Emerging Markets Review 54 (2023) 100947

Contents lists available at ScienceDirect

Emerging Markets Review

journal homepage: www.elsevier.com/locate/emr

Are business groups different from other family firms? Evidence from corporate investments during political uncertainty

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ARTICLE INFO

JEL codes:
G32
G38
G18
G15

Keywords:
Political uncertainty
Corporate investments
Family business groups
Stand-alone family firms
Emerging markets
India
Internal capital markets
Elections
Political connections

ABSTRACT

Using a large sample of Indian family firms, we examine the investment behaviour of group-affiliated family firms versus standalone family firms during local state elections. While state elections negatively affect corporate investments, family firms invest more than non-family firms. Therefore, using a difference-in-difference estimation, we find that group-affiliated family firms invest significantly more than standalone family firms. Additionally, we find no evidence of distortive investments by group-affiliated family firms due to political pressure; rather, it appears that the unique structure allows these firms to make value-relevant investments when other firms adopt a conservative approach. Overall, our study improves the understanding of family firm investments during periods of political uncertainty.

1. Introduction

The relationship between political uncertainty and economic outcomes has been an important topic in academia. The literature documents the negative impact of political uncertainty on firm-level investments (Bailey and Chung, 1995; Beaulieu et al., 2005; Julio and Yook, 2012; Pástor and Veronesi, 2013; Baker et al., 2016; An et al., 2016; Jens, 2017; El Ghoul et al., 2021; Attig et al., 2021).

Delays or permanent reductions in investments caused by political uncertainty can significantly impact the smooth functioning of an economy. Such delays are more likely to occur in large irreversible investments (Bernanke, 1983), which could generate significant employment opportunities and spur economic activity. Hence, it is interesting to examine whether particular institutional settings or organizational forms allow businesses to withstand political uncertainty. The main objective of our study is to consider the impact of political uncertainty on one such organizational form, namely, family business groups, prevalent in emerging and developing markets. [1]

Family business groups comprise several diverse and legally independent firms connected through various relationships, including cross-holdings, director interlocks, family ownership, and financial inter-linkages (Silva et al., 2006). Extant literature documents some negative aspects of business groups, such as agency costs and tunnelling (Bertrand et al., 2002; Gopalan et al., 2007). The

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[1] We use the terms 'business groups' and 'group-affiliated firms' interchangeably throughout the paper.

https://doi.org/10.1016/j.ememar.2022.100947
Received 28 January 2021; Received in revised form 1 July 2022; Accepted 22 July 2022
Available online 28 July 2022

extensive evidence that the mechanism of business group firms improves efficiency and allows economies of scale and scope by managing imperfections in the emerging markets.

This study investigates whether the unique characteristics of business group-affiliated family firms allow them to manage uncertainties better than standalone family firms. More specifically, we examine how group-affiliated family firms respond to their investment needs compared to their standalone family firms during political uncertainty in the context of Indian state elections. Standalone family firms differ in many aspects from their group-affiliated family firms counterparts. The promoters of standalone family firms are conservative and, hence, take less risk. They face many obstacles in their business because they do not have reputable networks, have several funding constraints and governance issues related to succession planning. Overall, they do not have the essential resources for business groups to overcome economic and political uncertainties. Their performance depends on the standalone firm's performance as their family resources are not diversified. Business group-affiliated family firms have delivered superior performance because of their diverse networks and group support. These firms take risks and tap opportunities when they arise. [2] Standalone family firms have not yet proven that they can do well during events of uncertainty and make new investments (Aronoff and Ward, 1995; Wadhwa et al., 2009).

We hypothesise (discussed in Section 2) that group-affiliated family firms should exhibit different investment patterns compared to their standalone family firms counterparts during political uncertainty because of two key features associated with this organizational form: internal capital markets and political connections. First, prior research shows that internal capital markets enable firms to obtain financing from within the group and allow affiliated companies to meet their financing needs, particularly in capital-constrained and imperfect markets (Almeida et al., 2015). We argue that internal capital markets and their signaling effect should be even more pronounced during periods of political uncertainty when firms face significant external financing constraints due to the crowding-out effect of increased government spending (Cohen et al., 2011; Mitra, 2006).

Second, the interdependency between the government and business groups noted in the literature (Schneider, 2009) should also influence investments by family group-affiliated firms during election years. On the one hand, politicians may compel business groups to increase investments to support their re-election bids. On the other hand, owing to their size and influence, business groups may obtain significant concessions in their election-year investments. While whether family business groups make distortive or value-relevant investments is an empirical question, the unique characteristics of these firms suggest that they should withstand political uncertainty relatively better than other family firms. [3]

Amore and Minichilli (2018) show that family businesses invest more than other firms during periods of political uncertainty in the context of Italian firms. As business groups are essentially family firms (Silva et al., 2006), our primary focus is on family business groups and their comparisons with standalone family firms. [4] In this study, we concentrate on family business groups as the Indian business landscape is dominated by family business groups. Additionally, the percentage of non-family business groups among the total business groups was low. As discussed above, family group-affiliated firms are significantly different from other firms, including other family firms, because of their size, connections to political establishments, and access to internal capital markets. While standalone family firms also possess characteristics that enable them to withstand political uncertainty (Amore and Minichilli, 2018), these features are more prominent in group-affiliated firms. As business groups constitute a large and significant component of family firms in Italy (Santioni et al., 2020), it is unclear whether all or some segments of family firms drive the evidence in Amore and Minichilli (2018). Our research provides further granularity on the relationship between family firm investment and political uncertainty.

We conducted our study in the Indian market, where family business groups are prevalent. In this context, prior studies have examined issues such as costs and benefits (Khanna and Palepu, 2000), access to finance (Gopalan et al., 2007), and their role in facilitating development (Fisman and Khanna, 2004), among others. In addition to the extensive presence of business groups, the Indian context is uniquely suited to test our hypothesis because of the staggered nature of local elections held across Indian states. [5] Therefore, the Indian setting allows us to use a difference-in-differences (DiD) approach in which firms in non-election states act as counterfactuals for firms in election states. Moreover, comparing the investment patterns of business groups with other firms from the same state allows us to isolate the effects of political uncertainty from those of business cycles and economic uncertainty (Jens, 2017).

We analysed 106 local elections held in India over 2001–2017. After merging the election data with ownership and financial data, our overall sample consists of over forty-two thousand family firm-year observations. In addition to controlling for macroeconomic conditions (aggregate uncertainty and gross domestic product) and firm-level factors influencing investments, our regression analyses also include firm fixed effects, allowing us to control for potential endogeneity problems.

Consistent with prior evidence, we find a significant decline in corporate investments during state-election years in India. Furthermore, as in Amore and Minichilli (2018), we also observe that family firms invest significantly more than non-family firms during election years. However, we observe that family group-affiliated firms invest significantly more than standalone family firms during election years, supporting our hypothesis. While we find a marginal decrease in investments by family group-affiliated firms during election years, the decline in investments among other family firms is significantly more pronounced. Our results are robust to

[2] More information on the differences between Indian Family business group firms versus Standalone family firms may be found in the article 'Family Businesses: The Emerging Landscape 1990–2015' by Nupur Pavan Bang and Kavil Ramchandran published in ISBINSIGHT, Dec 2017.

[3] We further discuss our main hypothesis in Section 2.

[4] We also find similar evidence in the context of Indian firms and, hence, focus on the segments within family firms (business groups vs. other family firms). In the additional tests section (Section 4.2.1), we examine non-family business groups with other firms. We thank the reviewer for this suggestion.

[5] Section 3.1. presents a discussion of local elections in India.

alternative investment measures, including macroeconomic and firm-level factors.

