What's in a Name? The Valuation Effect of Directors' Sharing of Surnames

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ABSTRACT

Using surname sharing as a novel measure of social ties, we examine the effect of directors' surname sharing on firm value. We find that boards with greater surname homogeneity are associated with lower firm value, particularly when directors share rare surnames and when firms operate in regions with stronger clan systems. The finding is not driven by familial ties. The market reacts positively to plausibly exogenous director resignations that reduce director surname sharing. Director surname sharing lowers firm value by reducing director dissent, granting excess executive compensation, increasing unfair related-party transactions, and discouraging innovation.

Keywords: Surname; board diversity; social tie; firm value; board voting.

JEL classification: G02, G32, M14.

Data availability: Data are available from the public sources cited in the text.

1. Introduction

Promoting diversity in workplaces including corporate boards has long been advocated. Starting from gender composition, there is a growing research interest in how different sources of diversity affect board effectiveness and firm outcomes. In this study, we contribute to this literature by examining directors' sharing of surnames - a pervasive but previously unexplored source of diversity - on firm outcomes. We also add new evidence to the literature that different sources of social ties may interact with each other to exert a joint influence on board effectiveness. Our unique director voting data enable us to shed light on the inner working of a board, which has been hitherto largely a black box in board diversity studies. This helps us gain a glimpse of how diversity contributes to board effectiveness (or the lack of it). We find evidence on both the dark side and potential benefit of director surname homogeneity.

Sociological studies find that "surname remains central to the establishment of a person's sense of belonging to a kin group" in contemporary times (Davies, 2011, p.555). Importantly, a surname connects the bearer not only to family members, but also potentially to many non-family members who share the same surname (Carr and Landa, 1983; Kiong and Kee, 1998). This creates a network and a bond embedded with rich social, cultural or even biological connections. These connections can be invoked when people bearing the same surname meet or work together, making it easier for them to understand and cooperate with each other. As a result, surnames are likely an important basis of social ties or group/social identity.

Surname has attracted significant academic, media and policy attention on several grounds. Surname is widely perceived as an important means of genealogy, potentially revealing one's DNA information (Jobling, 2001). It may also indicate one's ethnic minority background and engender race biases (Kumar et al., 2015), and this leads to recent calls for name-blind

recruitment.[1] Economists also use surname as a vehicle of inheritance to predict intergenerational mobility in socio-economic well-being (Clark and Cummins, 2015; Guell et al., 2015). Using a surname may have a reputation bonding effect so that firms named after their owners' name appear to perform better than other firms, especially so when the surname is rare (Belenzon et al., 2017). Researchers have also used surname as a nepotism proxy in education and other professions (see, e.g., Allesina, 2011; Ferlazzo and Sdoia, 2012).

The corporate board diversity literature has examined two broad categories of diversity, affinity-based and ability-related (Gompers et al., 2016) Affinity-based diversity represents innate personal characteristics (e.g., gender, age, and ethnicity) that are readily detectable whereas ability-related diversity is acquired through personal experiences and thus less observable (e.g., education, profession and functional expertise). While some studies find that diversity (or few social connections) is beneficial, there are opposite findings (see Ferreira (2010) and Rhode and Packel (2014) for a review of this literature).[2] The empirical evidence on which of the two types of diversity has a greater impact on performance is also inconclusive (Gompers et al., 2016).[3] Surname, as a source of affinity-based diversity, is more exogenous than ability-related diversity with respect to firm performance (Gompers et al., 2016), and clearly visible to both in-group and out-group members, compared with some other measures of diversity such as townsmen, alumni, neighbors, and a teacher-student relation.

1 For example, on October 26, 2015, the *BBC News Magazine* reports, "leading companies and universities are being asked to remove names from application forms in an effort to stop 'unconscious bias' against potential recruits."

[2] Ferreira (2010) concludes that even for the extensively studied female director representation, there is no reliable evidence that increasing female director representation improves firm performance.

[3] Horwitz and Horwitz (2007) term affinity-based diversity as bio-demographic diversity and ability-based as task-related diversity. They find in a meta-analysis that ability-related diversity, instead of affinity-based diversity, has a significant and positive impact on team performance. Gompers et al. (2016), however, find that affinity-based diversity measures have a greater impact on outcomes than do ability-based ones in the context of venture capital investment.

In this paper, we study the implications of director surname sharing as an unexplored means of social tie (that reduces diversity) for board effectiveness. Identifying new sources of board diversity and examing how they operate, separately or jointly with existing ones, is important given the existing inconclusive findings on the effects of various sources of diversity on board effectiveness (Tuggle et al., 2010). Indeed, since board diversity is based on multiple director attributes and roles (Hillman et al., 2008), establishing different surnames as a source of board diversity will add new knowledge to how board members are connected and how subgroups of a board operate. This helps us gain a fuller understanding of the extent to which and how board diversity affects firm outcomes.

The study draws upon social identity theory, which argues that people often classify themselves and others into various social categories based on certain social identity (Tajfel and Turner, 1986), and tend to favor in-group over out-group members – the so-called in-group bias (Jannati et al., 2016). In-group members tend to minimize differences among group members, leading to conformity, cohesion and solidarity. In this connection, surname can be employed as a social identity to differentiate in-group members (i.e., ancestry but not necessarily familial members) from out-group members (i.e., strangers).

Surname sharing among board members may affect corporate outcomes in different ways. On one hand, directors sharing surnames may have better mutual understanding, trust and communications (McPherson et al., 2001; Gompers et al., 2016; Li and Nagar, 2013). They also tend to coordinate more easily and be more mutually supportive. This is because surnames, being highly visible, facilitate immediate groupings of board members. Driven by a sense of belonging to a group, directors sharing a surname are likely to act collectively to conform to shared values and norms. This reduces conflicts and the resources needed for resolving divergent opinions,

facilitating a more efficient decision-making process (Van Peteghem et al., 2018). In addition, sharing a surname may help reduce concerns about losing status and disclosing information, thereby encouraging involvement in board activities and the provision of advice and counsel on strategic issues (Westphal, 1999). This reasoning leads to a prediction that surname sharing likely improves board effectiveness and thereby firm value.

On the other hand, directors' sharing of surnames can be detrimental to the board's decision-making. This prediction stems from the belief that strong social ties and therefore less diversity and independence compromise board monitoring (see, e.g., Hwang and Kim, 2009; Fracassi and Tate, 2012; Srinidhi et al., 2014; Gompers et al., 2016; Delis et al., 2017; Li and Nagar, 2013). Specifically, surname sharing may lead to a proliferation of personal exchanges and frequently noted antecedent of groupthink (Forbes and Milliken, 1999; Ishii and Xuan, 2014), providing a rich source of interdependence, compromise or even collusion among board members. Directors sharing a surname may become friendly allies and are less likely to challenge the views of other in-group members, thereby increasing the chance of principles being compromised. Such a circle may be less able to accommodate out-group board members and their alternative views. Boards with more directors bearing the same surname could therefore impede the formation of a conducive environment for producing different views and promoting independent checks and balances in decision-making. As a result, the board's monitoring role and effectiveness could be weakened and managerial agency problems could be exacerbated. This environment may also suppress creativity and innovation. Therefore, director surname sharing likely has a detrimental effect on firm value. Taken together, the relation between director surname sharing and firm value is ultimately an empirical question.

We test the relation between director surname sharing and firm value in the Chinese context that offers several unique advantages. First, data on surnames are cleaner in China than in Western countries given that most women in Western societies change their maiden surnames to their husbands' surnames after marriage, while in China, married women include female directors keep their names. Additionally, Chinese surnames have been patrilineal, in contrast to some Western countries such as Portuguese- and Spanish-speaking ones where people use double surnames by combining their parents' surnames. Second, surnames in China are much fewer and more concentrated than those in English speaking societies (Clark et al., 2014),[4] and so Chinese data offer larger variations in director surname sharing than Western data. Third, surnames are recognized as an important basis of social ties in China known as a collective society where people care about relationships between individuals, due to the belief that people bearing the same surname are descended from the same ancestor, and therefore consider themselves 'kinsmen' (Syed and Özbilgin, 2009). Finally, China has detailed director-level voting data that enable us to shed light on how director surname sharing affects the inner working of the board and its decision-making process; in contrast, this would not be possible using data from the U.S. and many other countries because of the lack of detailed voting data (see a discussion of this issue in Schwartz-Ziv and Weisbach (2013)).

Based on a large sample of Chinese listed companies over the period 2003-2013, we find a negative link between the extent of director surname sharing and firm value.[5] Importantly, this result is not driven by the nepotism in family firms that naturally have more director surname

[4] In 2007, there are a little over 4,000 surnames in China (compared with more than 40,000 surnames in England), of which 129 surnames account for 87% of the population. See "Most common surnames in Britain and Ireland revealed" available at http://www.bbc.co.uk/news/uk-england-38003201, November 17, 2016).

[5] This is consistent with the anecdotal evidence that investors are increasingly sensitive to the social ties engendered by surname sharing. On July 29, 2009, the *Times Technologies*, a Shenzhen listed firm, appointed a new secretary of the board who shares the surname with the controlling shareholder. Unexpectedly, the appointment received widespread attention and inquiries from investors and media including China Central Television (CCTV).

sharing, nor does it simply pick up the effect of other common director diversity measures (e.g., age, gender, tenure, and foreign experience) or other social ties (e.g., connection to other boards, townsmen and alumni). The finding is not an artifact of surname sharing between the CEO and other board members, and cannot be explained by board co-option (Coles et al., 2014a). These results are consistent with the argument that directors' sharing of surnames results in a special affinity, fostering personal ties between otherwise unrelated persons, and compromising board effectiveness (Jacobs, 1979). Director surname sharing also reinforces the negative effect of alumni and townsmen relationships, suggesting that different diversity sources may interact to exert a joint influence on board effectiveness (Tuggle et al., 2010).

Our result might be due to the endogeneity of director surname sharing because poorly performing firms may prefer to appoint directors with shared surnames, or there are unobserved variables that are omitted from the regression models but are correlated with both surname sharing and firm value. We mitigate the endogeneity concern in multiple ways. Following Rajan and Zingales (1988), we first provide evidence on the heterogeneities in the negative effect of director surname sharing on firm value: the effect is more pronounced when board members share a rare surname or when firms are headquartered in regions where clan systems are more influential. Our results are robust to firm fixed-effect regressions. We also conduct an instrumental variable (IV) estimation in which we instrument director surname sharing with two IVs: following Knyazeva et al. (2013) and Giannetti and Zhao (2015), we use the overall isonymy of the province in which a firm is headquartered as an IV given that directors mainly come from locally; we also use the average proportion of surname sharing by directors of other listed firms in a province excluding the firm concerned as the second IV. Our results remain unchanged using a 2SLS estimation.[6]

[6] See subsection 4.3.2 for the properties of the two IVs.

To sharpen our identification we follow Weisbach (1988) and undertake an event study of announcements of plausibly exogenous director resignations (due to health reasons). We find that the market reacts favorably to the announcement of the resignation of a director who shares a surname with other directors, especially when there is a higher level of surname sharing in the board before the resignation. Therefore, firm value appears to increase when director surname sharing decreases. The result from the short-term market event study bolsters our baseline finding from long-term changes in Tobin's Q.

Finally, we identify four channels through which director surname sharing reduces firm value: it decreases the likelihood of director dissension in board voting, leads to excess executive compensation, increases detrimental related-party transactions, and impedes corporate innovation. Together, these results portray a consistent picture that the negative valuation effect of director surname sharing is not merely driven by the endogeneity issue.

