Appendix C for the detailed definition); 2) Avg[*Table_Page_DM*]$_{k,t}$, which is the mean of *Table_Page_DM*$_{i,j,t}$ across all reports written by analyst *k* for year *t*, where *Table_Page_DM*$_{i,j,t}$, which is the *Table_Page*$_{i,j,t}$ of each report written by analyst *k* in year *t* adjusted for the mean of the *Table_Page* of the reports written by *all* the analysts for the same firm in the same year, and 3) *Avg[Valuation_DM]*$_{k,t}$, which is the mean of *Valuation_DM*$_{i,j,t}$ of each report written by analyst *k* in year *t*, where *Valuation_DM*$_{i,j,t}$ is the *Valuation*$_{i,j,t}$ of each written by analyst *k* in year *t* adjusted for the mean of the *Valuation* of the reports written by all analysts for the same firm in the same year. The results in Panel C show that Avg[*Size_#Words_DM*]$_{k,t}$, Avg[*Table_Page_DM*]$_{k,t}$, and Avg[*Valuation_DM*]$_{k,t}$ are higher for analysts that have either a finance or MBA degree, suggesting that those with better technical training produce more technical content in the reports.

4.2 Measuring Brokerage Performance

We use earnings forecast accuracy as a measure of the relative performance of different brokerage houses. Following Bae et al. (2007) we measure relative forecast accuracy as the proportional mean absolute forecast error. More specifically, we define relative forecast accuracy as the ratio of the difference between the absolute forecast error of brokerage *i's* forecast of firm *j* in fiscal year *t*, $AFE_{i,j,t}$, and the average absolute forecast error across all forecasts of firm *j* in fiscal year *t*, $AvgAFE_{i,j,t}$, to the mean absolute forecast error. i.e.,

$$Relative\ Forecast\ Error_{i,j,t} = \frac{AFE_{i,j,t} - AvgAFE_{j,t}}{AvgAFE_{j,t}} \quad (2)$$

A positive value for this variable indicates that the absolute forecast error of brokerage *i's* forecast for firm *j* in fiscal year *t* is larger than the average absolute forecast error of all the forecasts for firm *j* in the same fiscal year. In subsection 7.3, we show that our results are robust to other measure of relative performance.

4.3 Empirical Results

In this subsection, for both types of brokerage, we compare the level of technical content and the association between the technical content in the reports and brokerage forecast accuracy. Table 3, Panels D and E, show that on average joint venture brokerages generate more non-textual content and valuation-related keywords than domestic brokerages, which is prima facie evidence that joint venture brokerages have a higher level of technical capabilities. Next, we show that there is a positive association between the amount of technical capabilities reflected in the reports and forecast accuracy. In particular, we estimate the following equation separately for domestic brokerages and joint venture brokerages:

$$\textit{Relative Forecast Error}_{i,j,t} = \alpha + \beta_1 \textit{ Technical\_Content}_{i,j,t} + \text{Control Variables} + \textit{ FE}_{\textit{Firm,}} \quad (3)$$

As mentioned above, we define *Relative Forecast Error*$_{i,j,t}$ as the proportional mean absolute forecast error of the *latest* earnings forecast by brokerage *i* for firm *j* in year *t*. Our variable of interest, *Technical_Content_DM*$_{i,j,t}$, captures the amount of technical content in brokerage *i*'s report relative to his peers who cover the same firm in the same year. We use the three technical capability proxies in subsection 4.1 in this regression. A negative and significant coefficient on *Technical_Content_DM*$_{i,j,t}$ will indicate that incorporating additional technical content helps the brokerage to improve her forecast accuracy.

Since our measure of *Relative Forecast Error*$_{i,j,t}$ has already been de-meaned based on other forecasts issued by all brokerages for the same firm during the same year, we include only the firm fixed effects to de-mean the independent variables (however, our main results remain similar when we include firm interacted with year fixed effects).

As mentioned above, our sample of joint venture brokerages are some of the largest brokerages in China. Therefore, we also include several brokerage- or forecast-specific variables to control for differences in brokerage house and forecast characteristics. *Brokersize_Analyst*$_{i,t}$ is the number of analysts hired by analyst *i*'s brokerage in year *t*. *Brokersize_Firm*$_{i,t}$ is the number of Chinese firms covered by analyst *i*'s brokerage in year *t*. *Distance*$_{i,j,t}$ is an indicator variable which takes the value of 1 if firm *j*'s headquarter is in the same province as brokerage house *i* in year *t*, and 0 otherwise. *Horizon*$_{,i,j,t}$ is the natural log of the number of days between brokerage *i*'s forecast for firm *j* and the firm's earning announcement day in year *t*.

In addition, we use several analyst-specific variables to control for analysts' ability. $Specialization_{k,t}$ is the number of different industries that analyst *k* covers in year *t*. $Experience\_Firm_{k,j,t}$ captures the firm-specific experience of analyst *k* and is measured as the natural log of the number of days between the analyst's first forecast for firm *j* and the date of the current report. $Experience_{k,t}$ captures the overall experience of analyst *k* and is measured as the natural log of the number of days between the analyst's first forecast for any firm in the database and the date of the current report. $Star_{k,t}$ is an indicator variable which takes the value of 1 if analyst *k* is selected by *New Fortune* magazine as a star analyst in the year prior to year *t*, and 0 otherwise. A summary of all the variable definitions is presented in Appendix C. The summary statistics of the control variables are reported in Table 2.

Table 3, Panel F, shows that the coefficients on $Size\_\#Words\_DM_{i,j,t}$ is negative and significant for joint venture brokerages (column 1) and domestic brokerage brokerages (column 2). However, the F-statistics show that the difference between the two coefficients is significant, indicating that joint venture brokerages are more effective than domestic brokerage at incorporating technical content into their earnings forecasts. In columns 3 and 4, we repeat the same analysis using our second technical capability measure, $Table\_Page\_DM_{i,j,t}$, and we find similar results. In columns 5 and 6, we repeat the same analyses using our third technical capability measure, $Valuation\_DM_{i,j,t,}$ and we find similar results.

Taken together, our results in Table 3 support our *H1*. They show that joint venture brokerages produce more technical content in their reports than domestic brokerages, and joint venture brokerages' technical content is more associated with forecast accuracy than

that of domestic brokerages, indicating that the former's technical capabilities enhance their accuracy more than those of the latter (*H1*).

5. The Invisible Barriers

Next, we shed light on whether joint venture brokerages are limited by invisible barriers, we directly examining the amount of political content in the analyst reports and its association with forecast accuracy, for each type of brokerage (*H2*).

5.1 Measuring Political Content

We use two different ways to measure political content in an analyst report. First, rather than using a predetermined set of political words or topics, we identify political content by comparing the similarity between the topics mentioned in the analyst reports and those in *People's Daily*. *People's Daily* is a newspaper controlled by the Chinese central government for promoting its policies. In particular, we focus on articles that appear in the year before, during, or after the year in which the analyst report is issued. In order to ensure that we are capturing political content, only three types of newspaper articles[13] are included: (1) articles that appear in the political section only, (2) articles that appear in the economic section only, and (3) articles that appear in both the political and economic sections of the newspaper.[14] We include articles from the economic section because it is used to promote economic policies that are being implemented by the Chinese government and are highly political in nature.

[13] We use the paper version of the *People's Daily* newspaper in all of our analyses. The pdf version of the paper version can be accessed at http://paper.people.com.cn/.

[14] We create this third category since there are articles that appears in both the political and economic sections of the newspaper, making it hard for us to determine if it belongs exclusively in the political or economic section of the newspaper.

We use Latent Dirichlet Allocation (LDA) developed by Blei, Ng and Jordan (2003) to identify topics and their corresponding distributions within each analyst report and newspaper articles. Past research has shown that LDA can meaningfully capture the topics of textual content of analyst reports and 10-Ks (Bao and Datta 2014; Dyer, Lang, and Stice-Lawrence 2017; Hoberg and Lewis 2017; Huang, Lehavy, Yang and Zheng 2018).

Using the processed word corpus from the analyst reports,[15] we determine that the optimal number of topics for the analyst reports is 370 topics.[16] Based on the word distribution of these 370 topics, we then calculate their corresponding distribution within each of the analyst reports and newspaper articles.

Our measure of political content is based on the distance between the LDA topics in the analyst's report and in the newspaper, and is similar in spirit to the measure used in Hassan, Hollander, Lent and Tahoun (2019). In particular, we measure the similarity between the two documents as:

$$LDASimilarity_{i,j,t,d} = -\sum_{l=1}^{N} \frac{(x_l - y_l)^2}{(x_l + y_l)} \quad (1)$$

where x_l is the topic distribution of topic *l* for brokerage *i*'s report for firm *j* in year *t* and y_l is the topic distribution of topic *l* for an article in *People's Daily* newspaper article on day *d*. A higher value indicates that the two documents are more similar, hence the political content of the analyst report is greater.

[15] After extracting all the words within the 196,243 analyst reports, we do a number of steps to preprocess the documents. First, we remove all stop words, digits and lemmatization from our word corpus. Next, we remove all the words that either appear in more than 95% of our reports or in less than three articles. After this filtering procedure, we restrict our corpus to the 218,335 words that appear most frequently in our documents.

[16] We determine the optimal number of topics using a Coherence score. In particular, starting from 100 topics, we calculated the Coherence score in 10-topic increments, and when we reach 600 topics, we calculated the Coherence score in 50-topic increments. Based on these calculations, we find that 370 topics provide the highest Coherence score. Therefore, we instruct the LDA algorithm to generate 370 topics.

PplDailyPolitical$_{i,j,t}$ (*PplDailyEconomic*$_{i,j,t}$) (*PplDailyPolEcon*$_{i,j,t}$) is the median value of all the *LDASimilarity*$_{i,j,d}$ values between brokerage *i*'s report for firm *j* in year *t* and all the articles that appeared in the political (economic) (political and economic) section(s) of *People's Daily* between year *t*-1 to year *t*+1. Since the amount of political content may vary for each firm in each year, we de-mean each report's political content by the average level of political content in all the reports issued for firm *i* for each year. *PplDailyPolitical_DM*$_{i,j,t}$, *PplDailyEconomic_DM*$_{i,j,t}$, and *PplDailyPolEcon_DM*$_{i,j,t}$ are the de-meaned measures for *PplDailyPolitical*$_{i,j,t}$, *PplDailyEconomic*$_{i,j,t}$, and *PplDailyPolEcon*$_{i,j,t}$, respectively.

Second, we measure the political content with *PoliticalWord*$_{i,j,t}$, calculated as the percentage of political words within brokerage's *i* report for firm *j* in year *t*.[17] Similarly, *PoliticalWord_DM*$_{i,j,t}$ is the de-meaned measure for *PoliticalWord*$_{i,j,t}$.