Our results also hold in a two-stage instrumental variable (IV) regression framework, where we use a fixed five-year period as an instrument for state elections (Alok and Ayyagari, 2020; Khemani, 2004). To the extent that early elections are related to the economic environment, IV regression allows us to address the concern that our estimates are biased and subject to endogeneity problems. We further find that our results are stronger in contexts where the impact of political uncertainty on investments should be more pronounced. More specifically, we find that family group-affiliated firms invest significantly more than standalone family firms during election years in firms located in states with close elections and capital-intensive firms.

Our results show that family group-affiliated firms invest significantly more than standalone family firms during election years. Next, we examine which of the two channels, internal capital markets, political connections, or both, drives our results. A better understanding of the underlying mechanism is important because the two channels have different implications for efficiently allocating scarce resources when access to finance is relatively difficult. A more dominant political connection channel could imply that business groups succumb to political pressure and make distortive investments (Nordhaus, 1975; Shleifer and Vishny, 1994). We tested the relative importance of the two channels directly and indirectly.

First, we examine investments in high- and low-public-sector-dependent firms. Supporting the political connection channel, family group-affiliated firms have significantly higher investments in firms dependent more on the public sector. Second, we examine investments and profitability in the post-election years. We did not observe any decline in investments in the post-election year among group-affiliated firms, as in unusual distortive investments in the election period. Rather, we find that investments in group-affiliated firms remain significantly higher than those in standalone firms in the post-election year. Furthermore, group-affiliated firms exhibit significantly superior stock markets (market to book ratio) and operating results (revenue and profits) in the post-election period compared to standalone family firms. This potentially indicates the positive effects of election year investments. Thus, although investments by group-affiliated firms during election years are higher in firms dependent on the public sector, post-election investments and operating performance evidence suggest that group-affiliated firms make value-relevant investments because of their ability to withstand political uncertainty when other firms adopt conservative investment strategies.

This study contributes to two important research strands. First, our study is related to the growing literature examining the impact of political uncertainty, and more specifically, elections, on firm-level investments (Amore and Minichilli, 2018; Jens, 2017; Julio and Yook, 2012). While Julio and Yook (2012) and Jens (2017) document the impact of national elections on investments, Amore and Minichilli (2018) explore investment differences between family and non-family firms due to local or regional elections. We provide further granularity in the family firm evidence by showing that the difference in investments between family and non-family firms during politically uncertain periods is predominantly due to investments by family business groups compared to standalone family firms.

Second, our study contributes to the literature on the role of business groups in emerging economies. More specifically, our study adds to the controversial yet important strand of literature that examines the costs and benefits of family business groups (Almeida et al., 2015; Gopalan et al., 2007; Khanna and Palepu, 2000; Khanna and Yafeh, 2007). Through a thorough examination, we provide strong evidence of the positive role of family business groups in mitigating the adverse impact of political uncertainty on corporate investments.

The remainder of this paper is organised as follows. Section 2 develops our main hypothesis on investments by group-affiliated firms during periods of political uncertainty. Section 3 presents data and summary statistics. Sections 4 and 5 present empirical results. Section 6 concludes.

2. Hypothesis development

An influential strand of literature examines the relationship between uncertainty and economic outcomes. For instance, Rodrik (1991) and Baker and Bloom (2013) examine the impact of uncertainty on various economic outcomes such as real investments and gross document product (GDP). Kang et al. (2014) argue that the economic-political uncertainty (EPU) leads to lesser investments by firms due to managers' conservatism about costs and uncertain profit outcomes. Brogaard and Detzel (2015) state that regulators create an extra layer of uncertainty as they formulate different policies, such as fiscal and monetary policies. EPU also influences the outcome of investments by impacting their cost of capital (Drobetz et al., 2018); accounting and earnings quality (El Ghoul et al., 2021); and dividends (Attig et al., 2021). Other related studies examine the relationship between economic policy uncertainty (EPU) and Mergers and Acquisitions (M&A) (Paudyal et al., 2021), EPU and cash holdings (Goodell et al., 2021), EPU and insider trading (El Ghoul et al., 2022), EPU, and distortive allocations (Guedhami et al., 2021).

Recent studies investigate the association between aggregate economic uncertainty and firm-level consequences (Baker et al., 2016; Gulen and Ion, 2015; Pástor and Veronesi, 2013). For example, using a comprehensive measure of economic policy uncertainty, Baker et al. (2016) show that policy uncertainty is associated with greater stock price volatility and reduced investment and employment in policy-sensitive sectors such as defense, healthcare, finance, and infrastructure construction.

A related strand of literature examines the association between political uncertainty and economic outcomes. In some earlier works, Barro (1991) and Alesina and Perotti (1996) investigate political instability and investment decisions at an aggregate level. Some recent studies have focused on political elections as a direct source of uncertainty and examined their impact on firm outcomes. For instance, Julio and Yook (2012), using data from 48 countries, and Jens (2017), using the U.S. gubernatorial elections, document a significant decline in investments during election years. The underlying economic intuition here is that if an impending change in the government is unfavourable, firms may delay their investments until the uncertainty is partially or wholly resolved. Our study examines the role of group-affiliated family firms in moderating the effect of political uncertainty on firm investments in the Indian

market. We expect group-affiliated family firms to exhibit a relatively modest impact of political uncertainty on their investments compared to other family firms because of two important features associated with these groups: (i) *internal capital markets* and (ii) *political connections*.

The extant literature highlights the importance of business groups for economic growth—e.g., Khanna and Palepu (2000); Fisman and Khanna (2004); Khanna and Yafeh (2007). Affiliating to family business groups is even more important for economic success in emerging markets, such as India, where many market imperfections (weak legal and regulatory systems, higher corruption, and less developed financial markets) exist. One important feature that allows firms within business groups to perform well in imperfect markets is an internal capital market allowing firms within the group to obtain funding from other group firms (Almeida et al., 2015). The availability of internal capital markets helps group firms avail internal capital, which is important for financially weaker firms (Gopalan et al., 2007). Additionally, it sends a positive signal to the market, making it more accessible to external funds, including foreign capital (Khanna and Palepu, 2000).

Internal capital markets are even more important during periods of political uncertainty because of the crowding-out effect (Cavallo and Daude, 2011; Cohen et al., 2011). Prior studies, including India-specific, show that government spending in election years reduces the financing available for private firms (Alok and Ayyagari, 2020; Mitra, 2006). Therefore, to the extent that external financing is limited during political uncertainty, group-affiliated family firms, with their internal capital markets and the associated signaling effects, should be able to withstand the crowding-out effect better and invest more in capital expenditure than standalone family firms.

Another important channel that favours family group firms vis-à-vis standalone family firms during political uncertainty is the political economy channel. Several prior studies document the interdependency between government and business groups (Schneider, 2009; Yiu et al., 2007). Governments, particularly emerging markets, require business groups to grow their economies and invest in politically important projects. This dependency also allows family business groups to obtain important concessions and subsidies, ensuring their competitive advantage, economic success and insulation from international competition (Evans, 2012).

Given the interdependency with the government, we assume that the investment patterns of family business groups will differ from those of standalone family firms during periods of political uncertainty. On the one hand, politicians may seek support from businesses to improve economic conditions by investing more during election years (Cole, 2009; Nordhaus, 1975; Ru, 2018; Shleifer and Vishny, 1994). On the other hand, a relative increase in investments by family business groups during politically uncertain times could be due to their access to politicians and regulatory processes to influence policies and receive significant concessions on their investments (Bonardi, 2011; Tian et al., 2009). Consistent with this notion, Wellman (2017), using U.S. data, shows that politically connected firms reduce the impact of political uncertainty on investments. However, the empirical question is whether the relative increase in investments by group-affiliated firms is due to the manipulative efforts of politicians or by leveraging their influence and access.