While director surname sharing generally impairs board effectiveness, we find that operating volatility significantly attenuates the negative effect of director surname sharing on firm value, suggesting that the potential benefits of improved communication and coordination induced by director surname sharing largely offset the costs of groupthink or insufficient checks and balances (Faleye et al., 2011; Bernile et al., 2016).

2. Relation with the board diversity literature

In general, our study is a response to Piotroski and Wong's (2012) call for more research attention to how social and cultural norms shape corporate activities. Our findings are consistent with the notion that informal institutions such as social and cultural norms matter in explaining firm value, even though corporate decisions are made by sophisticated and professional managers. More specifically, our study of the valuation implications of directors' sharing of surnames as a

new source of social ties makes four contributions to the literature. First, we add to the growing evidence that board diversity affects firm outcomes by uncovering a new source of diversity in relation to director surnames. In this vein, recent studies have focused on directors' diversity in age (e.g., Goergen et al., 2015), gender (e.g., Adams and Ferreira, 2009; Gul et al., 2011; Francis et al., 2015; Carter et al., 2017), education (e.g., Ishii and Xuan, 2014), tenure (Li and Wahid, 2017), and genes (Delis et al., 2017), or multiple sources of board diversity (Anderson et al., 2011; Bernile et al., 2016). Some studies also focus on the connection between the CEO and the directors (e.g., Hwang and Kim, 2009; Fracassi and Tate, 2012; Schmidt, 2015). Nevertheless, ours is the first study to consider the valuation implications of director surname sharing - a pervasive, easy-to-trace, and highly visible relationship basis that influences business relations not only in many Asian economies but also in some Western countries (e.g., see Allesina, 2011).[7] Surname as an affinity-based measure of diversity is also more exogenous than ability-based measures such as working experience and education background (Gompers et al., 2016). We show that director surname sharing has dark sides. Our evidence also contributes to the afore-mentioned debate over whether affinity-based diversity or ability-related diversity has a greater effect on team performance (Horwitz and Horwitz, 2007; Gompers et al., 2016).

Second, we provide some evidence that director surname sharing interacts with the social ties engendered by alumni and townsmen relationships and reinforces the latter's negative effect on firm value. To our knowledge, there has been little empirical evidence on the interaction dynamics among different sources of social ties. Our finding of this interactive effect therefore

[7] Despite having more surnames, surname sharing is also meaningful in Western countries. This can be seen from *The Adventure of the Three Garridebs* by Arthur Conan Doyle (1924) in which a Garrideb (A) claimed that if he could find two other Garridebs (B and C), then the three people would be able to inherit a fortune from a dying Garrideb (D). However, inspector Holmes found out that Garrideb (A) forged Garrideb (B) and Garrideb (D and his will) to seize the facilities for making fake money located in the home of Garrideb (C). Similarly, a UK landlord was reportedly seeking from the US an heir sharing his surname Slade for a $13 million estate (Lyall, 2006). These stories show that surname might be a special bond even if it is not necessarily a familial tie in Western countries.

improves our understanding of how board members are connected in complex ways and how different sources of social ties (that reduce board diversity) may interact with each other to affect board effectiveness (Tuggle et al., 2010). Our findings have implications for formulating good practices in board composition and structure.

Third, in most prior studies, the impact of board diversity or directors' social ties on board effectiveness can only be *inferred* from the impact on firm outcomes (performance or financial policies). While intriguing, how diversity affects the inner workings of a board remains a black box. A contribution of our paper is that employing the unique board voting data from China, we are able to provide direct evidence that in-group and out-group board members vote differently in board decisions.

Finally, our paper relates to an emerging literature examining the economic impacts of directors and managers' ancestry. For instance, Kumar et al. (2015) find that name-induced stereotype (though not confined to surnames) affects the investment choices by U.S. mutual fund investors. Giannetti and Zhao (2015) show that the ancestry of the directors of U.S. firms is associated with performance volatility. Our study differs from these in that they simply use director surnames to identify ethnic origins rather than uncover the social identity implications of surname as we do.

3. Data and methodology

3.1. Sample and models

Our sample is based on Chinese companies listed on the Shanghai or Shenzhen Stock Exchange from 2003 to 2013. The sample starts from 2003 because it is the first year when data on board information became available. We obtain company financial and stock price information from the China Securities Markets and Accounting Research (CSMAR) database, which is

available from the Wharton Research Data Services (WRDS). Some of our tests also use detailed data on director resignations and voting which are manually collected from firms' filings of announcements. Out of the 19,742 firm-year observations available for our sample period, we exclude 306 financial firm-years, 1,823 observations with missing values, and 1,336 observations for firms that are under special regulatory treatment.[8] This process yields a final sample of 16,277 firm-year observations for our baseline regression analysis. To minimize the effect of outliers, we winsorize all continuous variables at the 1st and 99th percentiles.

3.2. Baseline model and summary statistics

To test the valuation implication of director surname sharing, we estimate the following baseline regression model:

$$\text{Tobin's } Q_{it} = f(\text{Director surname sharing}_{it}, \text{control variables}_{it}, \text{fixed effects}) + \varepsilon_{it} \quad (1)$$

where, *i* indexes firms and *t* indexes years. We proxy firm value by *Tobin's Q*, which is the market value of common equity plus book value of debt, divided by the book value of total assets.

Director surname sharing is measured in two ways. The first proxy is a Herfindahl index (*HHI*), computed as $\sum_1^n {p_i}^2$, where p_i is the percentage of board members with surname i. A higher value of *HHI* indicates a higher degree of director surname sharing. The second proxy is an (inverse) Entropy Index (*Entropy*), computed as $-\sum_1^n p_i \ln(1/p_i)$. *Entropy* is widely used in research on economic diversity (e.g., Krishnaswami and Subramaniam, 1999; Khanna and Palepu, 2000). We multiply the Entropy index by (-1) so that it can be interpreted to reflect the extent of surname sharing. If a greater level of director surname sharing compromises board monitoring and

[8] Stock trading of specially treated (ST) firms is subject to restrictions.

reduces board effectiveness, the coefficient on *HHI* or *Entropy* should be significantly negative in the valuation model.

We follow prior research (e.g., Villalonga and Amit, 2006) to control for several firm characteristics that may affect firm value. Specifically, we include: *Firm size*, measured as the natural logarithm of total assets; *Leverage ratio*, the ratio of total liabilities to total assets; *ROA*, the ratio of net profit to year-beginning assets; *Beta risk*, calculated as $Cov(R_i, R_m)/Var(R_m)$, where R_i is the return of firm i and R_m is the market return; *State control*, a dummy variable that equals one for state-owned enterprises (SOEs) and zero otherwise;[9] *Cross listing*, a dummy variable that equals one for firms cross-listed in mainland China and overseas, and cross-listed firms often have better corporate governance due to the more stringent disclosure requirements in overseas markets and the monitoring of international institutional investors; and *Cash dividends*, computed as cash dividends divided by net income. In addition, we control for the following board characteristics: *% Independent directors*, calculated as the number of independent directors divided by the total number of directors; *Board size*, measured as the total number of board members; *CEO/Chairman duality*, a dummy variable that equals one if the CEO is also the chairman of the board; and *% Largest shareholding*, the percentage of shares held by the largest shareholder. In particular, the inclusion of board size helps alleviate the concern that the effect of diversity is simply an artifact of an effect of board size.

Our study focuses on the valuation implications of directors' sharing of surnames, but prior research on board diversity has also documented the effects of other aspects of board diversity. To mitigate the concern that our proxies for director surname sharing simply reflect other aspects of

[9] Since the majority of non-SOE firms in China are family owned, *State control* also serves as a crude inverse measure of family firms. We will conduct a finer test in Section 4.4.1 to rule out the possibility that our results are simply driven by director surname sharing in family firms.

board diversity, we control for a comprehensive set of demographic, human capital and social capital attributes of the board. Specifically, we control for two demographics: directors' age diversity (the standard deviation of director age, *Sdev_director age*) and gender diversity (the percentage of female directors on a board, *% Female directors*). We also control for three human capital-based diversity measures which reflect directors' professional experiences: tenure diversity (the standard deviation of directors' tenures in the firm, *Sdev_tenure*), the proportion of directors that also hold board seats in other listed companies (*% Concurrent post*), and the percentage of directors with education or working experience abroad (*Overseas background*). Moreover, we control for the extent of director connections stemming from alumni and fellow townsmen relationships. As we only have information to code these two variables for a subsample of firm-years, we include them in robustness checks in Panel B of Table 7 to preserve the sample size in the baseline regressions.

Finally, we control for industry, region (firm-headquarter), and year fixed effects in the regressions. The variables are defined in Appendix 1 and their summary statistics are reported in Table 1. On average, more than one-fifth of directors share a surname with at least another director on the board, suggesting that surname sharing among board members is prevalent in China.

[Insert Table 1 here]

4. Empirical results

4.1. Baseline regression results

Table 2 presents regression results for testing the impact of director surname sharing on firm value. We do not include firm-level control variables in the first two columns and add firm-level control variables in columns (3) and (4). In all columns, the coefficients on the two director

surname sharing proxies are negative and statistically significant at the 1% level, suggesting that firm value decreases with homogeneity in surnames of directors. In terms of economic significance, the coefficient on *HHI* in column (3) is -1.128; a one standard deviation (0.040) increase in *HHI* reduces *Tobin's Q* by 4.5%, which is 3.3% of the sample median *Tobin's Q* (median = 1.353). Column (4) is based on the alternative surname sharing measure, i.e., *Entropy*. Its coefficient is -0.227; a one standard deviation (0.253) increase in surname sharing decreases *Tobin's Q* by 5.7%, which is about 4.2% relative to the sample median *Tobin's Q*. These magnitudes are economically meaningful. Taken together, these findings provide preliminary evidence that surname homogeneity destroys firm value.[10]

The signs of the coefficients on the control variables are generally consistent with expectations. For instance, the coefficients of *Ln(total assets)* are significantly negative, which may reflect the more severe agency problems in large firms. Firms that are more profitable, have more access to debt financing, and pay more cash dividends have a higher valuation, and the latter is consistent with La Porta et al.'s (2000) finding that outside investors value dividends when their shareholder rights are less protected. As expected, firms with higher risk (proxied by a higher equity beta) tend to have a lower value. Regarding the corporate governance variables, the coefficient on *% Largest shareholding* is significantly negative, which could be due to the valuation discount arising from heightened incentive conflicts between the controlling shareholder and minority shareholders in China. In contrast, firms with a more independent board of directors and that are cross-listed have a higher Tobin's Q presumably due to their better corporate governance. When it comes to the variables measuring board attributes, firms appointing directors

[10] We had informal conversations with six directors of Chinese listed firms. The directors confirmed that they do have a special affinity with colleagues who share their surnames and argue that there are both pros and cons of sharing surnames in the board decision-making process.

with more tenure diversity and oversea experiences appear to have a higher Tobin's Q, whereas the coefficient on the representation of female directors on the board is negative and statistically significant. This is broadly consistent with the finding of prior studies (e.g., Adams and Ferreira, 2009; Ahern and Dittmar, 2012) on the negative effect of female directors on firm value.

[Insert Table 2 here]

4.2. Heterogeneities in the effect of director surname sharing on firm value

The baseline result is consistent with the negative effect of director surname sharing on board decision-making and value creation. However, the result may be confounded by endogeneity such as reverse causality (e.g., firm value influences board members' surname sharing via appointment) and the effect of omitted unobserved variables that are correlated with director surname sharing and firm value. While we lack exogenous shocks to completely rule out endogeneity, the concern is greatly alleviated to the extent that our multiple tests yield consistent results.