In Table 4, Panel A we present the summary statistic for our empirical measures of political content. On average only 0.31% of the words in an analyst report are political words. Panel B provides the correlation between the amount of political content in a firm's analyst reports and a few firm characteristics. The level of political content is higher for firms whose province experiences a politician turnover (*Turnover*$_{j,t}$) and for firms that are SOEs (*SOE*$_{j,t}$). The level of political content is lower for firms which are headquartered in provinces that have less government intervention (as proxied by *Marketization*$_{j,t}$, a marketization index Fan, Wang and Yu 2016) or have better property rights protection (as

[17] Our list of Chinese political words is based on the *Dictionary of Scientific Development* (Xi 2007). This word list, which is used in Piotroski et al. (2017) for measuring the political content of corporate news, contains Chinese political phrases and political slogans included in official Chinese Communist Party economic policy documents between 1978 and 2008, and was created by the government to celebrate 30 years of economic reforms.

proxied by $PptRight_{j,t}$, a property rights protection index compiled by Fan, Wang and Yu 2016). This provides validation that our measures are capturing political contents.

As indicated in Panels C and D, domestic brokerages on average have more political content then joint venture brokerages, which serves as prima facie evidence that joint venture brokerages have a lower level of access to political information than domestic brokerages.

5.2 Empirical Results

To examine whether domestic brokerages can utilize political content more effectively than joint venture brokerages to generate forecasts (*H2*), we estimate the following analyst-report-level regression equation for domestic brokerages and joint venture brokerages separately:

$$Relative\ Forecast\ Error_{i,j,t} = \alpha + \beta_1\ Political\_Content\_DM_{i,j,t} + \text{Control Variables} + FE_{Firm,} \quad (4)$$

The regression results are reported in Table 4, Panel E. The coefficient on $PplDailyPolitical\_DM_{i,j,t}$ is negative and significant for domestic brokerages (column 1) but is insignificantly different from 0 for joint venture brokerages (column 2). Further, the coefficients in columns 1 and 2 are significantly different from each other, indicating that domestic brokerages are more effective than joint venture brokerages in incorporating political content into their forecasts. In columns 3 to 8 we repeat the same analysis using the other three measures of political content, and we find similar results. These results support our *H2* that the political content in the analyst reports contributes more to the earnings forecast accuracy of domestic brokerages than of joint venture brokerages.

6. Other Alternative Explanations

6.1 Relative Performance During Firm-Years that Requires Technical Capabilities

One alternative explanation for our findings in section 4 is that domestic brokerages are using technical analyses to forecast but they do not show it in their reports. Therefore, in this subsection, we provide additional evidence that domestic brokerages have less technical capabilities to forecast accurately.

We posit that if foreign partners are bringing useful technology into the joint ventures, joint venture brokerages will outperform domestic brokerage brokerages when forecasting firms that require more technical capabilities. We created four different proxies to identify firm-years that require technical capabilities to forecast accurately. The first three proxies are based on our textual measure of technical capabilities and we identify a firm-year as requiring technical capabilities if any of the joint venture analyst reports issued for firm *j* in year *t* has a high level of technical content. In particular, $Technical\_FirmYr1_{j,t}$, $Technical\_FirmYr2_{j,t}$, and $Technical\_FirmYr3_{j,t}$ are indicator variables which take the value of 1 if any of domestic analyst reports issued for firm *j* in year t has $Size\_\#Word_{i,j,t}$, $Table\_Page\_DM_{i,j,t}$ and $Valuation\_DM_{i,j,t}$ that falls in the top decile. Further, we posit that technical capability is more useful for analyzing firms that operate in environments that are market-based and are not subject to high levels of government control. Therefore, our last proxy for technical firm-year is based on the location of the firm and the amount of overseas exposure of that firm. In particular, $Technical\_FirmYr4_{j,t}$ is an indicator variable that takes on the value of one if the firm is located in a marketized province with good property rights protection and have overseas sales in year *t*.

For this test, we use $JV_{i,t}$, an indicator variable which takes the value of 1 when the brokerage house is a joint venture, and 0 otherwise, as the independent variable because we are testing the technical capabilities between the two types of brokerages. We interact this with our four proxies of technical firm-years. The regression results in Table 5 Panel A shows that the sum of the coefficients on $JV_{i,t}$ x $Technical\_FirmYr_{j,t}$ and $JV_{i,t}$ is negative and significantly different from zero across three of the four proxies, indicating that joint venture brokerages are more accurate in forecasting for firms that require more technical capabilities. This is consistent with our *H1* that despite the ownership restrictions in China, foreign partners have injected useful technical capability into the joint venture brokerages and that these capabilities enable them to outcompete domestic brokerages in their forecasts. Our finding also refutes the interpretation that domestic brokerages are using superior technical analyses to forecast but they do not show it in their reports.

6.2 Relative Performance During Political Firm-Years

Similarly, one alternative explanation for our findings in section 5 is that joint venture brokerages are using political information to forecast but they do not show it in their reports. Therefore, in this subsection, we provide additional evidence that joint venture brokerages are less capable in employing political content to forecast.

We posit that when firms are subject to heavy political influence, political information is more crucial than technological knowledge in forecasting for these firms. We expect that if joint venture brokerages are having more difficulty in accessing or incorporating government information than domestic brokerages, joint venture brokerages will do worse in forecasting for these firms. For this test, we created four different proxies to identify firms with heightened political influence. The first three proxies are based on

our textual measure of political content and we identify a firm-year to have heightened political influence if any domestic analyst reports issued for firm *j* in year *t* has a high level of our political textual content. In particular, $Political\_FirmYr1_{j,t}$, $Political\_FirmYr2_{j,t}$, and $Political\_FirmYr3_{j,t}$ are indicator variables which takes the value of 1 if any of domestic analyst reports issued for firm *j* in year *t* has $PplDailyPol\_DM_{i,j,t}$, $PplDailyEcon\_DM_{i,j,t}$ and $PplDailyPolEcon\_DM_{i,j,t}$ that falls in the top decile. Our last proxy for political firm-year is based on the location and political environment of that particular firm. In particular, $Political\_FirmYr4_{j,t}$ is an indicator variable that takes on the value of one if the firm is a state-owned enterprise (SOEs) and headquartered in a province that is undergoing a key politician (governor or party secretary) turnover during year *t*-1 or year *t*.

For this test, we repeat regression models in Panel A and replace $JV_{i,t}$ with $Domestic_{i,t}$, and replace the technical proxies with the political proxies. The regression results in Table 5 Panel B show that the sum of the coefficients on $Domestic_{i,t}$ x $Political\_FirmYr_{j,t}$ and $Domestic_{i,t}$ is negative and significantly different from zero across all four proxies. This is consistent with our conjecture that domestic brokerages have an advantage over joint ventures for firms that are subject to political influence. Despite having a domestic partner, institutional knowledge can still create a significant barrier for foreign joint venture brokerages. Our finding also refutes the interpretation that joint venture brokerages are using political information to forecast but they do not show it in their reports.

6.3 Clientele Effect

Another possible explanation for our findings is that it may be driven by the clientele effect. That is, clients from joint venture brokerages demand less political

information and more technical content in the reports. While this alternative explanation is consistent with our findings in Table 3 Panels C and D (less political content in the joint venture brokerages' report), it is, however, harder to reconcile with our results that political content fails to improve forecast accuracy of joint venture brokerages (see Table 4 Panel E, columns 2, 4 and 6) and that joint venture brokerages are less accurate during political firm-years (see Table 5 Panel B). That is, lacking in political information can put the joint venture brokerages at a disadvantage, it is hard to argue that their clients will not demand for political information or for the brokerages to incorporate such information into their forecasts.

Another related possibility is that joint venture brokerages may be serving a different clientele due to their larger size (i.e. our results are driven by the substantive difference in size between domestic and joint venture brokerage as opposed to them being different because of their ownership structure). To examine this alternative explanation, we limit our sample to the subset of the largest 25 brokerage houses in our sample and repeat our main analyses. As can be seen in Table 6, we replicate our main results in Table 3, and they remain robust. In untabulated results, we also estimated columns 1 to 3 for the domestic brokerage sample, and the coefficients on our technical capabilities proxies remain insignificantly different from zero. Similarly, in untabulated results, we also estimated columns 4 to 7 for the foreign joint venture sample and the coefficients on our political content proxies remain significantly smaller than those within the joint venture sample.

7. Additional Analyses

7.1 Choice of Coverage by Foreign Brokerages

In this subsection, we provide collaborating evidence by examining whether joint venture brokerages' choice of coverage can illustrate that there are invisible barriers that impact their strategies. That is, if joint venture brokerages face institutional barriers in accessing political information, they will choose to cover firms that require less political knowledge and instead follow firms that require more technical capabilities in forecasting. In particular, we estimate the following firm-year-level regression:

$$JV\_Coverage_{j,t} = \alpha + \beta_1 \, Firm\_Characteristics_{j,t} + \text{Control Variables} + FE_{Year,} \quad (5)$$

where $JV\_Coverage_{j,t}$ is an indicator variable which is equal to 1 when firm *j* is covered by at least one joint venture brokerage in year *t*, and 0 otherwise. *Firm_Characteristics* is one of four variables which capture firms that are subject to political influence ($Turnover_{j,t}$ and $SOE_{j,t}$ used in Table 4) or firms that are subject to market factors ($Marketization_{j,t}$ and $PptRight_{j,t}$ used in Table 6). We expect that β_1 is significantly negative for $Turnover_{j,t}$ and $SOE_{j,t,}$ and significantly positive for $Marketization_{j,t,}$ and $PptRight_{j,t}$, indicating that joint venture brokerages will focus more on covering market-based firms and avoid political-based firms.

The results in Table 7 show that the coefficients on $Turnover_{j,t,}$ and $SOE_{j,t}$ in columns 1 and 2 are both negative and significant, which is consistent with our conjecture that joint venture brokerages are more reluctant to cover firms that require political knowledge. In columns 3 and 4, the coefficients on $Marketization_{j,t,}$ and $PptRight_{j,t}$ are both positive and significant, indicating that joint venture brokerages prefer to follow firms that are subject to less government intervention or higher level of property rights protection. This is consistent with our hypothesis that invisible barriers are also limiting the types of

firms that joint venture brokerages cover through restricting their access or use of political information.

7.2 Choice of Talents

Our results show that joint venture brokerages face information barriers that limit their coverage and lower their forecast accuracy for firms that are subject to strong political influence. In the following analysis, we examine whether joint venture brokerages will make hiring decisions that can help them overcome such institutional barriers. That is, we examine whether they will hire analysts that generate more political rather than technical content in their reports. However, if we find that the joint venture brokerages tend to hire analysts that possess more technical knowledge than political knowledge, it will suggest that they have no desire to overcome the institutional barriers and will continue to utilize their comparative advantage in technical capability in analyzing more market-based firms.