Regardless of the dominant channel (internal capital markets vs. political connections), the recurring theme in the discussion above is that group-affiliated family firms are more likely to withstand political uncertainty in terms of investment than standalone family firms. This leads to our main hypothesis:

Main hypothesis. During periods of uncertainty (election years), group-affiliated family firms invest significantly more than standalone family firms.

We identify two distinct channels to hypothesise that group-affiliated family firms are likely to invest differently from standalone family firms. However, understanding the dominant mechanism is important, as the two channels have different implications for economic efficiency. A more dominant political connection channel could mean distortions in the efficient resource allocation, given the typical large-scale investments made by business groups. However, a more dominant internal capital market channel enhances efficient resource allocations. We tested the relative importance of the two channels by using direct and indirect measures. Our direct measure of political connections examines the impact of elections on politically connected firms' investments. Similarly, our internal capital market analysis provides direct evidence of the impact of elections on investments in internal capital markets. Our indirect measure tests the relative importance of the two channels by examining investments in firms highly dependent on the public sector and investments, market, and operating performance in post-election years. The internal capital market channel implies that group-affiliated firms should be able to maintain their investments in all types of firms: those dependent on the public sector and those independent. However, the political-economic channel implies that investments during election years should be greater in firms dependent on the public sector. It also implies that investment by politically connected group-affiliated family firms should be greater than that of standalone family firms. Furthermore, if investments by business groups are unusual and distortive during election years, these firms should reduce their investments in the post-election year.

3. Data and summary statistics

3.1. Data

3.1.1. State elections data

India is a union of states and territories. There were 25 states and seven union territories in India in 2001, which has since grown to 28 states and nine territories. State elections (referred to as assembly elections), usually held every 5 years, directly elect state assembly members. However, only two union territories (Delhi and Puducherry) hold local elections and their assemblies. Each state has its assembly (state parliament) and chief minister (leader of the largest party in the assembly) having executive powers. Additionally, the state legislature has significant legislative and financial powers. For the year 2018–19, state governments were expected to spend 72%

more than the federal government, reflecting the strong role of state governments in the Indian economy.

We collected electoral data from the Election Commission of India website (www.eci.gov.in) and compiled comprehensive data on Indian state elections spanning 2001–2017. Appendix A lists all 106 state and union territory elections held in India during the sample period, not held simultaneously but staggered over time. There is at least one state election in each of the 17 years in our sample period. Additionally, there are years with as many as nine elections (e.g., 2003 and 2014), while other years have one or two (e.g., 2010 and 2015) local elections. Very few elections occur outside the scheduled five-year terms, suggesting that concerns of reverse causality (where economic conditions drive election decisions) are less plausible in our setting. Nevertheless, we used instrumental variable regression as a robustness test to address the reverse causality concern.

Following prior studies (Alok and Ayyagari, 2020; Cole, 2009; Julio and Yook, 2012), we use fiscal years (1 April to 31 March) to define election and investment variables. We capture political uncertainty using the *Election* dummy variable that takes the value of 1 for the fiscal year (1 April of year *t*-1 to 31 March of year *t*) associated with the calendar year *t* in which state elections took place. For example, the *Election* dummy takes the value of 1 for the fiscal year beginning 1 April 2010 and ending 31 March 2011 for any state election held in the calendar year 2011. Notably, of the 136 state elections, only 51 were held during the September–December period, with the majority of the other elections held in April and May. Using Prowess's (see the next section) location information, we match the state where firms conduct their principal business (headquarters) with their respective state elections.

3.1.2. Firm-level data

Our primary source of firm-level data was the database maintained by the Center for Monitoring Indian Economy (CMIE). We use CMIE's Prowess database for all firm-level financial and ownership data and some macroeconomic data used in the study. Panel A in Table 1 presents the details of the sample construction. We begin with all the listed firms available in the Prowess database. After removing observations with missing values for the main and control variables, our sample included 4941 unique firms and 50,490 firm-year observations. We categorise these firms into family and non-family firms, with 3690 family and 1251 non-family firms in our sample. Of the 3690 family firms, 1113 were group-affiliated, and the remaining 2577 were standalone family firms. The sample of family firms for which all financial data are available consists of 39,270 firm-year observations forming the basis for all our main analyses. [6]

We used the detailed ownership classification available in the Prowess database to categorise firms into family and non-family firms. Following prior studies such as Chen et al. (2020) and Sarkar and Selarka (2021), a family firm satisfies the following conditions: (i) promoters (founders) or promoters'(founders') family holds at least 20% of the firm and (ii) a promoter is present on the board of directors. Additionally, we follow prior studies (Bertrand et al., 2002; Gopalan et al., 2007; Khanna and Palepu, 2000; Vissa et al., 2010; Ray and Chaudhuri, 2018; Hu et al., 2019) and classify firms into group-affiliated using Prowess's group classification. We use a group-affiliation (*GA*) dummy variable that takes the value of one for group-affiliated firms and zero for standalone firms.

Our main measure of investment is the annual change in a firm's net fixed assets plus annual depreciation scaled by total assets at the beginning of the year (An et al., 2016). Consistent with the *Election* dummy variable, investments are defined over the period 1 April of year *t*-1 to 31 March of year *t* for elections in calendar year *t*. In addition to investments, we use two alternative proxies of capital expenditure derived from CMIE's CAPEX database (Alok and Ayyagari, 2020): (i) the number of new projects announced in a year and (ii) the value of new projects announced in a year. CAPEX provides detailed information on capital expenditure at the individual project level, including the project name, announcement date, the value of the project, project status (completed, abandoned, or under implementation), and industry classification. We use this information to identify the number and value of projects on an annual basis for our sample companies.

3.2. Summary statistics

Table 1 (Panels B and C) reports the summary statistics of the family firms for the main variables used. We winsorised all continuous variables at the 1% and 99% levels to attenuate the influence of outliers. Panel B reports the summary statistics for the overall family sample, while Panel C reports the summary statistics separately for the group-affiliated and standalone family firms. For example, Panel B shows that the average (median) annual investment was approximately 5.0% (1.0%) of the total assets of the prior year. Similarly, on average, firms announce about two projects annually with a mean value of Indian Rupee (INR) 11,210 million (US$ 238 million). [7] However, as Panel B shows, group-affiliated family firms are larger, more profitable, and invest significantly more than standalone family firms.

Specifically, the mean and median values for all three investment measures (investment, project value, and the number of projects announced) are significantly higher for group-affiliated family firms. For example, while the mean (median) value of the announced project is INR 15,043 (1322) million for group-affiliated family firms, the corresponding value is INR 5025 (450) for standalone family firms. In sum, in almost every aspect, group-affiliated family firms are distinctly different from standalone family firms. We address this difference using a difference-in-difference (DiD) approach to test our main hypothesis.

[6] While we do not include non-family business groups in our main analyses, all results remain the same when these firms are included.

[7] Over the 2001–2017 period, the INR exchange rate (1 US$) ranged from INR 31 to INR 68 with an average of about INR 47. We use the average rate of INR 47 when using US$ amounts.

Table 1
Summary statistics.