We start to tackle endogeneity by showing heterogeneities in the effect of director surname sharing. To the extent that we find evidence consistent with theoretical predictions in which greater surname homogeneity is expected to have a larger impact on firm value, the endogeneity concern is lessened (Rajan and Zingales, 1998). We use two largely exogenous measures of connection strength regarding surname sharing as moderating factors in the following analyses.

4.2.1. Directors' sharing of rare surnames and firm value

Social psychology theory suggests that the role of surname in establishing a network depends on its rarity. When a surname is rare, two otherwise unrelated persons tend to have a special affinity (Jacobs, 1979), and therefore are more likely to mutually connect. As such, directors sharing a rare

surname are more likely to become allies and compromise their roles as watchdogs in board decisions than in the case when directors share a common surname. We exclude firms whose directors share both common and rare surnames from this analysis for a clearer comparison.

To test if the relation between surname sharing and firm value is conditional on the rarity of surnames, we first define a dummy variable *Rare*, which equals one if the directors of a firm share a surname that is not ranked among the top 10 surnames according to the most recent survey by the Ministry of Public Security, and zero otherwise.[11] Column (1) of Table 3 shows that the coefficient on *HHI* is -0.929 (*t-stat* = -3.087), and that on *HHI***Rare* is -1.000 (*t-stat*=-2.182). The coefficients remain negative and are statistically stronger when *Entropy* is used to measure director surname sharing as reported in column (2). These results suggest that directors sharing a rare surname tend to forge stronger connections, and these connections could compromise the professional role of the directors concerned to a greater extent, ultimately resulting in lower firm value.

4.2.2. The impact of regional clan systems

Directors of Chinese companies are typically selected locally. The effect of surname sharing is presumably stronger for firms operating in an environment where the clan system is more influential because surname sharing can engender a stronger sense of belonging to a kin group (even though people do not really belong to a family). Following Goode (1982) and Ruan and Zheng (2012), we classify the provinces in which firms are headquartered into three groups based on the strength of regional clan systems: strong regions (Guangdong, Guangxi, Fujian and Jiangxi),

[11] According to the statistics released by the Ministry of Public Security, each of the top 10 surnames is shared by more than 20 million Chinese. Specifically, the top 10 Chinese surnames are: Wang (7.1%), Li (6.96%), Zhang (6.42%), Liu (5.16%), Chen (4.26%), Yang (2.97%), Huang (2.16%), Zhao (2.03%), Zhou (1.88%), and Wu (1.78%). If rank is relaxed to top 20, our results remain qualitatively unaffected.

weak regions (Heilongjiang, Jilin and Liaoning), and moderate regions (the remaining provinces). This classification is broadly consistent with Talhelm et al.'s (2014) observation that people in southern China are more interdependent whereas those in northern China are more independent. We then define a dummy variable *Strong*, which equals one if the firm is domiciled in a region with strong clan systems, and zero otherwise.

The results are presented in columns (3)-(4) of Table 3. Column (3) shows that the coefficient on *HHI* is -0.960 (*t-stat*=-2.845), and the coefficient on the interaction term *HHI***Strong* is -1.086 (*t-stat*=-2.002). Replacing *HHI* with *Entropy* in column (4) produces a similar result. Overall, Table 3 provides evidence consistent with surname sharing being more harmful when the risk of compromising principles arising from shared surnames is higher.

[Insert Table 3 here]

4.3. Main tests addressing endogeneity

While our previous cross-sectional tests provide evidence conforming to theory on when surname sharing is likely to have a larger impact on firm value, we provide several additional tests of endogeneity in this section. These tests include firm fixed-effect regressions, instrumental variable estimations, and a market event study exploiting the change in director surname sharing arising from director resignations.

4.3.1. Firm fixed-effect regression

We run firm fixed-effect regressions to control for the confounding effect of any time-invariant unobserved firm characteristics (e.g., firm culture) and report the results in Table 4. The relation between director surname sharing and firm value remains negative and significant for both

surname sharing measures, suggesting that our finding is not due to the existence of omitted time-invariant variables. The magnitudes of both director surname sharing are slightly less than 50% of the magnitudes that we show in baseline results in Table 4. Nevertheless, to retain the power of our tests, we do not include firm fixed-effects in our baseline models (given that within-firm variations in director surname sharing proxies are rather limited - about 70% of the between-firm variations in director surname sharing proxies).[12]

[Insert Table 4 here]

4.3.2. Instrumental variable estimation

We also perform a two-stage least squares (2SLS) estimation to deal with the possible existence of time-varying omitted variables that are correlated with both surname sharing and firm value, and the possible reverse causality running from firm value to director hiring (e.g., a poorly performing firm hires more directors sharing the same surname). In the first-stage regressions, we introduce two IVs. The first IV is the overall isonymy of the province in which a firm is headquartered (*Provincial isonymy*), measured as the average value of isonymy of all counties in a given province. This variable is drawn from the anthropology literature (e.g., Liu et al., 2012), which develops isonymy measures to capture the proximity of surnames in different provinces of China (Tibet is excluded because of data unavailability). While directors' skills can be optimally selected according to a firm's demand, the surname homogeneity of the board plausibly reflects the isonymy of the region where the firm is located. Indeed, board directors are largely selected locally (especially in China) and firm location is chosen in the early stage of a firm's lifecycle (Knyazeva et al., 2013; Giannetti and Zhao, 2015). Therefore, following Knyazeva et al. (2013)

[12] The within-firm standard deviation of *HHI* (*Entropy*) is 0.024 (0.154) and the between-firm standard deviation of *HHI* (*Entropy*) is 0.035 (0.215).

and Giannetti and Zhao (2015), we construct instruments for board composition based on the geographical location of firms' headquarters.[13]

The IV clearly meets the relevance condition. However, a danger to the exclusion condition is that a province's extent of isonymy may affect not only directors' surname sharing but also a firm's non-director executive surname sharing which may negatively affect firm value. To account for this possibility, we directly control for the extent of surname sharing among non-director executives of a company in the first- and second- stage models. After including this control variable, there is no obvious reason to expect that *Provincial isonymy* affects firm value unless through the channel of directors' surname sharing.

The second IV is the average proportion of surname sharing by directors of other listed firms in a province excluding the firm concerned (*Region_Ratio*). The IV should be positively correlated with director surname sharing, but there is no reason to expect that other firms' director surname sharing directly affects a firm's value.

Table 5 presents the results from the 2SLS regressions. The first-stage results show that all the coefficient estimates for the IVs have expected signs and are statistically significant. In addition, F-tests of excluded IVs support the relevance of the instruments (*F*-statistics ranges from 111.53 to 134.42, significant at the 1% level). The Sargan over-identification tests show that the orthogonality condition cannot be rejected at any conventional level of significance. The instrumented surname sharing measures continue to have a negative and statistically significant coefficient as previous in the second-stage regressions with *Tobin's Q* as the dependent variable. Also note that surname sharing among non-director executives (*HHI_Manager* and

[13] Bernile et al. (2016) propose an IV based on whether an outside director's home location has a direct flight to the headquarters city of a firm. While intriguing, this IV is difficult to use in our study because directors of Chinese companies are typically from the local region.

Entropy_Manager) has a negative but statistically insignificant effect on firm value, attesting to the importance of directors' sharing of surnames. Of course, we do not claim that these instrumental variables are perfect, and so also follow Weisbach (1988) to conduct a market event study of director resignations to further mitigate the endogeneity concern.

[Insert Table 5 here]

4.3.3. Market reactions to directors' resignation

In this section, we utilize director resignation events as a setting to examine how the stock market reacts to announcements of director resignations that change the level of director surname sharing and how the market reaction varies with the extent of director surname sharing before the resignation. We focus on director resignation rather than director appointment because the former typically concerns one director only while the latter often involves multiple directors and contains more confounding events. We identify a set of resignation events by manually collecting information from www.cninfo.com.cn, the official disclosure platform for Chinese listed firms. In general, announcements of director resignation are clean and do not contain confounding news, but we read each announcement to ensure that we only include announcements free of confounding events that may affect stock prices. We also collect personal characteristics of resigned directors from the CSMAR database and corporate filings. Our final sample contains a maximum of 5,231 observations used in the regression analysis.

The dependent variable, *CAR(-1,+1)*, is the abnormal returns cumulated over three days around the resignation announcement date. Daily abnormal return in the event window is the difference between the raw return and the estimated normal return using the parameters derived from the market model estimated over the period from day –210 to day –10 relative to the

announcement date. The independent variable is *Shared_name*, a dummy variable that equals one if the resigned director shares a surname with other directors. Panel A of Table 6 presents summary statistics of *CAR(-1,+1)* and directors' surname sharing proxies. On average, director resignations induce a small negative market reaction -0.032% which is statistically significant at the 10% level; the average market reaction to director resignations due to health reasons is -0.038%, which is not statistically different from zero (Panel A). In this sample, about 13% of the resigned directors shared a surname with other directors on the board in the full resignation sample. Therefore, when *Shared_name* equals one, the director resignation reduces the level of surname homogeneity and increases the surname diversity of the board. If director surname sharing decreases firm value, we expect *Shared_name* to be positively loaded in the regression using *CAR* as the dependent variable.

The regression results are reported in Panel B of Table 6. In column (1) of Panel B, we only include *Shared_name* in the model. The coefficient of *Shared_name* is 0.189, significant at the 1% level. This suggests that when the director resignation lowers director surname sharing, the market reaction is on average 0.189% higher, consistent with the argument that the market positively reads a drop in the extent of director surname sharing. It is also in line with the anecdotal evidence on the case of *Times Technology Ltd* discussed in footnote 5. In column (2), we control for a bunch of characteristics of the departing director (age, stock ownership, political connection, gender, being independent or not) and firm characteristics (ownership type, firm size, leverage, profitability, and cash flow), as well as industry, region, and year fixed effects. The coefficient on *Shared_name* remains significantly positive and becomes slightly larger (0.208%). In columns (3) and (4), we further interact *Shared_name* with the board's *pre*-resignation level of director surname sharing (*HHI* or *Entropy*), respectively. If diversity in director surnames improves firm value, then the resignation of a director sharing a surname with other directors on the board should

have a greater impact when the board is more homogenous before the resignation. Indeed, our results show that the interaction term between *Share_name* and either *HHI* or *Entropy* is significantly positive.

One concern is that some of the director resignations could be related to firm performance. In Panel C of Table 6, we thus focus on a plausibly exogenous sample of director resignations in which the director concerned resigned due to a health reason.[14] Market reactions to this type of director resignations should provide a cleaner test regarding the impact of the change in director surname sharing on firm valuation. As the table shows, our inference remains qualitatively similar. These results from the short-term market event study are consistent with the results from our previous long-term valuation regressions and help greatly alleviate the concern that the long-term valuation results are merely driven by the endogeneity of surname sharing measures.

[Insert Table 6 here]

4.4. Alternative explanations and some additional robustness checks

Our finding of a negative relation between director surname sharing and firm value is potentially consistent with five alternative explanations. Below we examine them in order.