To test this, we use two ways to proxy for the level of technical capabilities of the analysts being hired by the joint ventures. First, we obtain the resumes of 1,036 analysts and proxy for their technical capability using their education level. In particular, we posit that those who have an MBA or a finance degree (either bachelor or master degree) are likely to have higher technical capabilities than those that do not.[18] Table 8, Panel A, reports that a larger percentage of analysts from joint venture brokerages have either an MBA or a finance degree, indicating that joint venture brokerages have more technically trained analysts.

Second, as in Section 5.3.1, we proxy for an analyst's technical capability using the amount of non-textual content ($Size\_\#Words_{i,t}$ and $Table\_Page_{i,t}$) in her analyst reports

[18] The resumes we obtain from *New Fortune* are for only about one third of the analysts in our sample.

written prior to the hiring. Our results in Table 5, Panel D, already show that on average joint venture analysts include more non-textual content in their reports than their domestic counterparts. However, this finding could be driven by specific policies enforced by the joint venture brokerages and not necessarily representative of the analyst's technical capabilities.

Therefore, in this subsection, we focus on a subset of reports that newly hired joint venture analysts issued when they were still working at the domestic brokerages. In particular we estimate: $Addit(Size\_\#Words)_{k,t}$ which is calculated as the average amount of $Size\_\#Words_{i,t}$ that analyst *k* has in all her reports in year *t* that exceeds that in reports issued by all other domestic analysts in year *t*, and $Addit(Table\_Page)_{k,t}$ which is calculated as the average amount of $Table\_Page_{i,t}$ that analyst *k* has in all her reports in year *t* that exceeds those in reports issued by all other domestic analysts in year *t* (see Appendix C for detailed definitions).

Table 8, Panel B, shows that the mean and median of both $Addit(Size\_\#Words)_{k,t}$ and $Addit(Table\_Page)_{k,t}$ are positive and significantly different from 0, indicating that even before the joint venture analysts are hired by joint venture brokerages, the reports they issued during their tenure at the domestic brokerages also tended to have more non-textual content. This further indicates that joint venture brokerages are hiring analysts that are more technically capable.

In Panel C, we repeat the same analyses using our four measures of political content. As expected, we find that joint venture analysts, even when they were working at domestic brokerages, have a lower level of political content in their reports. These findings provide further evidence that joint venture brokerages do not hire analysts that help them access

political information. Rather, they hire analysts that are technically more capable. We find this evidence when we compare the average technical and political knowledge of the analysts of the two types of brokerages using the information content of their reports. In addition, we find that joint venture brokerages choose to hire domestic brokerage analysts who possess relatively more technical than political knowledge. This provides further evidence that after entering China, the joint venture brokerages do not try to overcome the institutional barriers through hiring domestic analysts.[19] Instead, they continue to rely on their technical capabilities to compete in the new market.

7.3 Target Price

Our primary measure for brokerage performance is the relative earnings forecast accuracy. However, that is not the only output that brokerages produce. Along with earnings forecasts, brokerages have increasingly issued target prices to convey their assessment of the firms' future value. Therefore, we also replicate our main findings by replacing our measure of earnings forecast errors with target price accuracy. Following Bradshaw, Huang and Tan (2012), we first categorize a target price as a buy (sell) when the target price (TP) is greater (smaller) than the closing price from CSMAR on the day of the price forecast. Next, for a target price with an implicit buy (sell) signal, we define *ACCU12* as the percentage of trading days in the 12 months immediately after the forecast date that the stock prices are greater (smaller) than the target price. A higher value of

[19] One reason behind joint ventures' lack of efforts in hiring analysts with political knowledge is that these analysts could face information barriers to access sensitive information after they start work at the joint venture brokerages. Another reason is that the joint ventures want to adopt a more global strategy in using technical capability to compete in China. The local strategy in acquiring and utilizing politically sensitive information for forecasting may not be compatible to their global strategy.

ACCU12 indicates that a larger percentage firm *j*'s trading days in the next 12 months has reached brokerage *i*'s target price, hence reflecting higher accuracy.

In Table 9, we replicate Table 3, Panel E, by replacing $Relative\_Forecast\_Error_{i,j,t}$ with $ACCU12_{i,j,t}$. Since $ACCU12_{i,j,t}$ has not been de-meaned, we include firm-year fixed effects to remove any firm-year level fixed effects. In columns 1 and 3, we find that joint venture brokerages' technical content is positively associated with price target accuracy. In untabulated analyses, we do not find the same relationship for domestic brokerages and the coefficients on our technical capability proxies remain significantly smaller than those within the joint venture sample. Similarly, we find that domestic brokerages can effectively incorporate political information into their price targets in columns 4 to 7. We also do not find the same relationship for joint venture brokerages and the coefficients on our political content proxies remain significantly smaller than those within the domestic sample in untabulated analyses.

Taken together, our target price results provide corroborating evidence that joint venture brokerages encounter institutional barriers in accessing political information. Instead, they use technical capabilities to enhance their forecasts even though they face ownership restrictions in the joint ventures.

8. Conclusion

In this paper, we examine two entry barriers that foreign brokerages face in China affect their competitive strategies. First, foreign brokerages are restricted to entering into a joint venture agreement in order to operate in China. The ownership restriction creates disincentives for them to share technical knowledge with the domestic partners, potentially

weakening their competitiveness. Second, foreign brokerages face a less visible barrier which limits their abilities to access and/or incorporate political information into their forecasts. The political information can be too sensitive for the domestic partners to share with the foreign partners or it is difficult to incorporate the political information into foreign partners' highly quantitative and standardized valuation models.

We find that joint venture brokerages provide relatively more technical content than domestic brokerages in their reports and the joint venture brokerages' technical content is more accuracy enhancing. Similarly, we find that domestic brokerages provide relatively more political content in their reports and their political content is more associated with increased forecast accuracy. Our evidence also shows that when forecasting firms that require more technical analyses, joint venture brokerages are more accurate. However, when forecasting firms that are subject to greater political influence, domestic brokerage firms exhibit superior performance. Together, our results suggest that despite foreign partners' willingness to use technical capabilities in the joint ventures to compete with the domestic brokerages, they are less capable of employing political information to compete with the domestic brokerages due to the institutional barriers.

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Table 1 – Sample Observations

Panel A – Firms Covered

	Number of Firms
Total # Unique Firms	2,703
Less Firms not covered by Joint Venture Brokerages	(652)
Unique Firms covered by both Domestic and Joint Venture Brokerages	2,051

Panel B – Analyst Reports

	Number of Reports
# Analyst Reports from Today Investment	196,243
Keeping only latest Reports by each analyst for each firm year	88,538
Less Reports issued by foreign brokerage	(1,517)
Less Reports for firms not covered by any Joint Venture Brokerage	(8,951)
Final Sample	78,070

Panel C – Number of Brokerages

	Number of Brokerages	
Total # Unique Brokerages	107	
Less Foreign Brokerages (brokerages that cannot serve domestic clients)	(10)	
Final # Brokerages in the sample	**97**	
	Domestic	**Joint Venture**
Number of Brokerages	85	12
Avg. # of Analysts Per Brokerage	59	96

Panel D – Size of Joint Venture Brokerages (by Number of Analysts)

	Total # of JV in Sample	**# JV in top 25**	**# JV in top 50**
2010	2	2	2
2011	4	3	4
2012	7	4	6
2013	8	5	7
2014	9	5	7
2015	12	8	12

Table 2

Panel A – Summary Statistics

	Mean	*Median*	*Std*
$Domestic_{i,t}$	0.86	1.00	0.34
$Joint\ Venture_{i,t}$	0.14	0.00	0.34
$Relative\ Forecast\ Error_{i,j,t}$	-0.01	-0.01	0.54
$Horizon_{i,j,t}$	4.47	4.78	0.92
$Experience\_firm_{k,j,t}$	5.02	4.61	0.78
$Experience_{k,t}$	6.14	6.55	1.56
$Brokersize\_Analyst_{i,t}$	98.49	98.00	51.90
$Brokersize\_Firms_{i,t}$	897.65	961.00	365.08
$Specialization_{k,t}$	3.18	3.00	2.12
$Star_{k,t}$	0.09	0.00	0.28
$Distance_{i,j,t}$	0.07	0.00	0.25
$Turnover_{j,t}$	0.36	0.00	0.48
$SOE_{j,t}$	0.40	0.00	0.49
$Marketization_{j,t}$	7.13	7.31	1.40
$PptRights_{j,t}$	8.15	8.49	1.79
$Political\_FirmYr1_{j,t}$	0.51	1.00	0.50
$Political\_FirmYr2_{j,t}$	0.58	1.00	0.49
$Political\_FirmYr3_{j,t}$	0.53	1.00	0.50
$Political\_FirmYr4_{j,t}$	0.18	0.00	0.38
$Technical\_FirmYr1_{j,t}$	0.16	0.00	0.37
$Technical\_FirmYr2_{j,t}$	0.16	0.00	0.36
$Technical\_FirmYr3_{j,t}$	0.17	0.00	0.37
$Technical\_FirmYr4_{j,t}$	0.05	0.00	0.23

Panel B – Mean Domestic vs. Joint Venture

	Domestic	*JV*	*Diff*	*t-statistics*
$Relative\ Forecast\ Error_{i,j,t}$	-0.01	-0.01	0.00	1.09
$Horizon_{i,j,t}$	4.52	4.43	-0.09***	-10.33
$Experience\_firm_{k,j,t}$	4.99	5.18	0.19***	21.79
$Experience_{k,t}$	6.19	6.51	0.32***	21.89
$Brokersize\_Analyst_{i,t}$	96.37	117.65	21.29***	42.12
$Brokersize\_Firms_{i,t}$	922.34	1013.87	91.52***	27.80
$Specialization_{k,t}$	3.27	2.90	-0.37***	-17.50
$Star_{k,t}$	0.08	0.19	0.12***	40.24
$Distance_{i,j,t}$	0.06	0.09	0.03***	11.57
$Turnover_{j,t}$	0.39	0.35	-0.04***	-7.03
$SOE_{j,t}$	0.41	0.39	-0.02***	-4.01
$Marketization_{j,t}$	7.06	7.15	0.09***	4.41
$PptRights_{j,t}$	8.13	8.51	0.38***	19.05
$Political\_FirmYr1_{j,t}$	0.52	0.43	-0.09***	-16.96
$Political\_FirmYr2_{j,t}$	0.59	0.50	-0.09***	-18.26
$Political\_FirmYr3_{j,t}$	0.54	0.45	-0.09***	-17.29
$Political\_FirmYr4_{j,t}$	0.18	0.14	-0.04***	-9.29