Panel A: Sample details

	Family firms	Non-family firms	Total
Group-affiliated Firms	1113	352	1465
Stand-alone Firms	2577	899	3476
Total	3690	1251	4941

Panel B: Overall family firm sample

Variable name	Number of Obs.	Mean	25th Percentile	Median	75th Percentile	Standard Deviation
Panel A: Overall Sample						
GA Dummy	39,270	0.37	0	0	1	0.48
Investment	39,270	0.05	0	0.01	0.05	0.11
Cash Flow (INR Millions)	39,270	995.06	4.8	43.7	254.3	9437
Firm Size (INR Millions)	39,270	5411	20.6	346.1	1890.4	60,002
R&D Intensity	39,270	0.02	0	0.004	0.02	0.04
Leverage	39,270	0.58	0.15	0.318	0.49	13.01
Cash Holdings	39,270	0.05	0.01	0.018	0.05	0.16
COV_Sales	39,270	29.25	10.83	19.53	36.11	28.9
Uncertainty Index	39,270	99.31	71.557	96.68	133.1	38.64
GDP growth (%)	39,270	7.56	5.4	7.6	10	3.58
Projects Announced	2616	1.58	1	1	2	1.29
Project Value (INR Millions)	2616	11,210.08	250	826.5	3500	59,788

Panel C: Mean and Median Comparisons of BG Family and SA Family Firms

	Group-affiliated firms			Stand-alone firms			Mean Test	Median Test
	N	Mean	Median	N	Mean	Median	t-stat	z-stat
Investment	14,575	0.052	0.010	24,695	0.047	0.005	3.87***	9.90***
Cash Flow (INR Millions)	14,575	2397	187.4	24,695	169.83	21.2	22.52***	61.88***
Firm Size (INR Millions)	14,575	12,376	1303.2	24,695	1310.19	177.1	17.55***	53.70***
R&D Intensity	14,575	0.018	0.006	24,695	0.015	0.003	9.16***	17.16***
Leverage	14,575	0.71	0.34	24,695	0.51	0.3	1.41	10.70***
Cash Holdings	14,575	0.04	0.02	24,695	0.05	0.02	−6.95***	−3.93***
COV_Sales	14,575	26.31	17.82	24,695	30.97	20.65	−15.31***	−12.93***
Projects Announced	14,575	1.69	1	24,695	1.39	1	6.22***	7.34***
Project Value (INR Millions)	1613	15,042.72	1322	1003	5024.61	450	4.34***	12***

This table reports the sample construction and summary statistics of the main variables used in the study. Panel A shows the sample construction details of family and non-family firms. Panel B reports the summary statistics of the overall family sample and Panel C reports the mean and median comparison of the main variables used in the study for group-affiliated and stand-alone family firms. All the variables of both the panels are defined in Appendix B. ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively.

4. Political uncertainty and corporate investments

4.1. Pre-election investment patterns

We begin by examining investments (our primary measure) by group-affiliated and standalone family firms in the years before the state elections. This analysis identifies any pre-election investment trends among group-affiliated and standalone family firms that might concern our DiD framework. We performed several tests, as listed in Table 2, to rule out this concern. First, we run a *t*-test analysis of investment activities for the 2 years before state elections. Panel A of Table 2 shows no significant difference in the investment behaviour of group-affiliated and standalone family firms before state elections. Next, we employ a regression framework using a placebo state election dummy (*Placebo_Election*) which takes the value of 1 for 1 year before a state election and 0 for 2 years before the election year. The variable of interest here is the interaction between the placebo state election and the group affiliation dummy (*Placebo_Election* × *GA*). Panel B of Table 2 shows that the ($Placebo\_Election_{jt} \times GA_{it}$) interaction term is statistically indistinguishable from zero, providing a strong basis for using the DiD approach in our setting.

4.2. Results and discussion

4.2.1. Main results

This section presents our baseline results on investments by group-affiliated and standalone family firms during political uncertainty, using a regression framework. Therefore, we use the following general specifications:

Table 2
Pre-election investment patterns.

Panel A: Pre-election Investment			
	$t = -2$	$t = -1$	Difference 2–1
Group-affiliated firms	0.064	0.051	0.013
	(6.763)	(3.379)	(0.880)
Stand-alone firms	0.047	0.041	0.006
	(5.265)	(11.822)	(0.090)

Panel B: Placebo Test	
Variables	Investment
Placebo_Election	−0.122
	(0.107)
Placebo_Election × GA	0.0725
	(0.069)
Firm Fixed Effects	Yes
Year Fixed Effects	Yes
Constant	9.2065
	(7.112)
No. of Obs.	21,208

Panel A of this table reports the results of the t-test of the mean investment between 2 years and 1 year prior to election year. Panel B reports the results of regression in which the dependent variable is investment and the independent variables are Placebo_Election dummy and interaction of Placebo_Election dummy and Group-affiliated (GA) dummy. Placebo_Election dummy takes the value of 1 for 1 year prior to election year and 0 for 2 years prior to election year. All the variables are defined in Appendix B. The regression includes firm and year fixed effects. Standard errors (clustered by firm) are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively.

$$Investment_{ijt} = \alpha_i + \beta_1\, Election_{jt} + \beta_2\, GA_{it} + \beta_3\, \left(Election_{jt} \times GA_{it}\right) + \gamma'\, Controls_{it} + \epsilon_{ijt} \quad (1)$$

where *i* refers to the firm, *j* refers to the state, and *t* refers to the period. Our main measure of the dependent variable is an investment. We also use the number and value of projects announced (as defined in Section 3) as two additional measures of corporate investments. The three main explanatory variables are the state election (*Election*) dummy, group-affiliation (*GA*) dummy, and the interaction between *Election* and *GA* dummies. The interaction dummy (*Election* × *GA*), the main variable of interest, allows us to observe the difference in investments between group-affiliated and standalone family firms. As the difference in investments, measured by the interaction term, captures the change in investments in group-affiliated family firms relative to standalone family firms (both from the same state) due to the election in that particular state, our regression framework assumes a difference in difference-in-differences (DiD) approach (Amore and Minichilli, 2018).

Our regression model includes several control variables, including the state-level GDP growth rate, the policy uncertainty index from Baker et al. (2016) for India to control for aggregate uncertainty, firm-specific controls such as cash flow, size (sales), R&D intensity (ratio of the sum of research and development and advertising expenses to total assets), and revenue uncertainty (the coefficient of variation in sales) as a measure of firm-level uncertainty. As the financial structure significantly influences firms' investment decisions, we include cash holdings and leverage as additional firm-level control variables. We also consider industry-specific investment trends by including the average investment in the two-digit industry by year. All firm-level controls are lagged by 1 year to avoid simultaneous effects from the election periods. We also include firm-fixed effects to control for unobserved, time-invariant firm-specific heterogeneity, constant over time, allowing us to address potential endogeneity problems. [8] Lastly, year-fixed effects are included in all regressions to control for unobservable heterogeneity across time. Table 3 presents the results in which the standard errors are clustered at the firm level.

To compare our results with those of prior studies, Columns (1) and (2) show the results using the overall sample of family and non-family firms. Consistent with prior evidence, Column (1) shows that state election years are associated with a significant decrease in firm investments (significant at the 5% level). In Column (2), we include the interaction between election and family firms (*Election* × *Family*), and our results are consistent with Amore and Minichilli (2018); they show that family firms invest significantly more than non-family firms during election years.

Importantly, in Columns (3) & (4), where only family firms are included, we find that the coefficient of the interaction term (*Election* × *GA*) is positive and statistically significant at the 1% level. The evidence strongly supports our hypothesis that group-affiliated family firms invest significantly more than standalone family firms during periods of political uncertainty. Our results hold when we include state-level GDP growth and several firm characteristics associated with investments (cash flow, firm size, R&D intensity, leverage, cash holdings, and revenue uncertainty). Next, we examine investments separately for group-affiliated (Column

[8] We do not report the coefficient of the group affiliation dummy since it is collinear with firm fixed effects.

Table 3
Main results.