4.4.1. Are the results driven by family firms?

Our findings may be merely driven by family firms whose directors by nature are innately less diverse in surnames, and director surname sharing may simply reflect the nepotism arising from family or relative relations. Non-state-owned firms in China are typically family owned, and

[14] One may argue that investors know that a certain board member is ill and thus expect that the director may resign. This rarely happens in China because the information about the health condition of board members is not mandated by the China Securities Regulatory Commission (CSRC), and is rarely disclosed by firms. In such circumstances, investors can hardly form expectations about a director's departure due to health reasons.

therefore *State control* that we include in the baseline models renders some control over the effect of family firms. To further rule out family firms as an alternative explanation, we repeat our main analysis excluding family firms from the sample. Following Anderson and Reeb (2003), a firm is classified as a family firm if its founder or descendants of the founding family continue to hold a position in the top management, serve on the board, or are blockholders (i.e., holding more than 10% of the total shares).

Panel A of Table 7 presents the regression results from using non-family firms. Note that we drop *State control* from the regressions because most non-family firms are state-owned. We find that the coefficients of surname sharing measures remain significantly negative in non-family firms. In unreported results, we also repeat our event study of market reactions to director resignation in these firms, and confirm that the market reaction is higher when a resignation reduces the extent of director surname sharing and the effect of resignations reducing director surname sharing on firm value is stronger in firms that have a higher level of director surname sharing before the resignation.[15] These results are important, as they suggest that our finding of the negative relation between director surname sharing and firm value is not driven by the nepotism arising from family or relative relations in family firms, and the effect of director surname sharing can go beyond a familial tie.

[Insert Table 7 here]

4.4.2. Controlling for the effects of alumni and fellow townsmen relationships

Apart from surnames, shared social identities also include alumni and fellow townsmen (i.e., people from the same city). Lu and Hu (2014) find that fellow townsmen relationships between

[15] The results are available upon request.

CEOs and directors are associated with a higher level of corporate risk taking. To the extent that a higher level of risk taking increases investors' required rate of returns, firm value may be lower. If boards with more director surname sharing happen to have more fellow townsmen relationships among directors, our finding could be due to the effect of townsmen relationships rather than surname sharing. As for the effect of alumni, alumni-linked relationships are weaker in China than those in Western countries because China's higher education was suspended due to the devastating impact of Cultural Revolution and did not restart until 1977, and MBA education has an even shorter history (Lu and Hu, 2014).

Nevertheless, we run a horse-race test of director surname sharing, alumni and fellow townsmen ties in columns (1) and (2) of Panel B in Table 7 where we further control for two dummy variables: *Alumni* that equals one if at least two directors on the board graduated from the same school, college or university, and *Townsmen* that equals one if at least two directors of the firm were born in the same city. Due to missing information on educational background and birthplace of directors and top management (because disclosure of such items is voluntary), our sample size drops by about 70% to 4,799 observations. It can be seen from columns (1) and (2) of Panel B in Table 7 that the coefficients on surname sharing remain significantly negative, suggesting an incremental effect of surname-based connections on firm value beyond that of social ties induced by alumni and fellow townsmen relationships. We also find that fellow townsmen relationships are moderately negatively related to firm value, implying that nepotism arising from townsmen-based social ties weakens board effectiveness. In addition, alumni-linked relationships have a negative but insignificant impact on firm value.

Tuggle et al. (2010) argue that the impact of board diversity on firm performance is a complex phenomenon as it relates not only to the amount of diversity, but also to how director attributes

and roles are combined and aligned. This suggests that different sources of social ties may interact with each other and exert a joint effect on board effectiveness and thereby firm performance. However, to our knowledge, there has been little empirical evidence on the interaction dynamics among different sources of social ties (that reduce diversity). In our context, it is possible that director surname sharing may interact with social ties arising from being alumni and fellow townsmen. To test for such possibilities, we interact director surname sharing with *alumni* and *townsmen* separately.

We first include *HHI*Alumni* in column (3) and *Entropy*Alumni* in column (5) of Panel B in Table 7, and find that both interactions have a negative coefficient but only the latter is statistically significant at the 5% level (t-value = -1.562 and -2.238, respectively). Therefore, there is some evidence that director surname sharing and being alumni interact with each other and exert a stronger negative effect on firm value. We then include *HHI*Townsmen* and *Entropy*Townsmen* in columns (4) and (6) of Panel B in Table 7, respectively. Both interaction terms have a negative coefficient, but again is only statistically significant in column (6). Therefore, there is some evidence that surname-based connections reinforce the seemingly negative impact of alumni- and townsmen-based social ties on firm value. This result is new because it highlights that certain sources of social ties can jointly affect firm value, in addition to their standalone effects. It also suggests that identifying new sources of diversity is important.

4.4.3. Results from a perfect control for the board size effect

Another alternative explanation is that our finding of the negative impact of surname sharing on firm value is essentially an effect of board size. That is, as board size increases, there is a higher probability of directors having different surnames and hence less surname homogeneity. If board

size is negatively associated with firm value in China (though we find that the negative effect of board size on firm performance is insignificant), a negative relation between the measures of director surname sharing and firm value would be expected. To completely rule out the board size effect, we exploit the unique phenomenon that many corporate boards in China have nine directors (see Table 1) and repeat our baseline regressions using only corporate boards with nine directors. In Panel C of Table 7, we show that our finding of the negative relation between director surname sharing and firm value continues to hold and hence the board size effect cannot possibly explain this finding.

4.4.4. Is it an effect of CEO power or director surname sharing?

Fracassi and Tate (2012) report that powerful CEOs tend to appoint directors having a social tie with them and this CEO-director tie weakens board oversight. Therefore, an alternative explanation for the observed value-destroying role of director surname sharing is that the effect is driven by the homogeneity in surname between the CEO of a firm and other directors on the board. If so, the effect of surname sharing is a CEO effect rather than a director effect. We investigate whether the explanation is valid in this subsection. Specifically, we separate surname sharing between the CEO and directors from the surname sharing among non-CEO directors. In doing so, we estimate the following model:

$$Q_{i,t} = \alpha_0 + \alpha_1 Sharing_{i,t} + \alpha_2 CEO_{SHARE_{i,t}} + \sum Controls + Fixed\ Effects + \varepsilon_{i,t} \qquad (2)$$

where *Sharing* is either *HHI_nonCEO* or *Entropy_nonCEO* that is constructed in the same way as *HHI* and *Entropy* used in our baseline analysis but only based on non-CEO directors. CEO_{SHARE} is the proportion of other directors who share a surname with the CEO. This variable captures the effect of surname sharing between the CEO and other board members. All other variables have the

same definition as previous. If surname sharing between the CEO and other board members reduces firm value, α_2 is expected to be negative; if our key finding of the negative relation between director surname sharing and firm value is not purely driven by the surname sharing between the CEO and other board members, $\alpha_1$is also expected to be negative.

The results reported in Panel D of Table 7 show that, even after controlling for the surname-related social ties between the CEO and other directors, surname sharing among non-CEO board members still has a negative and significant effect on firm value. Therefore, our key finding is not simply a CEO effect but an issue on how surname-engendered social ties among directors undermine board effectiveness. Also, note that the coefficient of CEO_{SHARE} is negative and significant controlling for the measure of surname sharing among non-CEO board members or not, suggesting that surname sharing between the CEO and other board members also lowers firm value.

4.4.5. Controlling for board co-option

Coles et al. (2014a) report that board co-option (defined as the number of independent directors elected after the CEO is in power scaled by the total number of directors) is associated with less effective board monitoring. To the extent that board co-option is correlated with both director surname sharing measures and firm value, our finding of a lower value in firms with a higher level of director surname sharing may be spurious. To examine whether this is true, we include board co-option as an additional control variable in our model. Unreported results show that the inference on director surname sharing is unchanged, and the coefficient of the co-option measure is not statistically significant in our sample.

5. Potential channels through which director surname sharing affects firm value

In developing our hypotheses, we conjecture that director surname sharing may destroy firm value via a) hindering the formation of a conducive environment for expressing different views; b) discouraging independent checks and balances in board decision-making, resulting in a failure to constrain agency problems, and c) discouraging the development of creative ideas and thereby decreasing corporate innovation. We provide some evidence on these channels in this section.

5.1. Surname sharing and board dissent voting

Board diversity is desirable because directors with different backgrounds may offer a broader range of perspectives and opinions, which increases the independence of directors and therefore enhances their monitoring roles (Coles et al., 2014b). When a board has many directors sharing a surname, in-group directors may become friendly allies and are less likely to confront or challenge each other's views in decision-making (Williams and O'Reilly, 1998)). A strong in-group may also intimidate and silence members of the out-group. We therefore directly examine whether director surname sharing reduces the probability of director dissent, and the test is made possible thanks to the unique detailed data on director voting in China (Jiang et al., 2016). In contrast, in most prior studies on board diversity, the effect of board diversity on board effectiveness can only be indirectly inferred from the impact on firm outcomes.[16] Due to the lack of detailed data on board activities, how diversity affects board functioning remains a black box (Schwartz-Ziv and Weisbach, 2013). Our voting information is manually collected from companies' public announcements. This procedure yields a sample of 14,009 firm-year observations and 143,588 director-year observations.

[16] Among the few exceptions, Adams and Ferreira (2009) examine directors' meeting attendance in their study of the effects of female directors on firm outcomes. We are aware of only two published studies that provide evidence on board voting: Schwartz-Ziv and Weisbach (2013) analyze the board minutes of 11 Israeli firms and Jiang et al. (2016) examine the labor market outcome of independent directors who have ever dissented in board voting in China.

Panel A of Table 8 reports the logit regression results on the impact of director surname sharing on board-level voting results. The dependent variable is *Dissent*, a dummy variable that equals one if there is any dissent (including abstention) in board voting in the year. The independent variables are *HHI* and *Entropy*. Heteroscedasticity robust standard errors are clustered at the firm level. The coefficients on surname sharing are significantly negative with or without control variables, suggesting that boards with more directors sharing a surname are less likely to express different opinions in voting. Considering the marginal effect reported in columns (3) and (4), a one standard deviation increase in director surname sharing, in relation to *HHI* and *Entropy* respectively, would decrease the likelihood of proposals receiving a dissent by 0.32% (= 0.079*0.040*100) and 0.40% (= 0.016*0.253*100) which represent about 12.2% and 15.6% of the sample mean incidence of dissent.[17] Therefore, the magnitude is economically significant.

In Panel B of Table 8, we repeat the above analysis using director-level voting data. The independent variable, *Shared_name*, is a dummy variable that equals one if the director concerned shares a surname with other board directors. The dependent variable is *Dissent2*, a dummy variable that equals one if the director ever voted against a proposal or abstained from voting in a year, and zero otherwise. The control variables *Age, Tenure, Overseas background, Concurrent post, being an independent director*, and *CEO/Chairman duality* are measured at the director level to reflect the characteristics of the director concerned, and the other control variables are measured at the firm level. Heteroscedasticity robust standard errors are clustered at the director level.

In column (1), the coefficient on *Shared_name* is significantly negative at the 5% level, suggesting that directors sharing a surname with other directors are more likely to vote in favor of

[17] The mean incidence of dissension in our Chinese sample is 2.6%. The figure is also low in other countries, for example, Schwartz-Ziv and Weisbach (2013) report a dissension rate of 2% in Israel.

a proposal voted on. The marginal effect (-0.05%) of *Shared_name* is about 20.8% of the mean incidence of dissension at the director-year level (i.e., 0.24%). These firm-level and director-level voting results provide direct evidence on how board diversity (in relation to director surnames in our case) affects the inner working of a board, which has been largely a black box due to the difficulty in obtaining detailed data on a board's operations.