Technical_FirmYr1$_{j,t}$	0.15	0.27	0.12***	31.07
Technical_FirmYr2$_{j,t}$	0.14	0.25	0.11***	28.46
Technical_FirmYr3$_{j,t}$	0.16	0.23	0.07***	17.64
Technical_FirmYr4$_{j,t}$	0.05	0.09	0.04***	15.75

Panel C – Median Domestic vs. Joint Venture

	Domestic	*JV*	*Diff*	*Z-Score*
Relative Forecast Error$_{i,j,t}$	-0.02	-0.02	0.00	2.09
Horizon$_{i,j,t}$	4.70	4.62	-0.08***	9.75
Experience_firm$_{k,j,t}$	4.53	4.61	0.08***	-19.17
Experience$_{k,t}$	6.52	6.92	1.34***	-39.46
Brokersize_Analyst$_{i,t}$	100.00	130.00	30.00***	-57.64
Brokersize_Firms$_{i,t}$	971.00	983.00	12.00***	29.65
Specialization$_{k,t}$	3.00	3.00	0.00***	-8.98
Star$_{k,t}$	0.00	0.00	0.00***	36.87
Distance$_{i,j,t}$	0.00	0.00	0.00***	13.17
Turnover$_{j,t}$	0.00	0.00	0.00***	-4.01
SOE$_{j,t}$	0.00	0.00	0.00***	-7.03
Marketization$_{j,t}$	7.16	7.23	0.07***	4.51
PptRights$_{j,t}$	8.46	8.89	0.43***	13.38
Political_FirmYr1$_{j,t}$	1.00	0.00	-1.00***	-16.93
Political_FirmYr2$_{j,t}$	1.00	0.00	-1.00***	-18.22
Political_FirmYr3$_{j,t}$	1.00	0.00	-1.00***	-17.26
Political_FirmYr4$_{j,t}$	0.00	0.00	0.00***	-9.29
Technical_FirmYr1$_{j,t}$	0.00	0.00	0.00***	30.88
Technical_FirmYr2$_{j,t}$	0.00	0.00	0.00***	28.32
Technical_FirmYr3$_{j,t}$	0.00	0.00	0.00***	17.61
Technical_FirmYr4$_{j,t}$	0.00	0.00	0.00***	15.73

Panel D – Other Variables Used in Additional Tests

	N	*Mean*	*Median*	*Std*
JV_Coverage$_{j,t}$	11,898	0.52	1.00	0.50
ACCU12$_{i,j,t}$	63,616	0.38	0.23	0.31
Financedegree$_{k}$	2,929	0.05	0.00	0.23
MBAdegree$_{k}$	2,929	0.25	0.00	0.43

Table 3 – Ownership Restriction: Technical Capabilities

Panel A – Summary Statistics

	Mean	*Median*	*Std*
$Size\_\#Words_{i,j,t}$	0.372	0.312	0.261
$Table\_Page_{i,j,t}$	1.341	0.053	5.382
$Valuation_{i,j,t}$	0.013	0.011	0.007

Panel B – Validation 1: Correlation between Technical Capabilities and Company Characteristics

	$Turnover_{j,t}$	$SOE_{j,t}$	$Marketization_{j,t}$	$PptRight_{j,t}$
$Size\_\#Words_{i,j,t}$	-0.01 ***	-0.01 ***	0.04 ***	0.10 ***
$Table\_Page_{i,j,t}$	-0.02 ***	-0.06 ***	0.02 ***	0.01 ***
$Valuation_{i,j,t}$	-0.01 ***	-0.03 ***	0.06 ***	0.12 ***

Panel C – Validation 2: Technical Capabilities and Analyst's Education

	$Avg[Size\_\#Words\_DM]_{k,t}$		$Avg[Table\_Page\_DM]_{k,t}$		$Avg[Valuation\_DM]_{k,t}$	
	(1)	(2)	(3)	(4)	(5)	(6)
$Financedegree_k$	0.008**		0.329*		0.005***	
	(2.85)		(2.21)		(5.02)	
$MBAdegree_k$		0.011**		0.690*		0.005**
		(3.17)		(2.42)		(3.63)
$Experience_{k,t}$	0.013	0.013	0.809**	0.809**	0.004**	0.004**
	(0.73)	(0.74)	(3.13)	(3.04)	(3.47)	(3.67)
$Specialization_{k,t}$	-0.004	-0.004	0.053	0.051	0.000	0.000
	(-1.71)	(-1.72)	(1.40)	(1.42)	(0.71)	(0.79)
$Star_{k,t}$	-0.008	-0.008	0.302	0.299	-0.001	-0.000
	(-0.67)	(-0.68)	(1.68)	(1.69)	(-0.75)	(-0.80)
Std. Cluster			Analyst			
Fixed Effects			Brokerage, Year			
Observations	2,929	2,929	2,929	2,929	2,929	2,929
Adjusted R^2	0.260	0.260	0.073	0.074	0.095	0.058

Panel D: **Mean Difference in Technical Capabilities between Domestic and Joint Venture**

	JV	*Domestic*	*Diff*	*t statistic*
$Size\_\#Words\_DM_{i,j,t}$	0.0044	-0.0051	0.0095	3.96***
$Table\_Page\_DM_{i,j,t}$	0.0251	-0.1626	0.1877	5.96***
$Valuation\_DM_{i,j,t}$	0.0795	-0.0094	0.0889	16.18***

Panel E: **Median Difference in Technical Capabilities between Domestic and Joint Venture**

	JV	*Domestic*	*Diff*	*Z-Score*
$Size\_\#Words\ \_DM_{i,j,t}$	-0.0343	-0.0501	0.0158	9.44***
$Table\_Page\_DM\ _{i,j,t}$	-0.1399	-0.1422	0.0023	4.26***
$Valuation\_DM_{i,j,t}$	0.0157	-0.0596	0.0753	16.63***

Panel F: **Technical Capabilities and Forecast Accuracy**

	Dep Var = Relative Forecast Error$_{i,j,t}$					
	(1)	(2)	(3)	(4)	(5)	(6)
Obs. Included:	JV	Domestic	JV	Domestic	JV	Domestic
Size_#Words_DM $_{i,j,t}$	-0.187**	-0.036**				
	(-3.55)	(-1.37)				
	F-Test=10.83***					
Table_Page_DM $_{i,j,t}$			-0.074***	0.008		
			(-4.60)	(1.70)		
			F-Test=2.82*			
Valuation_DM$_{i,j,t}$					-0.043***	-0.018**
					(-5.41)	(-3.11)
					F-Test=14.85***	
Horizon$_{i,j,t}$	0.137***	0.129***	0.135***	0.129***	0.140***	0.132***
	(5.98)	(8.96)	(6.20)	(8.96)	(6.03)	(8.96)
Experience_firm$_{k,j,t}$	-0.024*	-0.017**	-0.026*	-0.017**	-0.018	-0.016**
	(-2.15)	(-3.12)	(-2.04)	(-3.14)	(-1.71)	(-3.01)
Experience$_{k,t}$	-0.053	-0.022	-0.062	-0.023	-0.082*	-0.023
	(-1.35)	(-1.42)	(-1.74)	(-1.43)	(-1.99)	(-1.44)
Brokersize_Analyst$_{i,t}$	0.498	-0.135	-0.864**	-0.162	-0.473*	-0.175*
	(1.78)	(-1.36)	(-2.48)	(-1.74)	(-2.28)	(-1.94)
Brokersize_Firms$_{i,t}$	-0.048	-0.013	0.117*	-0.010	0.052	-0.009
	(-1.66)	(-0.87)	(2.22)	(-0.66)	(1.19)	(-0.57)
Specialization$_{k,t}$	-0.003	-0.005	-0.003	-0.005	-0.003	-0.005
	(-1.02)	(-1.02)	(-1.38)	(-0.98)	(-1.06)	(-0.84)
Star$_{k,t}$	0.027	-0.008	0.028	-0.007	0.022	-0.008
	(1.24)	(-0.49)	(1.19)	(-0.47)	(1.27)	(-0.51)
Distance$_{i,j,t}$	0.014	0.002	0.015	0.002	0.019	0.002
	(0.72)	(0.30)	(0.80)	(0.31)	(0.98)	(0.28)
Std. Cluster			Industry, Brokerage, Year			
Fixed Effects			Firm			
Observations	10,248	67,822	10,248	67,822	10,248	67,822
Adjusted R^2	0.063	0.041	0.062	0.041	0.058	0.042

In the panels above, *Size_#Word_DM$_{i,j,t}$* is the de-mean measure for *Size_#Word*. *Size_#Word* calculated as the size of report divided by the number of words. *Table_Page_DM$_{i,j,t}$* is the de-mean measure for *Table_Page*. *Table_Page* is the percentage of non-textual space in the analyst report. *Valuation_DM$_{i,j,t}$* is the de-mean measure for *Valuation*. *Valuation* is the percentage of valuation-related keywords used in the analyst report. Avg[*Size_#Words_DM*]$_{k,t}$ is the average of *Size_#Words_DM $_{i,j,t}$* across all the reports that analyst *k* issued during year *t*. Avg[*Table_Page_DM*]$_{k,t}$ is the average of *Table_Page_DM$_{i,j,t}$* across all the reports that analyst *k* issued during year *t*. Avg[*Valuation_DM*]$_{k,t}$ is the average of *Valuation_DM$_{i,j,t}$* across all the reports that analyst *k* issued during year *t*. *Financedegree$_k$* is an indicator variable which takes the value of 1 if analyst *k* has completed a finance degree, and 0 otherwise. *MBA degree$_k$* is an indicator variable which takes the value of 1 if analyst *k* has completed an MBA degree, and 0 otherwise. Panel C includes 2,929 observations, and each observation represents the average content across all the reports issued by analyst *k* during year *t*. Only analysts (1,036 unique analysts) for which we have access to their resumes are included in the sample. In Panel F, each observation represents the latest report by brokerage *i* issued for firm *j* for year *t*. In Columns 1, 3 and 5, only observations from domestic brokerages are included. In Columns 2, 4 and 6, only observations from joint venture brokerages are included. *Relative Forecast Error$_{i,j,t}$* is the proportional mean absolute forecast error relating to a particular report. More specifically, it is the ratio of the difference between the absolute forecast error of brokerage *i* forecasting firm *j*'s fiscal year *t* earnings and the average absolute forecast error across all forecasts of firm *j*'s fiscal year *t* earnings, to the mean absolute forecast error, i.e. $\frac{AFE_{i,j,t}-AvgAFE_{j,t}}{AvgAFE_{j,t}}$. Coefficient *t*-statistics are in parentheses. ∗∗∗, ∗∗, and ∗ denote significance at the 1%, 5%, and 10% (two-sided) levels, respectively. All other variables are described in detail in Appendix C.