Variables	Investment						Project value	# Projects announced
	Full sample		Family firms					
	1	2	3	4	5 BG	6 SA	7	8
Election	−0.084**	−0.530***	−0.378***	−0.184***	0.000	−0.061***	−0.823***	−0.240***
	(0.037)	(0.104)	(0.063)	(0.051)	(0.002)	(0.012)	(0.137)	(0.073)
Election * FAM		0.586***						
		(0.124)						
Election * GA			0.613***	0.353***			1.258***	0.332***
			(0.097)	(0.088)			(0.173)	(0.098)
Ln(Cash Flow)		0.013		0.008	0.000	0.007	0.068*	0.000
		(0.017)		(0.018)	(0.001)	(0.025)	(0.042)	(0.034)
Ln(Firm Size)		0.021		0.015	0.001	−0.001	0.018	0.025
		(0.018)		(0.020)	(0.001)	(0.027)	(0.041)	(0.032)
R&D Intensity		4.363***		3.289***	0.196***	3.682***	−4.707***	−0.075
		(0.813)		(0.822)	(0.030)	(1.026)	(1.455)	(0.778)
Leverage		−0.041***		−0.043***	−0.001***	−0.055***	0.443*	−0.043
		(0.008)		(0.009)	(0.000)	(0.009)	(0.251)	(0.139)
Cash Holdings		−0.042		0.181	−0.045**	0.557	0.995	−0.189
		(0.664)		(0.779)	(0.021)	(0.863)	(0.660)	(0.375)
COV_Sales		−0.001		−0.001	−0.001*	−0.001***	0.004***	0.001
		(0.001)		(0.001)	(0.000)	(0.001)	(0.002)	(0.001)
Avg. Ind. Investment		0.548***		0.490***	0.007***	0.609	0.069	0.007
		(0.092)		(0.119)	(0.001)	(0.184)	(0.056)	(0.037)
Uncertainty Index		0.098		0.240	0.010***	0.294	0.209	−0.043
		(0.237)		(0.270)	(0.004)	(0.409)	(0.158)	(0.122)
GDP Growth		−0.005		0.003	0.0004*	−0.007	0.026**	0.011
		(0.007)		(0.008)	(0.000)	(0.011)	(0.014)	(0.010)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.935***	0.301	−1.277***	−0.374	−0.001	−0.277	5.148***	1.531***
	(0.046)	(0.918)	(0.049)	(1.027)	(0.019)	(1.504)	(0.767)	0.560
No. of obs	50,490	50,490	42,799	39,270	13,790	25,480	2616	2616

This table reports the main regression results in which the dependent variable is investments (in columns 1–6). Columns 1 & 2 include the entire sample of family and non-family firms, while columns 3–8 include only family firms. Under family firms, columns 5 and 6 show results of group affiliated and stand-alone firms respectively. The other two proxies of corporate investments, project value and number of projects announced, are used as the dependent variables in columns 7 and 8, respectively. All other variables are defined in Appendix B. All firm-level characteristics are one-year lagged values and all the regressions include firm and year fixed effects. Standard errors (clustered by firm) are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively.

(5)) and standalone (Column (6)) family firms. While standalone family firms reduce their investments during election years, elections have no impact on the investment of group-affiliated family firms. In other words, group-affiliated firms drive significantly higher investments by family firms during election years.

We next test Eq. (1) using two other measures of firm-level investments: (i) (log) project value and (ii) (log) number of projects announced. Column (7) reports the estimates for project value, and Column (8) shows the results for the number of projects announced. Consistent with our earlier results, the (*Election* × *GA*) interaction term is positive and statistically significant under both specifications. Thus, we find strong support for our hypothesis, even when using project-level measures of corporate investment, suggesting that group-affiliated firms announce significantly more projects, both in value and number than standalone firms during periods of political uncertainty.

Our main result remains significant for all specifications. In control variables, we find that investment is positively associated with state-level growth in GDP, R&D intensity, and average industry investment and negatively associated with leverage and firm-level uncertainty.

Overall, the results support our hypothesis that group-affiliated family firms overcome political uncertainty from state elections relative to standalone family firms.

4.2.2. Robustness test: Instrumental Variable (IV) regressions

Although elections are scheduled every 5 years, an incumbent state government can call for early elections, usually when the ruling government loses its majority or when none of the parties muster a majority in a recent election. Therefore, our results may be biased and subject to endogeneity concerns if the decision to call for an early election is related to the economic environment. We use an IV regression approach to address this concern. Following Khemani (2004) and Alok and Ayyagari (2020), we instrument state elections with the *Scheduled_Election* dummy variable that takes a value of one if 5 years have passed since the last election and zero otherwise. Accordingly, our first-stage regression is as follows:

$$Election_{jt} = \alpha_i + \beta_1\, Scheduled\_Election_{jt} + \gamma'\, Controls_{it} + \epsilon_{ijt} \quad (2)$$

As most elections in India are held on time, *Scheduled_Election* should strongly predict the actual occurrence of elections and therefore satisfy the relevance criteria of an instrumental variable. Further, as it is reasonable to assume that the fixed schedule of elections has no relation to the investment of firms other than through the timing of actual elections, *Scheduled Election* also satisfies the exclusion condition of an instrument variable (Alok and Ayyagari, 2020). Therefore, in the first stage, we use the same control variables as in our main regressions (cash flow, firm size, R&D intensity, leverage, cash holdings, revenue uncertainty, average industry investment, uncertainty index, and GDP).

Table 4 reports estimates of the two-stage IV regressions. Columns (1) (without controls) and (2) (with controls) show the results of the first-stage regression of Eq. (2). As expected, the coefficient on the *Scheduled Election* instrument is positive and statistically significant at the 1% level, indicating the instrument's strong predictive power of actual elections. Stage-two regression results are reported in Column (3), where we regress investments with the predicted values of the (i) *Election* and (ii) *Election* and *GA* interaction term. The coefficient on the interaction term is positive and significant at the 1% level, suggesting that our findings in Table 3 are robust to potential endogeneity concerns. In addition to investments, we also run the two-stage regressions for two other measures of corporate investments: project value and number of projects announced. Columns (4) and (5) show the second-stage regression results for project value and number of projects announced, respectively. Consistent with the result in Column (3), the *Election* and *GA* interaction terms are positive and statistically significant for the two other measures of corporate investments.

4.3. Additional tests

4.3.1. Parallel trend

A crucial premise of using the DiD approach is the parallel trend assumption. The parallel trend assumes no material distinction between the treatment and control firms before intervention. To examine this assumption, we follow previous literature (Bertrand et al., 2002) and create dummies representing 2 years before and 2 years after the election. Table 5 presents the results of this analysis. The coefficients for years −2 and − 1 are not statistically significant. However, consistent with our previous results, the coefficients for years 0 and 1 are positive and statistically significant. This result addresses any concern regarding the parallel trend assumption and provides further robustness to the results.

4.3.2. Propensity matched sample

One concern with our analysis is that the sample of business groups differs from that of other family firms. To alleviate this concern, we used propensity score matching (PSM) to identify a group of matched control firms. First, we estimate a probit model in which the dependent variable is 1 for family firms that belong to group-affiliated firms (treatment) and 0 for family firms that do not belong to group-affiliated firms (control). We use the same covariates as the control variables because they affect a firm's level of investment. Then, we used the propensity scores from the probit model to perform nearest one-to-one neighbour matching within a 0.1 caliper. Our PSM identified 1037 uniquely matched control firms. Table 6 presents the results, identical to the main results reported in Table 3.