[Insert Table 8 here]

5.2. Surname sharing and executive excess compensation

Executives are interested in receiving excessive compensation. While the board sets the compensation of executives, only strong boards command effective oversight of executives, and hence can withstand executives' demand for excessive compensation. If directors are connected via the conduit of sharing a surname, chances to hear opposing views on excessive compensation are likely lower, or dissenting views from directors not sharing the surnames could be suppressed. Consequently, the board's monitoring role could be compromised. We therefore predict that surname sharing impedes independence and increases executive excess compensation.

Following Core et al. (2008), we estimate excess compensation as the residual of the following equation:

$$Compensation_{i,t} = \alpha_0 + \alpha_1 Sales_{i,t} + \alpha_2 BM_{i,t} + \alpha_3 RET_{i,t} + \alpha_4 RET_{i,t-1} + \alpha_5 ROA_{i,t} + \alpha_6 ROA_{i,t-1} + fixed\ effects + \varepsilon_{i,t} \quad (3)$$

where *Compensation* is the natural logarithm of total cash compensation for the top three highest paid executives.[18] *Sales* is measured as the natural logarithm of annual sales. *BM* is calculated as the book value divided by the market value of equity. *RET* is the firm's annual stock return. *ROA*

[18] We focus on the top three highest paid executives because only this information is required to be disclosed in China.

is income before extraordinary items divided by year-beginning total assets. Table 9 presents the results regarding the impact of director surname sharing on excess compensation. Due to missing variables on excess compensation, the sample size used in regression analysis is reduced to 14, 944. The results consistently show that company executives are more likely to be paid higher excess compensation in boards with more directors sharing a surname. These results provide another explanation for how director surname sharing adversely affects firm value.

[Insert Table 9 here]

5.3. Surname sharing and related-party transactions

In addition to excess compensation, another way through which insiders expropriate outside shareholders is unfair related-party transactions (RPTs). We follow Jiang et al. (2016) and measure potentially tunneling RPTs as the total value of bank loans guaranteed by the company for related-parties (such as a company's parent or its affiliates) scaled by the firm's equity. The company needs to honor its credit guarantee when a related-party cannot repay the corresponding loans. If surname sharing among directors compromises their monitoring role, we would expect director surname sharing to increase such loan guarantee.

The results are presented in Table 10. The coefficients on *HHI* and *Entropy* are both significantly positive at the 0.05 level, suggesting that surname sharing in the boardroom facilitates RPTs at the expense of the company. Columns (1) and (2) show that a one standard deviation increase in surname sharing proxies, measured by *HHI* and *Entropy* respectively, would increase the total value of bank loan guarantee by roughly 1.1%, representing about 6% of the sample mean of RPTs (17%). The effect is economically meaningful.

[Insert Table 10 here]

5.4. Surname sharing and corporate innovation

A major advantage of having a diverse board is to accommodate, or produce, a variety of ideas and perspectives that foster corporate innovation because people from different backgrounds tend to approach a problem in different ways (e.g., Williams and O'Reilly, 1998). In contrast, homogenous background increases the chance of groupthink, which is detrimental to firm value (Coles et al., 2014b). When it comes to a board with directors sharing surnames, these directors are more likely to suffer from the groupthink bias. Thus, we predict that director surname sharing inhibits creative thinking and consequently dampens corporate innovation.

We employ two measures of innovation. The first is *Patent applications*, which is calculated as the natural logarithm of one plus the number of patent applications in a given year. Since patent applications may not necessarily represent the eventual granting of patents, we employ a second measure *Patents granted*, calculated as the natural logarithm of one plus the count of granted patents in a given year.[19] We obtain the data on these variables from the CSMAR. We measure patent variables one to two years ahead of the independent variables to allow for the possibility that the patent application process takes time. The number of observations used in regression analysis ranges from 5,877 to 7,355.

Table 11 presents the results concerning the impact of director surname sharing on corporate innovation. The dependent variable in Panel A is *Patent applications*. The coefficients on surname sharing are significantly negative. Likewise, in Panel B, where the dependent variable is *Patents granted*, all the coefficients on surname sharing are negative and significant at the 1% level. For instance, in column (1) of Panel B, the coefficient on *HHI* is -2.022 (*t-stat* = -3.263). Since the

[19] The two innovation outcome variables we employ are superior to input measures such as R&D spending (data on which are only available since 2007 in China) in measuring innovation outputs.

dependent variable is logged, this result suggests that a one standard deviation increase in *HHI* (0.04) reduces the number of patents granted by 8.1%. Evaluated similarly, the marginal effect of one standard deviation increase in *Entropy* reduces the number of patents granted by 9.4%. Overall, our finding of a negative effect of director surname sharing is broadly consistent with the evidence in Bernile et al. (2016).

[Insert Table 11 here]

6. A potential benefit of director surname sharing

As we have discussed in Introduction, directors' surname sharing may affect firm value in opposite ways. On one hand, a potential problem of a diverse group is that decisions may take longer (Hambrick, Cho and Chen, 1996), whereas directors sharing surnames likely have better mutual understanding and communications, which reduces conflicts and facilitates information sharing and fast decision-making (Westphal, 1999; Gompers et al., 2016). On the other hand, highly cohesive boards, as a result of surname sharing, impede the formation of an environment conducive for producing different views and promoting independent checks in board decision-making (Ishii and Xuan, 2014). While our previous results show that overall director surname sharing lowers firm value, this effect is unlikely universal across firms. Firms with a greater demand for decision-making efficiency may benefit from affinity-related characteristics (e.g., director sharing of surnames in our case) (Gompers et al., 2016). Since firms tend to benefit from more efficient decision-making and quicker reactions in a fast-changing environment (Hambrick et al., 1996; Bernile et al., 2016), we expect that director surname sharing is likely to help reduce arguments in the boardroom and facilitate fast decision-making for firms operating in a more volatile industry.

Specifically, we define a dummy variable *H-Volatility*, which equals one if the industry to which a firm belongs has above-the-median sales volatility among all industries, and zero otherwise. Sales volatility is computed as the five-year rolling standard deviation of sales of an industry. The results, presented in Table 12, show that the coefficients of the interaction terms of *HHI*H-Volatility* and *Entropy*H-Volatility* are positive and significant. That is, the negative impact of director surname sharing on firm value is moderated in industries where firms face a high volatility of sales. These results provide evidence on the potential helpful role of director surname sharing when fast board decision-making is valuable.

[Insert Table 12 here]

7. Conclusion

This paper examines whether and how director surname sharing affects firm value. We find that, on average, firm value decreases with the level of director surname sharing. This is consistent with social ties among board members impairing board effectiveness in decision making. We also find that the relation is contingent on the rarity of surnames and the strength of the clan system in which a firm operates. Our findings are robust to a variety of checks (e.g., firm fixed-effect models, instrumental variable estimations, and a market event study of director resignations including those that are likely exogenous) that take into account the endogeneity of director surname sharing. Importantly, the finding is not driven by nepotism in family firms. We also report that among other channels, director surname sharing impairs firm value through reducing the propensity of directors' dissension in board voting, granting excess executive compensation, increasing tunneling related-party transactions, and discouraging innovation. However, in a highly volatile industry, director surname sharing may benefit firms by enabling more efficient decision-making. There is also novel

evidence that director surname sharing exacerbates the negative effect of alumni- and townsmen-based board connections, pointing to the interaction dynamics among different sources of social ties in affecting board effectiveness.

There is increasing academic, media and regulatory attention to surname because it may reveal one's ethnic minority background in recruiting, and represent an important means of social ties. In this paper, we contribute to the understanding of surname-based social affinity by providing the first piece of evidence on the effect of director surname sharing on board effectiveness. Our results have important policy implications for formulating 'best practices' on board composition. For example, board diversity may need to incorporate the element of director surnames, which are a kind of pervasive, highly visible and affinity-based social tie. In addition, since surname sharing can exacerbate the negative effect of alumni- and townsmen-based board connections, corporate governance standards should also pay attention to the joint effect of different forms of board connections.

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Table 1 Summary Statistics

This table presents summary statistics for the variables used in the main analysis. *% Shared surname* measures the percentage of directors with shared surnames in a board. Variable definitions are provided in Appendix 1. All continuous variables are winsorized at the 1% and 99% levels.

Variable	Obs.	Mean	Std. Dev.	25%	Median	75%
Dependent variable						
Tobin's Q	16,277	1.703	1.009	1.125	1.353	1.871
Test variables						
% Shared surname	16, 277	0.209	0.181	0.000	0.222	0.333
HHI	16,277	0.134	0.040	0.111	0.125	0.143
Entropy	16,277	-2.100	0.253	-2.272	-2.098	-1.946
Control variables						
Ln (total assets)	16,277	21.702	1.197	20.860	21.559	22.370
Leverage	16,277	0.490	0.212	0.340	0.497	0.634
ROA	16,277	0.033	0.066	0.012	0.034	0.062
Beta risk	15,797	1.013	0.208	0.891	1.033	1.149
% Female directors	16,277	0.109	0.106	0.000	0.111	0.167
Sdev_director age	16,209	8.028	2.424	6.284	7.952	9.590
Sdev_tenure	16,277	2.485	1.356	1.500	2.394	3.443
%Concurrent post	16,267	0.098	0.135	0.000	0.000	0.167
Cross listing	16,241	0.035	0.183	0.000	0.000	0.000
Overseas background	16,277	0.022	0.065	0.000	0.000	0.000
% Independent directors	16,158	0.339	0.058	0.333	0.333	0.364
CEO/Chairman duality	16,277	0.159	0.366	0.000	0.000	0.000
No. of directors	16,277	9.916	2.279	9.000	9.000	11.000
% Largest shareholding	16,190	0.385	0.160	0.256	0.369	0.504
State control	16,277	0.537	0.499	0.000	1.000	1.000
Cash dividends	16,277	0.082	0.125	0.000	0.020	0.100

Table 2 The Impact of Director Surname Sharing on Firm Value

This table presents the OLS regression results regarding the impact of director surname sharing (*HHI* and *Entropy*) on firm value. The variables are defined in Appendix 1. All continuous variables are winsorized at the 1% and 99% levels. The numbers in parentheses are t-statistics and are computed using heteroscedasticity robust standard errors, clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5% and 10% level separately (two-sided). All regression models include an intercept, but its coefficient is not tabulated for brevity.

	Dependent variable=*Tobin's Q*			
	(1)	(2)	(3)	(4)
HHI	-1.280***		-1.128***	
	(-3.622)		(-3.880)	
Entropy		-0.251***		-0.227***
		(-3.681)		(-4.059)
Ln (total assets)			-0.443***	-0.443***
			(-21.809)	(-21.811)
Leverage			0.371***	0.371***
			(3.062)	(3.066)
ROA			2.062***	2.063***
			(7.271)	(7.271)
Beta risk			-0.779***	-0.779***
			(-11.902)	(-11.905)
% Female directors			-0.229**	-0.227**
			(-2.007)	(-1.994)
Sdev_director age			0.001	0.001
			(0.274)	(0.273)
Sdev_tenure			0.069***	0.069***
			(6.769)	(6.787)
%Concurrent post			0.021	0.021
			(0.259)	(0.262)
Cross listing			0.222***	0.223***
			(3.464)	(3.478)
Overseas background			0.477**	0.479**
			(2.524)	(2.537)
% Independent directors			0.332*	0.331*
			(1.713)	(1.710)
CEO/Chairman duality			0.007	0.007
			(0.236)	(0.229)
No. of directors			0.000	-0.007
			(0.040)	(-1.108)
% Largest shareholding			-0.372***	-0.373***
			(-4.850)	(-4.861)
State control			0.034	0.034
			(1.521)	(1.508)
Cash dividends			0.450***	0.450***
			(3.591)	(3.589)
Industry FE	Y	Y	Y	Y
Region FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Obs.	16,277	16,277	15,499	15,499
Adj.R^2	0.204	0.204	0.412	0.413

Table 3 Director Sharing of Surnames and Firm Value: The Moderating Effect of Surname Rarity and Regional Clan Systems

This table presents the OLS regression results on the effect of director surname sharing (*HHI* and *Entropy*) on firm value conditional on the rarity of the surnames and regional clan systems. *Rare* is a dummy variable that equals one if the directors of a firm share a surname that is not ranked among the top 10 surnames according to the 2010 survey by the Ministry of Public Security, and zero otherwise. Following Goode (1982) and Ruan and Zheng (2012), we classify provinces into strong, moderate, and weak regions based on the strength of regional clan systems. *Strong* is a dummy variable that equals one if the firm is headquartered in a region with strong clan systems, and zero otherwise. The variables are defined in Appendix 1. All continuous variables are winsorized at the 1% and 99% levels. The numbers in parentheses are t-statistics and are computed using heteroscedasticity robust standard errors, clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5% and 10% level separately (two-sided).