Table 4 – Invisible Barriers: Political Content

Panel A – Summary Statistics for Political Content

	Mean	*Median*	*Std*
$PplDailyPolitical_{i,j,t}$	-1.77	-1.79	0.10
$PplDailyEconomic_{i,j,t}$	-1.76	-1.77	0.09
$PplDailyPolEcon_{i,j,t}$	-1.76	-1.78	0.10
$PoliticalWord_{i,j,t}$	0.31	0	0.18

Panel B – Validation 1: Correlation between Political Content and Company Characteristics

	$Turnover_{j,t}$		$SOE_{j,t}$		$Marketization_{j,t}$		$PptRight_{j,t}$	
$PplDailyPolitical_{i,j,t}$	0.01	***	0.06	***	-0.02	***	-0.03	***
$PplDailyEconomic_{i,j,t}$	0.02	***	0.09	***	-0.02	***	-0.09	***
$PplDailyPolEcon_{i,j,t}$	0.02	***	0.07	***	-0.02	***	-0.05	***
$PoliticalWord_{i,j,t}$	0.01		0.01	***	-0.01	**	-0.01	*

Panel C: **Mean Difference in Political Content between Domestic and Joint Venture**

	Domestic	*JV*	*Dif*	*t statistic*
$PplDailyPolitical\_DM_{i,j,t}$	0.066	-0.133	-0.199	2.34**
$PplDailyEconomic\_DM_{i,j,t}$	0.070	-0.097	-0.167	2.18**
$PplDailyPolEcon\_DM_{i,j,t}$	0.070	-0.125	-0.195	2.33**
$PoliticalWord\_DM_{i,j,t}$	0.041	-0.008	-0.049	2.13**

Panel D: **Median Difference in Political Content between Domestic and Joint Venture**

	Domestic	*JV*	*Dif*	*Z-Score*
$PplDailyPolitical\_DM_{i,j,t}$	-0.010	-0.013	-0.003	2.39***
$PplDailyEconomic\_DM_{i,j,t}$	-0.009	-0.011	-0.002	3.23***
$PplDailyPolEcon\_DM_{i,j,t}$	-0.012	-0.013	-0.001	2.41***
$PoliticalWord\_DM_{i,j,t}$	0.028	-0.033	-0.005	5.43***

Panel E: **Political Content and Forecast Accuracy**

	Dep Var = Relative Forecast Error$_{i,j,t}$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Observations Included:	Domestic	JV	Domestic	JV	Domestic	JV	Domestic	JV
PplDailyPolitical_DM$_{i,j,t}$	-0.161**	0.211						
	(-2.47)	(1.05)						
	F-Test=16.14***							
PplDailyEconomic_DM$_{i,j,t}$			-0.182**	0.229				
			(-2.94)	(1.36)				
			F-Test=15.58***					
PplDailyPolEcon_DM$_{i,j,t}$					-0.163**	0.211		
					(-3.12)	(1.01)		
					F-Test=17.36***			
PoliticalWord_DM$_{i,j,t}$							-0.277***	-0.633
							(-4.56)	(-1.32)
							F-Test=9.88***	
Horizon$_{i,j,t}$	0.131***	0.135***	0.132***	0.135***	0.131***	0.135***	0.129***	0.137***
	(9.06)	(5.33)	(8.98)	(5.18)	(8.97)	(5.20)	(8.67)	(6.29)
Experience_firm$_{k,j,t}$	-0.016*	-0.024*	-0.015**	-0.025*	-0.016**	-0.024*	-0.017**	-0.022*
	(-2.36)	(-2.27)	(-2.68)	(-2.22)	(-2.71)	(-2.24)	(-2.90)	(-2.36)
Experience$_{k,t}$	-0.023	-0.069	-0.023	-0.068	-0.023	-0.068	-0.022	-0.072
	(-1.44)	(-1.73)	(-1.44)	(-1.70)	(-1.44)	(-1.73)	(-1.43)	(-1.80)
Brokersize_Analyst$_{i,t}$	-0.169	-0.559*	-0.170	-0.556*	-0.169	-0.558*	-0.159	-0.513**
	(-1.80)	(-2.19)	(-1.82)	(-2.16)	(-1.81)	(-2.18)	(-1.67)	(-2.45)
Brokersize_Firms$_{i,t}$	-0.010	0.065	-0.010	0.065	-0.010	0.065	-0.010	0.056
	(-0.70)	(1.41)	(-0.69)	(1.40)	(-0.70)	(1.40)	(-0.57)	(1.28)
Specialization$_{k,t}$	-0.005	-0.009	-0.005	-0.009	-0.005	-0.009	-0.005	-0.008
	(-1.08)	(-1.12)	(-1.07)	(-1.08)	(-1.07)	(-1.08)	(-1.18)	(-1.10)
Star$_{k,t}$	-0.007	0.032	-0.008	0.032	-0.008	0.023	-0.007	0.023
	(-0.49)	(1.08)	(-0.49)	(1.20)	(-0.50)	(1.28)	(-0.34)	(1.34)
Distance$_{i,j,t}$	0.001	0.016	0.001	0.016	0.001	0.016	0.002	0.018

	(0.15)	(0.82)	(0.13)	(0.80)	(0.15)	(0.80)	(0.26)	(0.73)
Std. Cluster				Industry, Brokerage, Year				
F.E.				Firm				
Observations	67,822	10,248	67,822	10,248	67,822	10,248	67,822	10,248
Adjusted R^2	0.032	0.022	0.033	0.027	0.033	0.021	0.031	0.022

In the above panels, $PplDailyPolitical\_DM_{i,j,t}$ is the de-mean LDA similarity between brokerage *i*'s report for firm *j* in year *t* and all the articles that appeared in the political section of the *People's Daily* from year *t*-1 to year *t*+1. $PplDailyEconomic\_DM_{i,j,t}$ is the de-mean LDA similarity between brokerage *i*'s report for firm *j* in year *t* and all the articles that appeared in the economic section of the *People's Daily* from year *t*-1 to year *t*+1. $PplDailyPolEcon\_DM_{i,j,t}$ is the de-mean LDA similarity between brokerage *i*'s report for firm *j* in year *t* and all the articles that appeared in the political and economic section of the *People's Daily* from year *t*-1 to year *t*+1. $PoliticalWord_{i,j,t}$ is the percentage of political words within brokerage *i*'s report for firm *j* in year *t*. $Turnover_{j,t}$ is an indicator variable which takes the value of 1 if firm *j*'s headquarters province experienced a key politician turnover in year *t* or *t*-1, and 0 otherwise. $SOE_{j,t}$ is an indicator variable which takes the value of 1 if the underlying firm is a SOE, and 0 otherwise. $Marketization_{j,t}$ is an index for the level of province-level government intervention within the province in which company *j* is headquartered, and a higher value indicates less intervention. $Pptright_{j,t}$ is an index for the level of private property rights within the province in which company *j* is headquartered, and a higher value indicates better property rights protection. In panel E, each observation represents the latest report by brokerage *i* issued for firm *j* for year *t*. In Columns 1, 3, 5, and 7, only observations from domestic brokerages are included. In Columns 2, 4, 6, and 8, only observations from joint venture brokerages are included. $Relative\ Forecast\ Error_{i,j,t}$ is the proportional mean absolute forecast error relating to a particular report. More specifically, it is the ratio of the difference between the absolute forecast error of brokerage *i* forecasting firm *j*'s fiscal year *t* earnings and the average absolute forecast error across all forecasts of firm *j*'s fiscal year *t* earnings, to the mean absolute forecast error, i.e. $\frac{AFE_{i,j,t}-AvgAFE_{j,t}}{AvgAFE_{j,t}}$. Coefficient *t*-statistics are in parentheses. ∗∗∗, ∗∗, and ∗ denote significance at the 1%, 5%, and 10% (two-sided) levels, respectively. All other variables are described in detail in Appendix C.

Table 5 – Relative Performance between Joint Venture and Domestic Brokerages
Panel A: High Technical Firm-Years

	Dep Var = Relative Forecast Error$_{i,j,t}$			
	(1)	(2)	(3)	(4)
$JV_{i,t}$×*Technical_FirmYr1*$_{j,t}$	-0.043*			
	(-1.98)			
Technical_FirmYr1$_{j,t}$	-0.014**			
	(-3.57)			
$JV_{i,t}$×*Technical_FirmYr2*$_{j,t}$		-0.066***		
		(-6.29)		
Technical_FirmYr2$_{j,t}$		0.008		
		(1.33)		
$JV_{i,t}$×*Technical_FirmYr3*$_{j,t}$			-0.031**	
			(-2.72)	
Technical_FirmYr3$_{j,t}$			-0.012	
			(-0.56)	
$JV_{i,t}$×*Technical_FirmYr4*$_{j,t}$				-0.194*
				(-2.06)
Technical_FirmYr4$_{j,t}$				0.038
				(1.32)
$JV_{i,t}$	0.015	0.047**	0.022	0.020
	(1.79)	(2.73)	(1.54)	(1.60)
F-Test $JV_{i,t}$×*Technical_FirmYr1*$_{j,t}$+ $JV_{i,t}$=0	4.16*	5.16*	3.12	4.98*
Controls	Same as Table 3 Panel E			
Std. Cluster	Industry, Brokerage, Year			
Fixed Effects	Firm			
Observations	78,070	78,070	78,070	78,070
Adjusted R^2	0.020	0.020	0.020	0.022

Panel B: High Political Firm-Years

	Dep Var = Relative Forecast Error$_{i,j,t}$			
	(1)	(2)	(3)	(4)
Domestic$_{i,t}$× *Political_FirmYr1*$_{j,t}$	-0.064*			
	(-2.38)			
Political_FirmYr1$_{j,t}$	0.049*			
	(2.04)			
Domestic$_{i,t}$× *Political_FirmYr2*$_{j,t}$		-0.064**		
		(-2.75)		
Political_FirmYr2$_{j,t}$		0.041		
		(1.94)		
Domestic$_{i,t}$× *Political_FirmYr3*$_{j,t}$			-0.065**	
			(-2.77)	
Political_FirmYr3$_{j,t}$			0.043*	
			(2.06)	
Domestic$_{i,t}$× *Political_FirmYr4*$_{j,t}$				-0.066***
				(-5.05)
Political_FirmYr4$_{j,t}$				0.027*
				(2.36)
Domestic$_{i,t}$	0.018	0.018	0.018	-0.005
	(1.16)	(1.40)	(1.25)	(-0.44)
F-Test *Domestic*$_{i,t}$×*Political_FirmYr1*$_{j,t}$+ *Domestic*$_{j,t}$=0	5.52*	5.85*	6.77**	10.43***
Controls	Same as Table 3 Panel E			
Std. Cluster	Industry, Brokerage, Year			
Fixed Effects	Firm			
Observations	78,070	78,070	78,070	78,070
Adjusted R^2	0.020	0.020	0.21	0.022