4.3.3. Cash holdings

As investments and cash holdings are closely linked, we examine cash holdings by group-affiliated and standalone family firms during periods of political uncertainty. Julio and Yook (2012) show that firms hold higher levels of cash in election years, similar to the amount used as investments. Given that group-affiliated family firms have access to internal capital markets and maintain their investments during election years, we argue that their cash holdings should be significantly lower than those of standalone family firms. We formally test this notion by using the following specification:

$$Cash_{ijt} = \propto_i + \beta_1\, Election_{jt} + \beta_2\, GA_{it} + \beta_3\, \left(Election_{jt} \times GA_{it}\right) + \gamma'\, Controls_{it} + \epsilon_{ijt} \tag{3}$$

where *Cash* is the cash and cash equivalent holdings of firm *i* in state *j* at time *t*. As before, our main variable of interest was the *Election* × *GA* interaction term. The results are presented in Table 7. We include firm- and year-fixed effects and cluster standard errors at the firm level. Overall, the *State Election* dummy is positive, suggesting that political uncertainty positively impacts firms' cash holdings in the Indian context. However, the *State Election*$_{jt}$ × *GA*$_{it}$ interaction term is negative and statistically significant (at the 1% level), suggesting that group-affiliated family firms hold significantly lower cash levels than standalone family firms during election years. Our results show that standalone family firms hold significantly more cash than group-affiliated family firms during election years.

4.3.4. External vs. internal factors affecting investment

This study examines the combined effects of business group affiliation and political uncertainty on firm investment. However, business group or family control is considered an internal factor. In contrast, state election is considered an external factor, and a possible concern is that this study does not examine the relative importance of internal and external factors. To address this concern, we conducted separate regressions showing the impact of state elections (external factor) and group affiliation (internal factor) on investment separately in two specifications, as reported in Table 8. Panel A of Table 8 shows the negative effect of state elections (external factor) on firms' investment behaviour, as indicated by the negative coefficient of *State Election*$_{jt}$. However, group affiliation (internal factor) positively affects firm investment, as reported by the negative coefficient of *GA*$_{it}$ in all regression specifications of Panel B. The above result also suggests that while political uncertainty surrounding state elections reduces the overall investment activity of firms, group-affiliated family firms are relatively better than standalone family firms because of their association with groups. Their affiliation with the groups helps them increase their investments irrespective of happenings in the external environment.

Table 4
IV regressions.

Variables	Stage I		Stage II		
	Dependent variable: state election	Dependent variable: state election	Dependent variable: investment	Dependent variable: project value	Dependent variable: project announced
	(1)	(2)	(3)	(4)	(5)
Election			−0.406***	−0.473***	−0.111
			(0.117)	(0.166)	(0.114)
Election * GA			1.154***	0.860***	0.186*
			(0.138)	(0.166)	(0.114)
Scheduled Election	0.492***	0.923***			
	(0.098)	(0.004)			
Ln(Cash Flow)		−0.001**	0.035**	0.072***	0.001
		(0.001)	(0.018)	(0.022)	(0.015)
Ln(Firm Size)		−0.006***	0.013	0.019	0.025*
		(0.001)	(0.017)	(0.022)	(0.015)
R&D Intensity		0.022	18.533***	−4.433***	0.054
		(0.032)	(0.816)	(0.882)	(0.604)
Leverage		0.000	−0.008***	0.507***	0.031
		(0.000)	(0.003)	(0.189)	(0.129)
Cash Holdings		−0.018**	2.470***	1.087**	−0.136
		(0.008)	(0.210)	(0.528)	(0.362)
COV_Sales		0.000	0.000	0.004***	0.001
		(0.000)	(0.001)	(0.002)	(0.001)
Avg. Ind. Investment		−0.009***	0.943***	0.080***	0.009
		(0.001)	(0.023)	(0.032)	(0.022)
Uncertainty Index		0.011***	0.101	0.256	−0.043
		(0.003)	(0.174)	(0.180)	(0.123)
GDP Growth		−0.001***	−0.008	0.028**	0.013
		(0.000)	(0.009)	(0.012)	(0.009)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Constant	−2.800***	0.065***	−1.145	4.839***	1.469***
	(0.033)	(0.016)	0.800	0.841	0.575
No. of obs	39,270	39,270	39,270	2616	2616

This table reports the results of Instrumental Variable (IV) regression in which *Scheduled Election* is the instrumental variable. Stage I regression results are reported in columns (1) and (2) whereas stage II regression results are reported in columns (3)–(5). The dependent variable in columns (3), (4) and (5) are investments, project value and number of projects announced, respectively. *Scheduled_Election* dummy variable takes the value of 1 if 5 years have passed since the last election and 0 otherwise. All other variables are defined in Appendix B. All firm-level characteristics are 1-year lagged values and all the regressions include firm and year fixed effects. Standard errors (clustered by firm) are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively.

Group-affiliated family firms can withstand political uncertainty and increase investments during election years. As seen in the earlier results, the interaction term $State\ Election_{jt} \times GA_{it}$ in the investment regressions was significantly positive. In Section 5, we examine what makes group-affiliated firms withstand political uncertainty.

4.3.5. Non-family sample

All our tests have only used the family firms' sample. In unreported results, we find that all results remain the same even when non-family firms are included (i.e., business groups invest more than other firms). We run our tests on the non-family subsample, business groups and standalone firms. [9] In unreported results, the $State\ Election_{jt} \times GA_{it}$ interaction term is positive but not statistically significant.

5. Internal capital market vs. political connections channel

While the previous section provides strong evidence that group-affiliated family firms invest significantly more than their standalone family firms counterparts, we are yet to formally test whether the internal capital market or the political connection channel drives our results. Additionally, while we do not find evidence of unusual investment patterns in the pre-election period (Table 2) providing support for the internal capital markets channel, we are yet to explore the political connection channel. In this section, we perform several tests to examine the relative importance of the two channels.

[9] We thank the reviewer for this suggestion.

Table 5
Parallel trend.

	Dependent variable: Investment		
	(1)	(2)	(3)
Pre Election_2	−0.0852	−0.1352	0.232
	(0.207)	(0.209)	(0.270)
Pre Election_2 × GA	0.453	0.453	0.447
	(0.308)	(0.308)	(0.208)
Pre Election_1	0.133	−0.187	0.205
	(0.156)	(0.166)	(0.202)
Pre Election_1 × GA	0.633	0.637	0.637
	(0.394)	(0.494)	(0.494)
State_Election		−0.352***	1.009***
		(0.067)	(0.199)
State_Election × GA		0.614***	0.608***
		(0.090)	(0.090)
Post Election_1			−0.625***
			(0.197)
Post Election_1 × GA			0.463**
			(0.199)
Post Election_2			−0.539
			(0.387)
Post Election_2 × GA			0.572
			(0.392)
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Constant	−0.264***	−0.223***	−1.623***
	(0.091)	(0.098)	(0.221)
No. of Obs.	38,215	38,215	38,215

This table reports the regression results assessing the parallel trend assumption in which the dependent variable is investments. Pre Election refers to one (Pre Election_1) and two (Pre Election_2) year(s) before election year and Post Election period refers to one (Post Election_1) and two (Post Election_2) year(s) after the election year. All the regressions include firm and year fixed effects. All other variables are defined in Appendix B. Standard errors (clustered by firm) are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively.

5.1. Direct measures

This section uses two direct proxies for *political connection* and *internal capital markets*.

We define a firm as politically connected when it meets one of the following criteria: if a member of the board of directors or the top management is or was a member of the Indian Parliament (Lok Sabha or Rajya Sabha); if the firm made donations to a political party in India. We hand-collected data on members of Parliament from the websites of the lower and upper houses. We collected data on donations to political parties from the website of the Indian Election Commission. In India, it is legally mandatory for political parties to disclose and submit a list of donors who contribute more than Rs. 20,000. [10]

5.2. Political connections through members of Lok Sabha and Rajya Sabha

Lok Sabha is the lower house of the Indian Parliament, and Rajya Sabha is the upper house. We extracted data on elected members of both houses since 2001 from the website of the Indian Parliament. Data on the elected Lok Sabha members are provided on the website in chronological order, from the Ist to the 17th Lok Sabha. As per the period of the existing study, we used elected member data from the 13th to 17th Lok Sabha. The data on the elected members of Rajya Sabha is given in the alphabetic order of the members' names. We extract the full names of all members of Parliament (MPs) of both the houses and match these names (first, middle, and last name after removing initials) with the names of the Director, Executive Director, Additional Director, CEO, CFO, MD, Chairman, Vice Chairperson, Director (Nominee), or the Executive Director of a firm. Then, the firm is classified as politically connected based on MPs. Hence, a firm is said to be politically connected if one of its officers is an MP.