	Dependent variable=*Tobin's Q*			
	(1)	(2)	(3)	(4)
HHI	-0.929***		-0.960***	
	(-3.087)		(-2.845)	
Entropy		-0.192***		-0.199***
		(-3.390)		(-3.202)
Rare	0.138*	0.453**		
	(1.833)	(2.383)		
HHI Rare*	-1.000**			
	(-2.182)			
Entropy Rare*		-0.218**		
		(-2.324)		
Strong			-0.073	-0.462**
			(-0.884)	(-2.500)
HHI Strong*			-1.086**	
			(-2.002)	
Entropy Strong*				-0.186**
				(-2.076)
Other controls in Table 2	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y
Region FE	Y	Y	N	N
Year FE	Y	Y	Y	Y
Obs.	15,499	15,499	15,499	15,499
Adj.R^2	0.413	0.413	0.401	0.401

Table 4 Firm Fixed-effect Regressions

This table presents the results of firm fixed-effect regressions regarding the impact of director surname sharing (*HHI* and *Entropy*) on firm value. The variables are defined in Appendix 1. All continuous variables are winsorized at the 1% and 99% levels. The numbers in parentheses are t-statistics and are computed using heteroscedasticity robust standard errors, clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5% and 10% level separately (two-sided).

	Dependent variable=*Tobin's Q*	
	(1)	(2)
HHI	-0.527**	
	(-2.015)	
Entropy		-0.113**
		(-2.293)
Ln (total assets)	-0.628***	-0.628***
	(-28.920)	(-28.929)
Leverage	0.405***	0.405***
	(4.996)	(4.998)
ROA	1.848***	1.848***
	(9.888)	(9.890)
Beta risk	-0.272***	-0.272***
	(-7.488)	(-7.480)
% Female directors	-0.025	-0.024
	(-0.259)	(-0.247)
Sdev_director age	0.008**	0.008**
	(2.081)	(2.093)
Sdev_tenure	0.021**	0.021**
	(2.172)	(2.175)
%Concurrent post	-0.048	-0.048
	(-0.821)	(-0.821)
Overseas background	0.050	0.053
	(0.258)	(0.312)
% Independent directors	0.253	0.252
	(1.598)	(1.597)
CEO/Chairman duality	0.006	0.006
	(0.236)	(0.243)
No. of directors	0.005	0.000
	(0.838)	(0.069)
% Largest shareholding	-0.208**	-0.208**
	(-2.433)	(-2.443)
State control	0.007	0.007
	(0.388)	(0.385)
Cash dividends	0.219***	0.219***
	(2.991)	(2.984)
Year FE	Y	Y
Obs.	15,499	15,499
Adj.R^2	0.621	0.621

Table 5 Director Surname Sharing and Firm Value: Instrumental Variable Estimation

This table presents 2SLS regression results on the impact of director surname sharing (*HHI* and *Entropy*) on firm value. In the first stage, the instrumental variables include: the average isonymy for the province in which the firm is headquartered (*Provincial isonymy*) and the average percentage of surname sharing by directors of all other listed firms (excluding the company concerned) in the province in which the firm is headquartered (*Region_RATIO*). All other variables are defined in Appendix 1. All continuous variables are winsorized at the 1% and 99% levels. The numbers in parentheses are t-statistics and are computed using heteroscedasticity robust standard errors, clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5% and 10% level separately (two-sided).

	HHI 1st stage	*Tobin's Q* 2nd stage (*HHI*)	*Entropy* 1st stage	*Tobin's Q* 2nd stage (*Entropy*)
Region_ RATIO	0.335***		1.900***	
	(11.927)		(13.039)	
Provincial isonymy	0.124***		0.715***	
	(3.921)		(4.370)	
Fitted HHI / Entropy		-5.271***		-0.917***
		(-3.112)		(-3.097)
Ln (total assets)	0.000	-0.432***	0.001	-0.433***
	(0.583)	(-57.230)	(0.604)	(-57.342)
Leverage	-0.010***	0.293***	-0.046***	0.302***
	(-6.477)	(7.036)	(-5.926)	(7.450)
ROA	-0.022***	1.881***	-0.111***	1.898***
	(-4.656)	(14.670)	(-4.409)	(15.025)
Beta risk	-0.001	-0.793***	-0.006	-0.792***
	(-0.949)	(-24.128)	(-0.846)	(-24.203)
% Female directors	0.009***	-0.203***	0.050***	-0.200***
	(3.429)	(-3.130)	(3.890)	(-3.091)
Sdev_director age	0.001***	0.005*	0.005***	0.005
	(9.779)	(1.684)	(9.479)	(1.530)
Sdev_tenure	-0.001***	0.073***	-0.003**	0.074***
	(-2.823)	(12.368)	(-2.213)	(12.700)
%Concurrent post	0.001	0.017	0.004	0.017
	(0.269)	(0.345)	(0.400)	(0.350)
Cross listing	0.002	0.236***	0.012	0.236***
	(1.008)	(5.921)	(1.454)	(5.918)
Overseas background	0.001	0.505***	0.012	0.512***
	(0.162)	(4.811)	(0.565)	(4.901)
% Independent directors	0.007	0.332**	0.029	0.325**
	(1.272)	(2.523)	(1.092)	(2.479)
CEO/Chairman duality	-0.002**	-0.013	-0.009**	-0.012
	(-2.100)	(-0.693)	(-2.312)	(-0.663)
No. of directors	-0.010***	-0.042**	-0.083***	-0.066***
	(-73.005)	(-2.448)	(-115.312)	(-2.666)
% Largest shareholding	0.005***	-0.340***	0.021**	-0.346***
	(2.812)	(-7.617)	(2.351)	(-7.815)
State control	-0.001	0.023*	-0.004	0.022
	(-1.150)	(1.715)	(-1.525)	(1.632)
Cash dividends	-0.006**	0.365***	-0.032**	0.367***
	(-2.412)	(5.749)	(-2.504)	(5.804)
HHI_Manager/ Entropy_Manager	0.021***	-0.034	0.013***	-0.020
	(4.585)	(-0.266)	(3.176)	(-0.952)
Industry & Year FE	Y	Y	Y	Y
Sargan over-identification test stat.	0.410		0.400	
F-test of the excluded instruments	111.533***		134.415***	
Obs.	15,420	15,420	15,420	15,420
Adj.R^2	0.370	0.383	0.584	0.388

Table 6 Market Reactions to Directors' Resignations

This table presents the results on market reactions to directors' resignations that result in less director surname sharing. *CAR(-1,+1)%* is the cumulative abnormal return (in %) calculated from one day before to one day after the announcement of a director resignation. *Shared_name* is a dummy variable that equals one if the resigned director shares a surname with other directors. *Ln(D_Age)* is the natural logarithm of the age of the resigned director. *Ownership* is the percentage of shares held by the resigned director. *Political connection* is an indicator variable that equals one if the resigned director is politically connected, and zero otherwise. *Female* is a dummy variable that equals one if the resigned director is a female and zero otherwise. *Independent* is a dummy variable that equals one if the resigned director is an independent director, and zero otherwise. Other control variables are defined in Appendix 1. All continuous variables are winsorized at the 1% and 99% levels. The numbers in parentheses are t-statistics and are computed using heteroscedasticity robust standard errors, clustered by firm. The intercept in each model is not tabulated. ***, **, and * indicate statistical significance at the 1%, 5% and 10% level separately (two-sided). Asterisks in Panel A indicate significance of a t-test of CAR being equal to zero or not.

Panel A: Descriptive statistics

	Full sample		Directors' resignation for health reasons	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
CAR(-1,+1)(%)	-0.032*	1.492	-0.038	1.550
Shared_name	0.128	0.335	0.118	0.323
HHI	0.242	0.203	0.279	0.225
Entropy	-2.637	0.709	-2.765	0.733

Panel B: All director resignations

	Dependent variable= *CAR (-1,+1)%*			
	(1)	(2)	(3)	(4)
Shared_name	0.189***	0.208***	-0.059	0.720**
	(3.009)	(3.159)	(-0.570)	(2.561)
HHI			-0.092	
			(-0.586)	
*Shared_name*HHI*			0.997***	
			(2.916)	
Entropy				-0.037
				(-0.906)
Shared_name Entropy*				0.197*
				(1.952)
State control		-0.098*	-0.095*	-0.089*
		(-1.890)	(-1.838)	(-1.707)
Ln(D_Age)		-0.213	-0.209	-0.193
		(-1.426)	(-1.396)	(-1.292)
Ownership		0.005	0.005	0.006
		(0.960)	(1.007)	(1.032)
Political connection		0.086	0.094	0.076
		(1.265)	(1.371)	(1.122)
Female		-0.106	-0.103	-0.104
		(-1.489)	(-1.452)	(-1.462)
Independent		0.070	0.074	0.059
		(1.329)	(1.389)	(1.129)
Ln (total assets)		-0.033	-0.033	-0.022
		(-1.414)	(-1.424)	(-0.948)
Leverage		-0.144	-0.130	-0.179
		(-1.057)	(-0.961)	(-1.329)

ROA		-0.334	-0.278	-0.442
		(-0.790)	(-0.657)	(-1.038)
Cash flow		0.268	0.264	0.310
		(0.807)	(0.800)	(0.944)
Industry FE	N	Y	Y	Y
Region FE	N	Y	Y	Y
Year FE	N	Y	Y	Y
Obs.	5,231	4,783	4,783	4,783
Adj.R^2	0.002	0.008	0.010	0.005

Panel C: Directors' resignations for health reasons

	Dependent variable= *CAR (-1,+1)%*			
	(1)	(2)	(3)	(4)
Shared_name	0.399**	0.535**	-0.472	2.559***
	(2.199)	(2.485)	(-1.466)	(3.375)
HHI			-0.132	
			(-0.374)	
*Shared_name*HHI*			2.799***	
			(3.180)	
Entropy				0.072
				(0.535)
*Shared_name*Entropy*				0.780***
				(2.922)
Control variables in Table 6 Panel B	Y	Y	Y	Y
Industry FE	N	Y	Y	Y
Region FE	N	Y	Y	Y
Year FE	N	Y	Y	Y
Obs.	809	710	710	710
Adj.R^2	0.006	0.009	0.041	0.043

Table 7 Alternative Explanations and Robustness Checks

This table presents the regression results from tests regarding alternative explanations and robustness checks. Panel A examines the impact of director surname sharing on firm value for non-family firms. Panel B presents the regression results regarding the impact of director surname sharing on firm value controlling for alumni- and fellow townsmen-based social ties. *Alumni* is a dummy variable that equals one if at least two directors graduate from the same school, college or university. *Townsmen* is a dummy variable that equals one if at least two directors are born in the same city. Panel C reports the regression results regarding the impact of director surname sharing on firm value among boards with nine directors. Panel D shows the results from testing whether the effect of director surname sharing on firm value merely reflects the effect of surname sharing between the CEO and other directors. *HHI_nonCEO* and *Entropy_nonCEO* are director surname sharing measures computed based on non-CEO directors. CEO_{SHARE} is the proportion of non-CEO directors sharing a surname with the CEO. All models include the same set of firm and board control variables as in Table 2. *HHI* and *Entropy* measure director surname sharing. See Appendix 1 for detailed variable definitions. All continuous variables are winsorized at the 1% and 99% levels. The numbers in parentheses are t-statistics and are computed using heteroscedasticity robust standard errors, clustered by firm. Figures reported in the square brackets are the *p*-value of a coefficient equality test between the two groups. ***, **, and * indicate statistical significance at the 1%, 5% and 10% level separately (two-sided).