The panels above includes 78,070 observations, and each observation represents the latest report by brokerage *i* issued for firm *j* for year *t*. *Relative Forecast Error*$_{i,j,t}$ is the proportional mean absolute forecast error relating to a particular report. More specifically, it is the ratio of the difference between the absolute forecast error of brokerage *i* forecasting firm *j*'s fiscal year *t* earnings and the average absolute forecast error across all forecasts of firm *j*'s fiscal year *t* earnings, to the mean absolute forecast error, i.e. $\frac{AFE_{i,j,t}-AvgAFE_{j,t}}{AvgAFE_{j,t}}$. *Political_FirmYr1*$_{j,t}$, *Political_FirmYr2*$_{j,t}$ and *Political_FirmYr3*$_{j,t}$ are indicator variables which take the value of 1 if any of domestic brokerage reports issued for firm *j* in year t has *PplDailyPol_DM*$_{i,j,t}$, *PplDailyEcon_DM*$_{i,j,t}$ and *PplDailyPolEcon_DM*$_{i,j,t}$ that falls in the top decile, respectively. *Political_FirmYr4*$_{j,t}$ is an indicator variable which takes the value of 1 if firm *j* is an SOE and its' headquarters province experienced a key politician turnover in year *t* or *t*-1. *Domestic*$_{i,t}$ is an indicator variable which takes the value of 1 if brokerage *i* is from a joint venture brokerage in year *t*, and 0 otherwise. *Technical_FirmYr1*$_{j,t}$, *Technical_FirmYr2*$_{j,t}$ and *Technical_FirmYr3*$_{j,t}$ are indicator variables which take the value of 1 if any of the JV reports issued for firm *j* in year *t* has *Size_#Word*$_{i,j,t}$, *Table_Page_DM*$_{i,j,t}$ and *Valuation_DM*$_{i,j,t}$ that falls in the top decile, respectively. *Political_FirmYr4*$_{j,t}$ is an indicator variable which takes the value of 1 if firm *j* has overseas sales and is located in a province with higher than median *Marketization*$_{j,t,}$ and *PptRight*$_{j,t}$. *JV*$_{i,t}$ is an indicator variable which takes the value of 1 if brokerage *i* is a joint venture brokerage in year *t*, and 0 otherwise. Coefficient *t*-statistics are in parentheses. ∗∗∗, ∗∗, and ∗ denote significance at the 1%, 5%, and 10% (two-sided) levels, respectively. All other variables are described in detail in Appendix C.

Table 6 – Top 25 brokerages Only

	Dep Var = Relative Forecast Error$_{i,j,t}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Observations Included:	JV	JV	JV	Domestic	Domestic	Domestic	Domestic
Table_Page_DM $_{i,j,t}$	-0.198**						
	(-3.26)						
Size_#Words_DM $_{i,j,t}$		-0.060***					
		(-4.11)					
Valuation_DM$_{i,j,t}$			-0.033*				
			(-2.17)				
PplDailyPolitical_DM $_{i,j,t}$				-0.110*			
				(-2.23)			
PplDailyEconomic_DM $_{i,j,t}$					-0.134**		
					(-2.80)		
PplDailyPolEcon_DM $_{i,j,t}$						-0.118**	
						(-2.92)	
PoliticalWord_DM $_{i,j,t}$							-0.233**
							(-3.93)
Controls	Same as Table 3 Panel F				Same as Table 4 Panel E		
Std. Cluster Fixed Effects	Industry, Brokerage, Year Firm						
Observations	8,985	8,985	8,985	38,730	38,730	38,730	38,730
Adjusted R^2	0.061	0.059	0.053	0.026	0.026	0.026	0.026

In the table above, Columns 1, 2 and 3 include observations from joint venture brokerages only, and Columns 4, 5, 6 and 7 include observations from domestic brokerages only. Each observation represents the latest report by brokerage *i* issued for firm *j* for year *t*; only reports from the top 25 brokerages are included. Coefficient *t*-statistics are in parentheses. ∗∗∗, ∗∗, and ∗ denote significance at the 1%, 5%, and 10% (two-sided) levels, respectively. All other variables are described in detail in Appendix C.

Table 7 – Additional Analyses: Coverage Choices

	Dep Var = JV Coverage$_{j,t}$			
	(1)	(2)	(3)	(4)
Turnover$_{j,t}$	-0.023**			
	(-2.32)			
SOE$_{j,t}$		-0.023*		
		(-1.89)		
Marketization$_{j,t}$			0.008**	
			(2.01)	
PptRight$_{j,t}$				0.006*
				(1.94)
BM$_{j,t}$	0.025	0.030	-0.043**	-0.043**
	(1.34)	(1.60)	(-2.24)	(-2.22)
Size$_{j,t}$	0.119***	0.120***	0.127***	0.127***
	(21.94)	(22.06)	(23.32)	(23.38)
Volume$_{j,t}$	0.009	0.012*	0.015**	0.016**
	(1.46)	(1.88)	(2.41)	(2.45)
Stdret$_{j,t}$	-0.024***	-0.026***	-0.020***	-0.020***
	(-6.05)	(-6.44)	(-5.04)	(-5.06)
Foreign_Ownership$_{j,t}$	2.353***	2.357***	2.340***	2.339***
	(14.64)	(14.60)	(14.48)	(14.48)
Loss$_{j,t}$	-0.088***	-0.085***	-0.081***	-0.082***
	(-4.60)	(-4.39)	(-4.20)	(-4.22)
Institutions_share$_{j,t}$	0.013***	0.013***	0.012***	0.012***
	(16.45)	(16.28)	(15.70)	(15.70)
Std. Cluster			Firm	
Fixed Effects			Year	
Observations	11,898	11,898	11,898	11,898
Adjusted R^2	0.215	0.215	0.221	0.221

The above table includes 11,898 observations, and each observation represents a unique firm year that in our dataset. *JV_Coverage*$_{j,t}$ is an indicator variable which takes the value of 1 if firm *j* is covered by at least one joint venture brokerage in year *t*, and 0 otherwise. *Turnover*$_{j,t}$ is an indicator variable which takes the value of 1 if firm *j*'s headquarters province experienced a key politician turnover in year *t* or *t*-1, and 0 otherwise. *SOE*$_{j,t}$ is an indicator variable which takes the value of 1 if the underlying firm is a SOE, and 0 otherwise. *Marketization*$_{j,t}$ is an index for the level of province-level government intervention within the province in which company *j* is headquartered, and a higher value indicates less intervention. *Pptright*$_{j,t}$ is an index for the level of private property rights within the province in which company *j* is headquartered, and a higher value indicates better property rights protection. Coefficient *t*-statistics are in parentheses. ∗∗∗, ∗∗, and ∗ denote significance at the 1%, 5%, and 10% (two-sided) levels, respectively. All other variables are described in detail in Appendix C.

Table 8 – Additional Analyses: Choice of Talent

Panel A: Education

	Joint Venture	Domestic	t-test
MBA degree$_k$	26.68%	24.72%	1.91*
Finance degree$_k$	7.14%	4.55%	2.37**

Panel B: Non-Textual Content

	Analysts from JV that are Hired from Domestic Brokerages	
	Mean	**Median**
Addit(Size_#Words)$_{k,t}$	0.0134*	0.1527
Addit(Table_Page)$_{k,t}$	0.3119*	0.0256*

Panel C: Political Content

	Analysts from JV that are Hired from Domestic Brokerages	
	Mean	**Median**
Addit(PplDailyPolitical)$_{k,t}$	-0.0036*	-0.0158***
Addit(PplDailyEconomic)$_{k,t}$	-0.0007	-0.0047
Addit(PplDailyPolEcon)$_{k,t}$	-0.0035*	-0.0146***
Addit(PoliticalWord)$_{k,t}$	-0.0040	-0.0024***

Panel A includes 1,036 observation, and each observation represents an analyst in our sample; 763 are domestic analysts and 273 are from joint venture analysts. *Finance degree*$_k$ is an indicator variable which takes the value of 1 if analyst *k* has a finance degree, and 0 otherwise. *MBA degree*$_k$ is an indicator variable which takes the value of 1 if analyst *k* has an MBA degree, and 0 otherwise. Panels B and C include 465 analyst-year observations; each observation represents the average content across all of analyst *k's* reports issued during year *t*. In particular, we impose two data restrictions: (1) only joint venture analysts who are hired from domestic brokerages between year 2011 and 2015 are included, and (2) only years prior to these analysts joining the foreign brokerage is included. In Panel B, *Addit(Size_#Words)*$_{k,t}$ is the additional amount of *Size_#Words*$_{i,j,t}$ that analyst *k* has across all her reports in year *t* that exceeds those in reports issued by all other domestic analysts in year *t*. *Addit(Table_Page)*$_{k,t}$ is the additional amount of *Table_Page*$_{i,j,t}$ that analyst *k* has across all her reports in year *t* that exceeds those in reports issued by all other domestic analysts in year *t*. In Panel C, *Addit(PplDailyPolitical)*$_{k,t}$ is the additional amount of *PplDailyPolitical*$_{i,j,t}$ that analyst *k* has across all her reports in year *t* that exceeds those in reports issued by all other domestic analysts in year *t*. *Addit(PplDailyEconomic)*$_{k,t}$ is the additional amount of *PplDailyEconomic*$_{i,j,t}$ that analyst *k* has across all her reports in year *t* that exceeds those in reports issued by all other domestic analysts in year *t*. *Addit(PplDailyPolEcon)*$_{k,t}$ is the additional amount of *PplDailyPolEcon*$_{i,j,t}$ that analyst *k* has across all her reports in year *t* that exceeds those in reports issued by all other domestic analysts in year *t*.