5.3. Political connections through donations made by firms to political parties

Another way to identify a firm's political connection is based on donations made to political parties. In India, it is legally mandatory for political parties to disclose and submit a list of donors who contribute more than Rs. 20,000 to the Election Commission of India. Accordingly, data on donations to political parties are available on the Election Commission of India website and are provided by the Association for Democratic Reforms (ADA). Based on donation data, we define a firm as politically connected if it has donated to

[10] The detailed description on the process of creating political connection variable is given in Appendix

Table 6
Propensity matched regression.

Variables	Dependent variable: investment	Dependent variable: project value	Dependent variable: project announced
	(1)	(2)	(3)
Election	−0.235***	−1.085***	−0.243***
	(0.073)	(0.185)	(0.094)
Election * GA	0.383***	1.418***	0.305***
	(0.107)	(0.210)	(0.115)
Ln(Cash Flow)	0.004	0.076	−0.008
	(0.021)	(0.048)	(0.039)
Ln(Firm Size)	0.011	0.005	0.030
	(0.023)	(0.048)	(0.037)
R&D Intensity	3.750***	−4.339***	−0.546
	(0.677)	(1.635)	(0.849)
Leverage	−0.038***	0.467*	−0.019
	(0.009)	(0.278)	(0.153)
Cash Holdings	−0.702	1.354*	−0.123
	(0.759)	(0.762)	(0.444)
COV_Sales	−0.002	0.005***	0.000
	(0.001)	(0.002)	(0.001)
Avg. Ind. Investment	0.336***	0.036	0.000
	(0.045)	(0.070)	(0.045)
Uncertainty Index	0.099	0.194	−0.066
	(0.131)	(0.183)	(0.162)
GDP Growth	0.019	0.037***	0.008
	(0.009)	(0.016)	(0.011)
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Constant	0.018	5.098***	1.656**
	(0.588)	(0.886)	(0.716)
No. of obs	25,671	2144	2144

This table reports the regression results for match control firms identified using the propensity-matched approach. In column 1, dependent variable is investments. The other two proxies of corporate investments, project value and number of projects announced, are used as the dependent variables in columns 2 and 3, respectively. All other variables are defined in Appendix B. All firm-level characteristics are 1-year lagged values and all the regressions include firm and year fixed effects. Standard errors (clustered by firm) are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively.

political parties at least once.

In the regressions, we use PC as a dummy variable which takes the value of 1 if the firm is politically connected (based on MPs and donations as defined) and 0 otherwise.

We construct *internal capital market measures* using a firm's segment-level data, which captures the diversification level of the firms. We follow Billett and Mauer (2000) in constructing the assets-based measure of the internal capital market as follows:

$$\text{Internal CapitalM\_A} = \left(\frac{1}{A_s}\right)\sum_{i=1}^{N}\left(\frac{CF_i}{A_i} - \text{Ind}_i\left(\frac{CF}{A}\right)_{mf}\right) \times max\left[min\left(CAPEX_i – CF_i, CAPEX_i\right), 0\right], \tag{4}$$

$$\text{Internal CapitalM\_S} = \left(\frac{1}{S_s}\right)\sum_{i=1}^{N}\left(\frac{CF_i}{S_i} - \text{Ind}_i\left(\frac{CF}{S}\right)_{mf}\right) \times max\left[min\left(CAPEX_i – CF_i, CAPEX_i\right), 0\right]. \tag{5}$$

where Internal CapitalM_A is the assets-based measure of the internal capital market, and Internal CapitalM_S is sales based measure. N is the number of business segments, A_i or S_i is the assets or sales for segment *i*, A_s or S_s is the sum of assets or sales for the firm's segments, and CF_i is the *i*th segment's cash flow (earnings before interest and taxes ($EBIT_i$) plus depreciation). $\text{Ind}_i\,(CF/A)_{mf}$ is the ratio of cash flow to assets for the median single-segment firm in segment *i*'s industry, and CAPEX*i* is the *i*th segment's capital expenditure. [11] For $\text{Ind}_i\,(CF/S)_{mf}$, we use 4-digit National Industry Classification (NIC) codes provided there are at least five firms in the industry; otherwise, we use the 3-digit or the 2-digit NIC codes. Segment-level data are extracted from Prowess, available from 2001 onwards. In the regression, we use ICM as a dummy variable which takes a value of 1 if Internal CapitalM_A > 0 and 0 otherwise, or Internal CapitalM_S > 0 and 0 otherwise.

Table 9 presents the results of the internal capital market versus political connection channel analysis using direct measures. Panel A of Table 9 shows that political connections of family business groups lead to a significant increase in the investments by these firms

[11] It is important to note that following Billet and Mauer (2000) we do not allow excess capital expenditures ($CAPEX_i – CF_i$) to exceed total capital expenditures. Also, if the segment's capital expenditure (CAPEXi) is less than its own cash flow (CFi) then that segment is defined to have no excess capital expenditure ($CAPEX_i – CF_i$). We get positive, negative and zero value of internal capital market measures of our sample firms which is consistent with the mean values of internal capital market measures (positive, negative and zero) reported by Billet and Mauer (2000).

Table 7
Cash holdings.

Variables	Dependent variable: cash holdings
Election	0.353***
	(0.086)
Election * GA	−0.718***
	(0.151)
Ln(Cash Flow)	0.013
	(0.027)
Ln(Firm Size)	−0.019
	(0.027)
R&D Intensity	11.536***
	(1.938)
Leverage	0.034***
	(0.010)
Lag(Cash Holdings)	11.267***
	(4.309)
COV_Sales	0.002
	(0.002)
Avg. Ind. Investment	−0.067
	(0.044)
Uncertainty Index	0.221
	(0.154)
GDP Growth	0.037***
	(0.009)
Firm Fixed Efects	Yes
Year Fixed Effects	Yes
Constant	0.695
	(0.721)
No. of obs	39,270

This table examines the impact of state election on the cash holdings of group-affiliated and stand-alone firms. Cash Holdings is the ratio of cash and cash equivalents to total assets. All other variables are defined in Appendix B. All firm-level characteristics are one-year lagged values and all the regressions include firm and year fixed effects. ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively.

during elections, as seen in the triple interaction dummy term (*Election* × *PC* × *GA*), positive and significant. We show similar results for the ICM channel in Panels B and C of Table 9, as (*Election* × *ICM* × *GA*) is positive and significant in both panels.

Both channels (political connections and internal capital market) significantly contribute to large investments by group-affiliated family firms during political uncertainty. Therefore, it can be inferred that political connections help group-affiliated family firms obtain concessions during uncertain periods and make value-relevant investments instead of distortive investments.

5.4. Indirect measures

5.4.1. Public sector dependency

We first examine investments by group-affiliated and standalone family firms in firms dependent on the public sector. Firms dependent on or connected to the public sector are more likely to be influenced by politicians during election years. We classify firms into high- and low-public dependency groups. We consider firms in tobacco, pharmaceuticals, health care services, defense, petroleum and natural gas, telecommunications, transportation, agriculture products, medical equipment, and power industries as high-dependency and the rest as low-dependency firms (Amore and Minichilli, 2018).