Panel A: Results from using non-family firms

	Dependent variable=*Tobin's Q*			
	(1)	(2)	(3)	(4)
HHI	-1.449***	-0.912***		
	(-3.627)	(-2.711)		
Entropy			-0.295***	-0.193***
			(-3.972)	(-3.098)
Control variables in Table 2	N	Y	N	Y
Industry FE	Y	Y	Y	Y
Region FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Obs.	12,783	12,209	12,783	12,209
Adj.R^2	0.416	0.440	0.416	0.440

Panel B: Controlling for the effects of alumni and fellow townsmen

	Dependent variable=*Tobin's Q*					
	(1)	(2)	(3)	(4)	(5)	(6)
HHI	-1.009*		-0.906	-0.833		
	(-1.763)		(-1.566)	(-1.409)		
Entropy		-0.235**			-0.212*	-0.203*
		(-2.158)			(-1.937)	(-1.830)
Alumni	-0.059	-0.058	0.310	-0.057	-1.271**	-0.056
	(-0.730)	(-0.720)	(1.177)	(-0.713)	(-2.382)	(-0.694)
Townsmen	-0.107*	-0.105*	-0.105*	0.143	-0.102*	-0.850**
	(-1.867)	(-1.829)	(-1.825)	(0.786)	(-1.774)	(-1.984)
HHI Alumni*			-2.943			
			(-1.562)			
HHI Townsmen*				-1.791		
				(-1.434)		
Entropy Alumni*					-0.564**	
					(-2.238)	
Entropy Townsmen*						-0.358*
						(-1.749)
Control variables in Table 2	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
Region FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Obs.	4,799	4,799	4,799	4,799	4,799	4,799
Adj.R^2	0.398	0.399	0.399	0.398	0.399	0.399

Panel C: Controlling for size effect by focusing on "9-director" boards

	Dependent variable=*Tobin's Q*	
	(1)	(2)
HHI	-1.159***	
	(-3.203)	
Entropy		-0.236***
		(-3.244)
Control variables in Table 2	Y	Y
Industry FE	Y	Y
Region FE	Y	Y
Year FE	Y	Y
Obs.	6,360	6,360
Adj.R^2	0.414	0.414

Panel D: Surname sharing between CEO and other board members vs. surname sharing among non-CEO directors

	Dependent variable=*Tobin's Q*				
	(1)	(2)	(3)	(4)	(5)
CEO_{SHARE}	-0.351***			-0.299**	-0.280**
	(-2.583)			(-2.178)	(-2.054)
HHI_nonCEO		-0.452***		-0.384***	
		(-3.076)		(-2.585)	
Entropy_nonCEO			-0.155***		-0.142***
			(-4.034)		(-3.667)
Control variables in Table 2	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y
Region FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
Obs.	15,499	15,499	15,499	15,499	15,499
Adj.R^2	0.412	0.412	0.412	0.412	0.413

Table 8 The Impact of Director Surname Sharing on Voting Results

This table presents Logistic regression results about the impact of director surname sharing (*HHI* and *Entropy*) on voting results. *Dissent* is a dummy variable that equals one if there has been any director dissension or abstention in the firm's board voting in a year. *Dissent2* is a dummy variable that equals one if a director has ever voted against a proposal or abstained in a voting in a year. *Shared_name* is a dummy that equals one if a director shares a surname with any other board member. In Panel B, the control variables *Age, Tenure, Overseas background, Concurrent post, being an independent director, CEO/Chairman duality* are measured at the director level. The other variables are defined in Appendix 1. All continuous variables are winsorized at the 1% and 99% levels. The numbers in parentheses are z-statistics and are computed using heteroscedasticity robust standard errors, clustered by firm in Panel A and by director in Panel B. ***, **, and * indicate statistical significance at the 1%, 5% and 10% level separately (two-sided). The mean incidence of director dissension in the firm-level voting is 2.6%, and the mean incidence of director dissension at the director-year level is 0.24%.

Panel A: Board-level voting results

	Dependent variable=*Dissent*			
	(1) *HHI*	(2) *Entropy*	(3) *HHI*	(4) *Entropy*
Surname sharing	-8.242***	-1.461***	-6.136**	-1.279***
	(-3.219)	(-4.652)	(-2.068)	(-3.348)
[Marginal effect]	[-0.129]	[-0.023]	[-0.079]	[-0.016]
% Female directors			-0.542	-0.634
			(-0.926)	(-1.086)
Sdev_director age			0.048*	0.047*
			(1.917)	(1.862)
Sdev_tenure			0.062	0.057
			(1.026)	(0.941)
%Concurrent post			0.853**	0.813*
			(1.976)	(1.881)
Overseas background			1.475*	1.419*
			(1.744)	(1.689)
% Independent directors			1.067	1.015
			(0.734)	(0.707)
CEO/Chairman Duality			0.528	0.533
			(1.245)	(1.251)
% Largest shareholding			-0.011**	-0.011**
			(-2.181)	(-2.204)
No. of directors			0.149***	0.105**
			(3.407)	(2.352)
State control			0.067	0.061
			(0.431)	(0.398)
Top2to10			0.007	0.007
			(1.117)	(1.056)
Committee			0.103	0.101
			(1.385)	(1.360)
Overseas listing			-0.133	-0.125
			(-0.288)	(-0.272)
Ln (total assets)			-0.325***	-0.322***
			(-4.247)	(-4.235)
Leverage			0.998***	0.986***
			(3.012)	(3.010)
ROA			-1.268	-1.240
			(-1.274)	(-1.258)
Industry FE	Y	Y	Y	Y
Region FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Obs.	14,009	14,009	13,366	13,366
Pseudo R^2	0.110	0.114	0.142	0.145

Panel B: Director-level voting results

	Dependent variable=*Dissent2*	
	(1)	(2)
Shared_name	-0.384**	-0.482***
	(-2.477)	(-2.954)
[Marginal effects]	[-0.0005]	[-0.0004]
Female directors		-0.182
		(-0.808)
AGE		-0.485
		(-1.192)
Tenure		0.023
		(0.279)
Concurrent post		0.389**
		(2.070)
Overseas background		1.064***
		(3.583)
Independent directors		-0.455***
		(-3.189)
CEO/Chairman Duality		-1.947*
		(-1.920)
% Largest shareholding		-0.009**
		(-2.053)
No. of directors		0.302***
		(8.636)
State control		0.146
		(1.022)
Top2to10		0.000
		(0.021)
Committee		0.223***
		(2.615)
Overseas listing		0.517
		(1.242)
Ln (total assets)		-0.512***
		(-6.553)
Leverage		0.880***
		(3.450)
ROA		-2.438***
		(-3.110)
Industry FE	Y	Y
Region FE	Y	Y
Year FE	Y	Y
Obs.	143,588	134,304
Pseudo R^2	0.088	0.142

Table 9 The Impact of Director Surname Sharing on Executive Compensation

This table presents regression results on the impact of director surname sharing (*HHI* and *Entropy*) on excess executive compensation. Following Cole et al (2008), *Excess compensation* is measured as the residual estimated from the model:

$$COMP_{i,t} = \alpha_0 + \alpha_1 Sales_{i,t} + \alpha_2 BM_{i,t} + \alpha_3 RET_{i,t} + \alpha_4 RET_{i,t-1} + \alpha_5 ROA_{i,t} + \alpha_6 ROA_{i,t-1} + fixed\ effects + \varepsilon_{i,t}$$

All variables are defined in Appendix 1. All continuous variables are winsorized at the 1% and 99% levels. The numbers in parentheses are t-statistics and are computed using heteroscedasticity robust standard errors, clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5% and 10% level separately (two-sided).

	Dependent variable=*Excess compensation*	
	(1)	(2)
HHI	2.124**	
	(2.340)	
Entropy		0.430**
		(2.369)
Ln (total assets)	0.321***	0.321***
	(7.004)	(7.006)
Leverage	0.050	0.050
	(0.261)	(0.257)
ROA	-2.562***	-2.562***
	(-13.919)	(-13.923)
% Female directors	0.790***	0.787***
	(2.739)	(2.730)
Sdev_director age	0.009	0.009
	(0.682)	(0.681)
Sdev_tenure	-0.043	-0.043
	(-1.466)	(-1.471)
%Concurrent post	-0.198	-0.198
	(-0.796)	(-0.799)
Overseas background	-0.554	-0.559
	(-0.684)	(-0.690)
% Independent directors	-0.925	-0.924
	(-1.453)	(-1.452)
CEO/Chairman duality	0.174**	0.174**
	(2.287)	(2.293)
No. of directors	0.040*	0.054**
	(1.790)	(2.124)
% Largest shareholding	-1.128***	-1.126***
	(-4.720)	(-4.713)
State control	-0.048	-0.047
	(-0.704)	(-0.695)
Industry FE	Y	Y
Region FE	Y	Y
Year FE	Y	Y
Obs.	14,944	14,944
Adj.R^2	0.516	0.516

Table 10 The Impact of Director Surname Sharing on Related-Party Transactions

This table presents OLS regression results about the impact of director surname sharing (*HHI* and *Entropy*) on related-party transactions that are potentially harmful to the company concerned. Following Jiang et al. (2016), *RPTs* is measured as the total value of bank loans guaranteed by the company for related parties (e.g., subsidiaries and affiliates), scaled by the firm's equity. Other variables are defined in Appendix 1. All continuous variables are winsorized at the 1% and 99% levels. The numbers in parentheses are t-statistics and are computed using heteroscedasticity robust standard errors, clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5% and 10% level separately (two-sided).