Table 9 – Additional Analyses: Target Price Accuracy

	Dep Var = ACCU12$_{i,j,t}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Observations Included:	JV	JV	JV	Domestic	Domestic	Domestic	Domestic
Table_Page_DM$_{j,i,t}$	0.087*						
	(2.14)						
Size_#Words_DM$_{j,i,t}$		0.224					
		(1.94)					
Valuation_DM$_{i,j,t}$			0.019*				
			(2.53)				
PplDailyPolitical_DM$_{j,i,t}$				0.105**			
				(3.56)			
PplDailyEconomic_DM$_{j,i,t}$					0.133***		
					(4.26)		
PplDailyPolEcon_DM$_{j,i,t}$						0.218***	
						(8.03)	
PoliticalWord_DM$_{j,i,t}$							0.374*
							(2.12)
Experience_firm$_{k,j,t}$	0.008	0.034**	0.014	0.002	0.001	0.000	0.003
	(0.47)	(3.24)	(0.52)	(0.63)	(0.47)	(0.10)	(1.00)
Experience$_{k,t}$	-1.434*	-0.330	-0.024*	-0.006	-0.005	0.000	-0.013
	(-2.46)	(-1.08)	(-2.36)	(-0.24)	(-0.19)	(0.02)	(-0.51)
Brokersize_Analyst$_{i,t}$	0.107	-0.049	0.028***	-0.104	-0.103	-0.100	-0.113
	(1.31)	(-0.79)	(4.04)	(-1.60)	(-1.62)	(-1.57)	(-1.67)
Brokersize_Firms$_{i,t}$	0.001	0.003	-0.790**	-0.004	-0.004	-0.004	-0.004
	(0.45)	(0.81)	(-2.77)	(-0.38)	(-0.41)	(-0.35)	(-0.46)
Specialization$_{k,t}$	-0.001	-0.007	0.030	-0.001	-0.001	-0.001	-0.001
	(-0.06)	(-0.30)	(0.50)	(-1.53)	(-1.50)	(-1.25)	(-1.17)
Star$_{k,t}$	-0.011	-0.006	0.002	0.002	0.002	0.003	0.001
	(-0.92)	(-0.36)	(0.53)	(0.23)	(0.25)	(0.36)	(0.14)
Distance$_{i,j,t}$	-0.009	-0.004	-0.002	-0.002	-0.002	-0.001	-0.003
	(-0.83)	(-0.31)	(-0.08)	(-0.33)	(-0.30)	(-0.22)	(-0.41)
Std. Cluster	Industry, Brokerage, Year						
Fixed Effects	Firm-Year						
Observations	9,854	9,854	9,854	63,616	63,616	63,616	63,616
Adjusted R^2	0.240	0.241	0.239	0.404	0.404	0.406	0.404

In the table above, Columns 1, 2 and 3 include 9,854 observations from joint venture brokerages only. Columns 4, 5, 6 and 7 include 63,616 observations from domestic brokerages only. *ACCU12*$_{i,jt,}$ is the percentage of trading days that the stock price of firm *j* is trading above (below) the brokerage's buy (sell) price target in the 12 months following brokerage *i's* report announcement date. Coefficient *t*-statistics are in parentheses. ∗∗∗, ∗∗, and ∗ denote significance at the 1%, 5%, and 10% (two-sided) levels, respectively. All other variables are described in detail in Appendix C.

Appendix A – Joint Venture Brokerages

JV Name	Foreign Partner	Year Founded	First Forecast
财富里昂/华欧国际证券（华信证券）	CLSA	Formed in 2008	2012
瑞信方正	Credit Suisse	Formed in 2008	2012
中原证券	Ashmore Group	Ashmore acquired 49% stake in 2012	2014
第一创业摩根大通证券	JP Morgan	Formed in 2010	2010
中金公司	Morgan Stanley	Formed in 1995	2010
中德证券	Deutsche Bank	Formed in 2009	2011
申万宏源	BNP Paribas	Formed in 2005	2011
华泰证券	AssentMark Investment Services	Formed in 2015	2015
光大证券	新鸿基公司	Formed in 2015	2015
海通证券	BNP Paribas	Formed in 2003	2012
银河证券	CIMB Group Holdings	Formed in 2013	2013
国联证券	Coastal Capital and Myriad Asset Management	Foreign investors joined in 2015	2015

Appendix B – Domestic Brokerages

爱建证券	华龙证券	长江证券
安信证券	华融证券	招商证券
渤海证券	华泰联合	浙商证券
财达证券	华西证券	中航证券
财富证券	华鑫证券	中山证券
财通证券	江海证券	中泰证券
川财证券	交银国际	中投证券
大通证券	金元证券	中信建投
大同证券	开源证券	中信证券
德邦证券	凯基证券	中信证券（浙江）
东北证券	联讯证券	中银国际
东方证券	民生证券	中邮证券
东莞证券	民族证券	中天证券
东海证券	南京证券	
东吴证券	平安证券	
东兴证券	群益证券	
方正证券	日信证券	
高华证券	山西证券	
广发证券	上海证券	
广证恒生	世纪证券	
广州证券	首创证券	
国都证券	太平洋证券	
国海证券	天风证券	
国金证券	天相投顾	
国盛证券	万联证券	
国泰君安	五矿证券	
国信证券	西部证券	
国元证券	西南证券	
恒泰证券	湘财证券	
宏信证券	新时代证券	
宏源证券	信达证券	
华安证券	兴业证券	
华宝证券	英大证券	
华创证券	元富证券	
华福证券	长城国瑞	
华金证券	长城证券	

Appendix C – Variables Definitions

Variables	
$ACCU12_{i,j,t}$	Percentage of days that stock price is above (below) target price in the next 12 months if target price is greater (smaller) than price on the date of the forecast.
$Addit(PoliticalWord)_{k,t}$	The additional amount of $PoliticalWord_{i,j,t}$ that analyst *k* has across all her reports in year *t* that exceeds those in reports issued by all other domestic analysts in year *t*. It is calculated as: $Additional(PoliticalWord)_{k,t} = PoliticalWord_{k,j,t} - \frac{\sum_{Domestic}^{N} PoliticalWord_{k,j,t}}{N}$ Where *Domestic* is all the analyst reports that have been issued by all analysts from domestic brokerages.
$Addit(PplDailyEconomic)_{k,t}$	The additional amount of $PplDailyEconomic_{i,j,t}$ that analyst *k* has across all her reports in year *t* that exceedsthose in reports issued by all other domestic analysts in year *t.* It is calculated as: $Additional(PplDailyEconomic)_{k,t} = PplDailyEconomic_{k,j,t} - \frac{\sum_{Domestic}^{N} PplDailyEconomic_{k,j,t}}{N}$ Where *Domestic* is all the analyst reports that have been issued by all analysts from domestic brokerages.
$Addit(PplDailyPolEcon)_{k,t}$	The additional amount of $PplDailyPolEcon_{i,j,t}$ that analyst *k* has across all her reports in year *t* that exceeds those in reports issued by all other domestic analysts in year *t*. It is calculated as: $Additional(PplDailyPolEcon)_{k,t} = PplDailyPolEcon_{k,j,t} - \frac{\sum_{Domestic}^{N} PplDailyPolEcon_{k,j,t}}{N}$ Where *Domestic* is all the analyst reports that have been issued by all analysts from domestic brokerages.
$Addit(PplDailyPolitical)_{k,t}$	The additional amount of $PplDailyPolitical_{i,j,t}$ that analyst *k* has across all her reports in year *t* that exceeds those in reports issued by all other domestic analysts in year *t*. It is calculated as: $Additional(PplDailyPolitical)_{k,t} = PplDailyPolitical_{k,j,t} - \frac{\sum_{Domestic}^{N} PplDailyPolitical_{k,j,t}}{N}$ Where *Domestic* is all the analyst reports that have been issued by all analysts from domestic brokerages.

$Addit(Size\_\#Words)_{k,t}$	The additional amount of $Size\_\#Words_{i,j,t}$ that analyst *k* has across all her reports in year *t* that exceeds those in reports issued by all other domestic analysts in year *t*. It is calculated as: $Additional(Size\_\#Words)_{k,t} = Size\_\#Words_{k,j,t} - \frac{\sum_{Domestic}^{N} Size\_\#Words_{k,j,t}}{N}$ Where *Domestic* is all the analyst reports that have been issued by all analysts from domestic brokerages.
$Addit(Table\_Page)_{k,t}$	The additional amount of $Table\_Page_{i,j,t}$ that analyst *k* has across all her reports in year *t* that exceeds those in reports issued by all other domestic analysts in year *t*. It is calculated as: $Additional(Table\_Page)_{k,t} = Table\_Page_{k,j,t} - \frac{\sum_{Domestic}^{N} Table\_Page_{k,j,t}}{N}$ Where *Domestic* is all the analyst reports that have been issued by all analysts from domestic brokerages.
$BM_{j,t}$	Book-to-market ratio for firm *j*, measured at the beginning of year *t*.
$Brokersize\_Analyst_{i,t}$	Total number of analysts hired by brokerage *i* in year *t*.
$Brokersize\_Firms_{i,t}$	Total number of firms covered by brokerage *i* in year *t*.
$Distance_{i,j,t}$	Indicator variable takes the value of 1 if underlying firm *j* shares the same province as brokerage *i* in year *t*.
$Domestic_{i,t}$	Indicator variable takes the value of 1 if brokerage *i* is owned domestically and does not include any foreign shareholders or have any foreign listing, and 0 otherwise.
$Experience\_Firm_{k,j,t}$	The natural log of the number of days between analyst *k*'s first forecast for firm *j* and the date of the current report.
$Experience_{k,j,t}$	The natural log of the number of days between analyst *k*'s first forecast of any firm in the database and the date of the current report.
$Financedegree_{k,t}$	Indicator variable which takes the value of 1 if analyst *k* has completed a finance degree in year *t*, and 0 otherwise.
$Foreign\_Ownership_{j,t}$	Percentage of shares outstanding that is owned by foreign investors for firm *j* at the beginning of the calendar year *t*.
$Horizon_{r,i,j,t}$	The nature log of the number of days between the announcement date of brokerage *i*'s forecast for firm *j*'s and the earnings announcement date of firm *j* for fiscal year-end in year *t*.

$Institutions\_share_{j,t}$	Ownership percentage (in the last quarter) of institutional investors (e.g., mutual funds, foreign institutional investors, brokerage firms, insurance companies, pension funds, investment trusts, and banks) of firm *j* in year *t*.
$JV\_Coverage_{j,t}$	Indicator variable which is equal to 1 when firm *j* is covered by at least one joint venture brokerage in year *t*, and 0 otherwise.
$JV_{i,t}$	Indicator variable takes the value of 1 if brokerage *i* is a joint venture brokerage, and 0 otherwise.
$Loss_{j,t}$	Indicator variable takes the value of 1 if the firm *j* reports a loss in year *t*, and 0 otherwise.
$Marketization_{j,t}$	Index for the level of state government intervention in the province in the year. Higher value indicates less government intervention within that particular province. It is a sub-index of marketization index compiled by Fan, Wang and Yu (2016). Specifically, this index includes three components relating to the relationship between government and market: role of market in resource allocation, reduction of government intervention, and reduction of government size. Our data spans from 2010 to 2014; for year 2015, we fill in the value for 2015 using data from the previous year.
$MBA\_degree_{k,t}$	Indicator variable which takes the value of 1 if analyst *k* has completed an MBA degree in year *t*, and 0 otherwise.
$Political\_FirmYr1_{j,t}$	Indicator variable takes the value of 1 if any of domestic analyst reports issued for firm *j* in year t contains $PplDailyPol\_DM_{i,j,t}$ in the top decile of all domestic analyst reports.
$Political\_FirmYr2_{j,t}$	Indicator variable which takes the value of 1 if any of domestic analyst reports issued for firm *j* in year t contains $PplDailyEcon\_DM_{i,j,t}$ in the top decile of all domestic analyst reports.
$Political\_FirmYr3_{j,t}$	Indicator variable which takes the value of 1 if any of domestic analyst reports issued for firm *j* in year t contains $PplDailyPolEcon\_DM_{i,j,t}$ in the top decile of all domestic analyst reports.
$Political\_FirmYr4_{j,t}$	$Political\_FirmYr4_{j,t}$ is an indicator variable which takes the value of 1 if firm *j* is an SOE and its' headquarters province experienced a key politician turnover in year *t* or *t*-1.
$PoliticalWord_{i,j,t}$	Percentage of political words within the report brokerage *i* issued for firm *j* in year *t*.
$PoliticalWord\_DM_{i,j,t}$	$PoliticalWord\_DM_{i,j,t}$, is the de-mean measure for $PoliticalWord_{i,j,t}$. It is

	calculated as: $PoliticalWord\_DM_{i,j,t}$ = $PoliticalWord_{i,j,t} - \frac{\sum_{R=1}^{N} PoliticalWord_{i,j,t}}{N}$ Where R is all the analyst reports that have been issued for firm *i* in year *t*
$PplDailyEconomic_{i,j,t}$	The LDA topic distance between brokerage *i*'s report issued for firm *j* in year *t* and the economic section of the *People's Daily* newspaper between year *t*-1 and year *t*+1. After we generate each document's LDA topic distribution, we compare the similarity of brokerage *i*'s report for firm j in year *t* and the *People's Daily* newspaper article on day *d* by calculating the following chi-square topic similarity: $$Similarity_{i,j,t,d} = -1 \times \sum_{i=1}^{N} \frac{(x_i - y_i)^2}{(x_i + y_i)}$$ $PplDailyEconomic_{i,j,t}$ is the median $Similarity_{i,j,t,d}$ between brokerage i's report for firm j in year t and all the articles that appear in the economic section the *People's Daily* newspaper between year *t*-1 and year *t*+1.
$PplDailyEconomic\_DM_{i,j,t}$	$PplDailyEconomic\_DM_{i,j,t}$, is the de-mean measure for $PplDailyEconomic_{i,j,t}$. It is calculated as: $PplDailyEconomic\_DM_{i,j,t}$ = $PplDailyEconomic_{i,j,t} - \frac{\sum_{R=1}^{N} PplDailyEconomic_{i,j,t}}{N}$ Where R is all the analyst reports that have been issued for firm *i* in year *t*
$PplDailyPolEcon_{i,j,t}$	The LDA topic distance between brokerage *i*'s report issued for firm *j* in year *t* and the political and economic sections of the *People's Daily* newspaper between year *t*-1 and year *t*+1. After we generate each document's LDA topic distribution, we compare the similarity of brokerage *i*'s report for firm *j* in year *t* and the *People's Daily* newspaper article on day *d* by calculating the following chi-square topic similarity: $$Similarity_{i,j,t,d} = -1 \times \sum_{i=1}^{N} \frac{(x_i - y_i)^2}{(x_i + y_i)}$$ $PplDailyPolEcon_{i,j,t}$ is the median $Similarity_{i,j,t,d}$ between brokerage *i*'s report for firm *j* in year *t* and all the articles that appear in both the political

	and economic section the *People's Daily* newspaper between year *t*-1 and year *t*+1.
PplDailyPolEcon_DM $_{i,j,t}$	*PplDailyPolEcon_DM*$_{i,j,t}$, is the de-mean measure for *PplDailyPolEcon*$_{i,j,t}$. It is calculated as: *PplDailyPolEcon_DM*$_{i,j,t}$ = *PplDailyPolEcon*$_{i,j,t}$ - $\frac{\sum_{R=1}^{N} PplDailyPolEcon_{i,j,t}}{N}$ Where R is all the analyst reports that have been issued for firm *i* in year *t*
PplDailyPolitical$_{i,j,t}$	The LDA topic distance between brokerage *i*'s report issued for firm *j* in year *t* and the political section of the *People's Daily* newspaper between year *t*-1 and year *t*+1. In particular: After we generate each document's LDA topic distribution, we compare the similarity of brokerage i's report for firm *j* in year *t* and the *People's Daily* newspaper article on day *d* by calculating the following chi-square topic similarity: $$Similarity_{i,j,t,d} = -1 \times \sum_{i=1}^{N} \frac{(x_i - y_i)^2}{(x_i + y_i)}$$ *PplDailyPolitical*$_{i,j,t}$ is the median $Similarity_{i,j,t,d}$ between brokerage *i*'s report for firm *j* in year *t* and all the articles that appear in the political section the *People's Daily* newspaper between year t-1 and year *t*+1.
PplDailyPolitical_DM$_{i,j,t}$	*PplDailyEconomic_DM*$_{i,j,t}$, is the de-mean measure for *PplDailyEconomic*$_{i,j,t}$. It is calculated as: *PplDailyPolitical_DM*$_{i,j,t}$ = *PplDailyPolitical*$_{i,j,t}$ - $\frac{\sum_{R=1}^{N} PplDailyPolitical_{i,j,t}}{N}$ Where R is all the analyst reports that have been issued for firm *i* in year *t*
PptRight$_{j,t}$	Index for the level of property rights protection within the province that year. Higher value indicates more property rights protection within that particular province It is a sub-index of marketization index compiled by Fan, Wang and Yu (2016). Our data spans from 2010 to 2014; for year 2015, we fill in the value for 2015 using data from the previous year.
Relative Forecast Accuracy$_{i,j,t}$	Following Bae et al. (2007) we measure forecast accuracy using the proportional mean absolute forecast error. More specifically, it is the ratio of the difference between the absolute forecast error of brokerage *i* forecasting firm *j*'s fiscal year *t* earnings and

	the average absolute forecast error across all brokerage forecasts of firm *j*'s fiscal year *t* earnings, to the mean absolute forecast error. i.e., Relative Forecast Accuracy= $\frac{AFE_{i,j,t}-AvgAFE_{j,t}}{AvgAFE_{j,t}}$ A positive value for this variable indicates that the absolute forecast error of brokerage *i* for firm *j*'s fiscal year *t* is larger than the average absolute forecast error of all the forecasts for firm *j* for the same fiscal year.
$Size\_\#Words\_DM_{i,j,t}$	$Size\_\#Words\_DM_{i,j,t}$, is the de-mean measure for $Size\_\#Words_{i,j,t}$. It is calculated as: $Size\_\#Words\_DM_{i,j,t} = Size\_\#Words_{i,j,t} - \frac{\sum_{R=1}^{N} Size\_\#Word_{i,j,t}}{N}$ Where R is all the analyst reports that have been issued for firm *i* in year *t*
$Size\_\#Words_{i,j,t}$	The size of the full analyst report divided by the number of words in brokerage *i*'s report issued for firm *j* in year *t*. Higher value indicates more non-textual content.
$Size_{j,t}$	Log (firm *j*'s total market value at the beginning of year *t*).
$SOE_{j,t}$	Indicator variable which takes the value of 1 if firm *j* is a state-owned entity in year *t*, and 0 otherwise.
$Specialization_{k,t}$	The number of different industries that analyst *k* covers during year *t*.
$Star_{k,t}$	Indicator variable takes the value of 1 if analyst *k* is nominated by the *New Fortune* magazine as a star analyst in the year prior to year *t*, and 0 otherwise.
$Stdret_{j,t}$	Standard deviation of daily returns for firm *j* for the calendar year *t*.
$Table\_Page\_DM_{i,j,t}$	$Table\_Page\_DM_{i,j,t}$, is the de-mean measure for $Table\_Page_{i,j,t}$. It is calculated as: $Table\_Page\_DM_{i,j,t} = Table\_Page_{i,j,t} - \frac{\sum_{R=1}^{N} Table\_Page_{i,j,t}}{N}$ Where R is all the analyst reports that have been issued for firm *i* in year *t*
$Table\_Page_{i,j,t}$	Percentage of pages not covered by text in brokerage *i*'s report issued for firm *j* in year *t*. This is the difference between the actual number of pages and the expected number of pages given the word count in the report. The expected number of pages is calculated as the total word count divided by 276.

Technical_FirmYr1$_{j,t}$	Indicator variable which takes the value of 1 if any of J.V. analyst reports issued for firm *j* in year t contains *Size_#Word*$_{i,j,t}$ in the top decile of all joint venture analyst reports.
Technical_FirmYr2$_{j,t}$	Indicator variable which takes the value of 1 if any of J.V. analyst reports issued for firm *j* in year t contains *Table_Page_DM*$_{i,j,t}$ in the top decile of all joint venture analyst reports.
Technical_FirmYr3$_{j,t}$	Indicator variable which takes the value of 1 if any of J.V. analyst reports issued for firm *j* in year t contains *Valuation_DM*$_{i,j,t}$ in the top decile of all joint venture analyst reports.
Technical_FirmYr4$_{j,t}$	Indicator variable which takes the value of 1 if firm *j* has overseas sales and is located in a province with higher than median *Marketization*$_{j,t,}$ and *PptRight*$_{j,t}$.
Turnover$_{j,t}$	Indicator variable takes the value of 1 if firm *j*'s headquarters province experienced a key politician (governor or party secretary) turnover during year *t*-1 or year *t*, and 0 otherwise.
Valuation_DM $_{i,j,t}$	*Valuation_DM* $_{i,j,t}$, is the de-mean measure for *Valuation*$_{i,j,t}$. It is calculated as: *Valuation_DM* $_{i,j,t}$ = *Valuation*$_{\_i,j,t}$- $\frac{\sum_{R=1}^{N} Valuation_{i,j,t}}{N}$ Where R is all the analyst reports that have been issued for firm *i* in year *t*
Valuation$_{i,j,t}$	Percentage of valuation-related words in the report issued by brokerage *i* for firm *j* in year *t*.
Volume$_{j,t}$	Log (annual trading volume in thousands of RMB) for firm *j* in year *t*.