	Dependent variable=*RPTs*	
	(1)	(2)
HHI	0.253**	
	(2.269)	
Entropy		0.040**
		(2.152)
% Female directors	0.011	0.011
	(0.271)	(0.270)
Sdev_director age	0.001	0.002
	(0.754)	(0.795)
Sdev_tenure	-0.005	-0.005
	(-1.166)	(-1.179)
%Concurrent post	-0.012	-0.012
	(-0.393)	(-0.404)
Overseas background	-0.078	-0.078
	(-1.150)	(-1.152)
% Independent directors	-0.163**	-0.177**
	(-2.404)	(-2.490)
CEO/Chairman duality	0.012	0.011
	(0.902)	(0.883)
% Largest shareholding	0.144***	0.144***
	(4.616)	(4.613)
State control	-0.005	-0.005
	(-0.469)	(-0.466)
Ln (total assets)	-0.008	-0.008
	(-1.194)	(-1.135)
Leverage	0.536***	0.536***
	(12.181)	(12.174)
ROA	-0.359***	-0.361***
	(-4.898)	(-4.927)
Big4	-0.044**	-0.044**
	(-2.105)	(-2.096)
Industry FE	Y	Y
Region FE	Y	Y
Year FE	Y	Y
Obs.	15,977	15,977
Adj.R^2	0.146	0.146

Table 11 The Impact of Director Surname Sharing on Corporate Innovation

This table presents OLS regression results regarding the impact of director surname sharing (*HHI* and *Entropy*) on corporate innovation. *Patent applications* in Panel A is the natural logarithm of one plus the number of patent applications by a listed firm in a given year. *Patents granted* in Panel B is the natural logarithm of one plus the number of granted patents for a listed firm in a given year. The dependent variables are measured one or two years ahead of the independent variables. Other variables are defined in Appendix 1. All continuous variables are winsorized at the 1% and 99% levels. The numbers in parentheses are t-statistics and are computed using heteroscedasticity robust standard errors, clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5% and 10% level separately (two-sided).

Panel A: Director surname sharing and future patent applications

	Dependent variable= *Ln(1+ Patent applications)*			
	(1)	(2)	(3)	(4)
	Application$_{t+1}$	*Application*$_{t+2}$	*Application*$_{t+1}$	*Application*$_{t+2}$
HHI	-1.791***	-1.523**		
	(-2.873)	(-2.236)		
Entropy			-0.357***	-0.297**
			(-3.277)	(-2.518)
Ln (total assets)	0.440***	0.466***	0.438***	0.464***
	(10.996)	(11.010)	(10.973)	(11.000)
Leverage	-0.087	-0.085	-0.086	-0.084
	(-0.487)	(-0.455)	(-0.482)	(-0.450)
ROA	1.622***	1.830***	1.622***	1.833***
	(3.770)	(4.175)	(3.767)	(4.173)
% Female directors	-0.457*	-0.411	-0.451*	-0.407
	(-1.837)	(-1.561)	(-1.812)	(-1.544)
Sdev_director age	-0.023**	-0.031***	-0.024**	-0.031***
	(-2.437)	(-3.014)	(-2.462)	(-3.032)
Sdev_tenure	-0.012	-0.021	-0.011	-0.021
	(-0.497)	(-0.843)	(-0.483)	(-0.827)
%Concurrent post	0.412**	0.255	0.415**	0.256
	(2.256)	(1.307)	(2.271)	(1.317)
Overseas background	0.835**	0.864**	0.837**	0.866**
	(2.442)	(2.400)	(2.450)	(2.408)
% Independent directors	0.572	0.747*	0.756*	0.893**
	(1.485)	(1.837)	(1.830)	(2.048)
CEO/Chairman duality	0.178***	0.148**	0.179***	0.149**
	(2.910)	(2.310)	(2.930)	(2.325)
No. of directors	0.016	0.016	0.009	0.010
	(1.207)	(1.094)	(0.703)	(0.720)
% Largest shareholding	-0.274	-0.280	-0.272	-0.279
	(-1.295)	(-1.251)	(-1.285)	(-1.247)
State control	0.028	0.031	0.027	0.030
	(0.495)	(0.521)	(0.481)	(0.507)
Industry FE	Y	Y	Y	Y
Region FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Obs.	6,256	5,877	6,256	5,877
Adj.R^2	0.239	0.239	0.240	0.239

Panel B: Director surname sharing and future patents granted

	Dependent variable= *Ln(1+ Patents granted)*			
	(1)	(2)	(3)	(4)
	$Granted_{t+1}$	$Granted_{t+2}$	$Granted_{t+1}$	$Granted_{t+2}$
HHI	-2.022***	-2.228***		
	(-3.263)	(-3.367)		
Entropy			-0.370***	-0.421***
			(-3.427)	(-3.695)
Ln (total assets)	0.401***	0.436***	0.399***	0.434***
	(9.911)	(10.425)	(9.888)	(10.392)
Leverage	-0.503***	-0.543***	-0.500***	-0.540***
	(-2.850)	(-2.867)	(-2.835)	(-2.856)
ROA	0.221	0.513	0.231	0.523
	(0.491)	(1.094)	(0.514)	(1.114)
% Female directors	-0.288	-0.339	-0.285	-0.335
	(-1.103)	(-1.238)	(-1.090)	(-1.221)
Sdev_director age	-0.011	-0.012	-0.011	-0.012
	(-1.042)	(-1.135)	(-1.081)	(-1.172)
Sdev_tenure	0.040*	0.029	0.040*	0.030
	(1.764)	(1.226)	(1.776)	(1.235)
%Concurrent post	0.579***	0.588***	0.582***	0.591***
	(2.879)	(2.827)	(2.891)	(2.843)
Overseas background	0.799*	0.887**	0.796*	0.884**
	(1.952)	(2.078)	(1.946)	(2.070)
% Independent directors	0.714*	0.805*	0.881**	1.008**
	(1.715)	(1.820)	(1.989)	(2.141)
CEO/Chairman duality	0.154**	0.187***	0.155**	0.188***
	(2.344)	(2.680)	(2.362)	(2.700)
No. of directors	0.002	0.008	-0.004	0.001
	(0.152)	(0.570)	(-0.268)	(0.091)
% Largest shareholding	-0.394*	-0.398*	-0.396*	-0.399*
	(-1.742)	(-1.663)	(-1.752)	(-1.670)
State control	-0.009	-0.005	-0.010	-0.007
	(-0.155)	(-0.084)	(-0.172)	(-0.105)
Industry FE	Y	Y	Y	Y
Region FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Obs.	7,355	7,328	7,355	7,328
Adj.R^2	0.303	0.306	0.303	0.307

Table 12 A Potential Benefit of Surname Sharing of Directors

This table presents OLS regression results on the impact of director surname sharing (*HHI* and *Entropy*) on firm value, conditional on the level of industrial volatility. *H-Volatility* is a dummy variable that equals one if the industry to which the firm belongs has above-the-median sales volatility among all industries, and zero otherwise. Sales volatility is calculated as the five-year rolling standard deviation of sales in the industry. Other variables are defined in Appendix 1. All continuous variables are winsorized at the 1% and 99% levels. The numbers in parentheses are t-statistics and are computed using heteroscedasticity robust standard errors, clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5% and 10% level separately (two-sided).

	Dependent variable=*Tobin's Q*	
	(1)	(2)
HHI	-0.111	
	(-0.213)	
Entropy		-0.085
		(-0.970)
H-Volatility	-0.245***	0.290
	(-3.746)	(1.578)
*HHI *H-Volatility*	1.197**	
	(2.467)	
*Entropy *H-Volatility*		0.179**
		(2.108)
Other controls in Table 2	Y	Y
Region FE	Y	Y
Year FE	Y	Y
Obs.	15,499	15,499
Adj.R^2	0.403	0.403

Appendix 1: Variable Definitions

Dependent variables	
Tobin's Q	The market value of common equity plus the book value of liabilities, divided by the book value of total assets.
CAR(-1, +1)(%)	Cumulative abnormal returns calculated from one day before to one day after the announcement of directors' resignation, where the daily abnormal return is the difference between the raw return and the normal return estimated from the market model over the period from day –210 to day –10 relative to the announcement day.
Dissent	A dummy variable that equals one if a firm-year has any director voting against any resolution or abstention in votings, and zero otherwise.
Dissent2	A dummy variable that equals one if a director-year has any voting against the proposal or abstention in votings, and zero otherwise.
Excess compensation	Estimated as the residual from the following model: $COMP_{i,t} = \alpha_0 + \alpha_1 Sales_{i,t} + \alpha_2 BM_{i,t} + \alpha_3 RET_{i,t} + \alpha_4 RET_{i,t-1} + \alpha_5 ROA_{i,t} + \alpha_6 ROA_{i,t-1} + industry\ and\ year\ fixed\ effects + \varepsilon_{i,t}$ where *COMP* is the natural logarithm of total cash compensation of top three highest paid executives in a company; *Sales* is the natural logarithm of total sales; *BM* is the book-to-market ratio; *RET* is annual buy-and-hold returns; *ROA* is net income divided by total assets.
RPTs	The total value of bank loans guarantee provided by the company for a related-party (e.g., a firm's parent or its affiliates) scaled by the firm's equity.
Patent applications	Natural logarithm of one plus the number of patent applications by a listed firm in a given year.
Granted patents	Natural logarithm of one plus the number of granted patents for a listed firm in a given year.
Independent variables	
HHI	$\sum_1^n p_i^2$, where p_i is the percentage of board members with i^{th} surname.
Entropy	$-\sum_1^n p_i \ln(1/p_i)$, where p_i is the percentage of board members with i^{th} surname.
Shared_name	A dummy variable that equals one if the resigned director shares a surname with other directors.
HHI_nonCEO	*HHI* computed based on non-CEO directors.
Entropy_nonCEO	*Entropy* computed based on non-CEO directors.
CEO_{SHARE}	The proportion of non-CEO directors sharing CEO's surname.
Instrumental variables	
Provincial isonymy	Average isonymy for the province in which a firm is headquartered.
Region_Ratio	The average percentage of surname sharing by directors of all other listed firms (excluding the company concerned) in the province in which a firm is headquartered.
Control variables	
Ln (total assets)	The natural logarithm of total assets.
Leverage	The ratio of total liabilities to total assets.
% Largest shareholding	The percentage of shares held by the largest shareholder.
ROA	The ratio of net profit to year-beginning assets.
Cash dividends	Cash dividends divided by net income.

Beta risk	$Cov(R_{i,}R_m)/Var(R_m)$, where R_i is the return of firm *i* and R_m is the market return.
Alumni	A dummy variable that equals one if at least two directors graduated from the same school, college or university, and zero otherwise.
Townsmen	A dummy variable that equals one if two or more directors were born in the same city, and zero otherwise.
% Female directors	The percentage of female directors in a board.
Sdev_director age	The standard deviation of ages of directors.
Sdev_tenure	The standard deviation of tenures of directors.
% Concurrent post	The percentage of directors having a board seat in other corporate boards.
Overseas background	The percentage of directors with education or work experience abroad.
Cross listing	A dummy variable that equals one for firms cross-listed in both mainland China and overseas, and zero otherwise.
% Independent directors	Number of independent directors divided by total number of board members.
CEO/Chairman duality	A dummy variable that equals one if the CEO is also the chairman of the board
No. of directors	Board size, defined as the number of directors on the board.
State control	A dummy variable that equals one for state-owned enterprises, and zero otherwise.
Ownership	The percentage of shares held by the resigned director.
Political connection	A dummy variable that equals one if the resigned director is politically connected, and zero otherwise.
Female	A dummy variable that equals one if the resigned director is a female, and zero otherwise.
Independent	A dummy variable that equals one if the resigned director is an independent director, and zero otherwise.
Ln(D_Age)	The natural logarithm of the age of the resigned director.
Rare	A dummy variable that equals one if the directors of a firm share a surname that is not ranked among the top 10 surnames according to the 2010 survey by the Ministry of Public Security, and zero otherwise.
Strong	Following Goode (1982) and Ruan and Zheng (2012), we classify provinces into strong, moderate, and weak regions based on the strength of regional clan systems. *Strong* is a dummy variable that equals one if the firm is headquartered in a region with strong clan systems, and zero otherwise.
H-Volatility	A dummy variable that equals one if the industry to which the firm belongs has above-the-median sales volatility among all industries, and zero otherwise. Sales volatility is calculated as the five-year rolling standard deviation of sales in the industry.