Table 10 presents the results of this analysis. Panel A shows the analysis of the overall sample. To address the heterogeneity issue, we follow Drobetz et al. (2018), Attig et al. (2021), and El Ghoul et al. (2021) and carry out a subsample analysis for high versus low government-dependent firms using seemingly unrelated regressions (SUR). We also test for statistical differences between the coefficients of all variables for high- and low-government-dependent firms. Panel B of Table 10 reports the results of the subsample analysis of high-versus low-dependency firms. In Panel A, the main variable of interest was the triple interaction term (*Election* × *Dependence* × *GA*). Dependence is a dummy variable that takes the value of one for firms dependent on the public sector and zero otherwise. In Columns (1) and (2), we find that, although the (*Election* × *Dependence*) interaction term is not statistically significant but positive, in Column (3) the interaction term is negative but has weak significance (significant at 10%). One possible interpretation of this result is that governments in emerging markets such as India are more likely to pursue election period investments through state-owned enterprises (SOEs) rather than the private corporate sector. Consistent with this notion, Alok and Ayyagari (2020) show increased SOE investment during election years.

In Columns (1), (2), and (3), we find that the (*Election* × *Dependence* × *GA*) interaction term is positive and significant, suggesting that group-affiliated family firms invest more than standalone family firms in firms that are dependent on the public sector. Panel B shows that the interaction term (*Election* × *GA*) is positive and statistically significant for both high- and low-dependency firms.

Table 8
Impact of state elections and group affiliation on investment.

Variables	Dependent variable: investment	Dependent variable: project value	Dependent variable: project announced	Dependent variable: investment	Dependent variable: project value	Dependent variable: project announced
	Panel A: Impact of elections on investment			Panel B: Impact of group affiliation on investment		
	(1)	(2)	(3)	(4)	(5)	(6)
Election	−0.059***	−0.019**	−0.028			
	(0.014)	(0.008)	(0.060)			
GA				0.372***	1.174***	0.310***
				(0.100)	(0.123)	(0.080)
Ln(Cash Flow)	0.009	0.069*	0.000	0.004	0.046	−0.006
	(0.018)	(0.043)	(0.034)	(0.018)	(0.040)	(0.034)
Ln(Firm Size)	0.016	0.021	0.026	0.014	0.020	0.026
	(0.020)	(0.042)	(0.032)	(0.020)	(0.038)	(0.032)
R&D Intensity	3.322***	−4.799***	−0.099	3.182***	−4.437***	−0.002
	(0.827)	(1.481)	(0.771)	(0.800)	(1.371)	(0.784)
Leverage	−0.043***	0.453*	−0.040	−0.043***	0.369	−0.064
	(0.009)	(0.256)	(0.140)	(0.009)	(0.239)	(0.138)
Cash Holdings	0.181	0.979	−0.193	0.190	0.898	−0.215
	(0.779)	(0.669)	(0.374)	(0.777)	(0.663)	(0.376)
COV_Sales	−0.001	0.003**	0.001	−0.001	0.007***	0.001
	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)
Avg. Ind. Investment	0.492***	0.079	0.010	0.480***	0.019	−0.007
	(0.118)	(0.057)	(0.037)	(0.120)	(0.054)	(0.036)
Uncertainty Index	0.238	0.210	−0.043	0.245	0.114	−0.068
	(0.270)	(0.159)	(0.122)	(0.268)	(0.150)	(0.122)
GDP Growth	0.004	0.024*	0.011	0.005	0.031**	0.013
	(0.008)	(0.014)	(0.010)	(0.008)	(0.014)	(0.010)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.365	5.157***	1.533***	−0.556	4.755***	1.420***
	(1.027)	(0.774)	(0.559)	(1.007)	(0.732)	(0.553)
No. of obs	39,270	2616	2616	39,270	2616	2616

This table reports the regression results to examine the independent impact of external factor (elections) and internal factor (group affiliation) on the investment activity of firms. Panel A shows the impact of state elections on investment and Panel B shows the impact of group affiliation on investment. The dependent variable is investments in columns 1 & 4, project value in columns 2 & 4 and number of project announced in columns 3 & 6. All other variables are defined in Appendix B. All firm-level characteristics are 1-year lagged values and all the regressions include firm and year fixed effects. Standard errors (clustered by firm) are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively.

However, using SUR, we test for the difference between the interaction term of high- and low-dependent firms and find that the coefficient of the interaction term is significantly higher for highly dependent firms than for low-dependent firms. This result reconfirms our results in Panel A and shows that group-affiliated family firms invest more than standalone family firms in firms dependent on the public sector. Overall, the evidence in this section supports the political connection channel. We attempt to understand whether such an increase in investments is driven by political pressure or economic reasoning by examining investments, operating performance, and the market in the following three subsections.

5.4.2. Post-election investments

Next, we examine investments in the post-election years. If election-year investments are driven by politicians trying to influence the economy through the private sector, particularly family business groups, then we should observe a decline in investments among group-affiliated firms in the post-election year. Therefore, we use the following specification to examine post-election investment:

$$Y_{ijt} = \propto_i + \beta_1 Election_{jt} + \beta_2 GA_{it} + \beta_3 \left(Election_{jt} \times GA_{it}\right) + \beta_4 Post\_Election\_Year_{jt} + \beta_5 \left(Post\_Election\_Year_{jt} X \, \mathrm{GA}_{it}\right) + \gamma' Controls_{it} + \epsilon_{ijt} \quad (6)$$

where *Y* is the dependent variable investment, project value, and the number of projects announced by firm *i* in state *j* at time *t*. *Post_Election_Years* is a dummy variable that takes the value of one for years 1 and 2 after the election and zero for years before the election year. Our variable of interest here is the interaction between the post-election year and the group-affiliation dummy ($Post\_Election\_Year_{jt} \times GA$).As controls, we include cash flow, firm size, R&D intensity, leverage, cash holdings, revenue uncertainty, average industry investment, the uncertainty index, and state-level GDP growth. Additionally, we include firm- and year fixed effects, and standard errors are clustered at the firm level. Panel A of Table 11 presents the analysis results, indicating that family business groups do not experience any investment drop. Investments by group-affiliated family firms continue to be significantly higher than in standalone family firms in the post-election year using all three measures of corporate investment: investment, project value, and the

Table 9
Politically connected firms and internal capital market analysis.

Variables	Dependent variable: investment	Dependent variable: project value	Dependent variable: project announced	Dependent variable: investment	Dependent variable: project value	Dependent variable: project announced	Dependent variable: investment	Dependent variable: project value	Dependent variable: project announced
	Panel A: Political Connections			Panel B: ICM Analysis (Measure based on Assets)			Panel C: ICM Analysis (Measure based on Sales)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Election	−0.193***	−0.791***	−0.219***	−0.183***	−0.813***	−0.247***	−0.183***	−0.796***	−0.225***
	(0.053)	(0.136)	(0.069)	(0.051)	(0.138)	(0.073)	(0.051)	(0.140)	(0.074)
Election * GA	0.377***	1.228***	0.305***	0.354***	1.264***	0.772	0.355***	1.234***	0.314***
	(0.090)	(0.178)	(0.102)	(0.088)	(0.178)	(0.638)	(0.088)	(0.179)	(0.101)
PC	0.181	−0.299	0.053						
	(0.216)	(0.215)	(0.160)						
PC * GA	−0.007	1.375***	0.259						
	(0.262)	(0.334)	(0.283)						
Election * PC	0.210	−0.945**	0.072						
	(0.171)	(0.483)	(0.294)						
Election * GA * PC	0.437**	1.342***	0.115						
	(0.209)	(0.574)	(0.402)						
ICM				0.831***	0.578	0.340***	0.657***	0.099	0.431
				(0.159)	(0.493)	(0.100)	(0.131)	(0.361)	(0.359)
ICM * GA				−0.251	0.678	−0.412	−0.162	1.173***	0.161
				(0.193)	(0.709)	(0.719)	(0.152)	(0.502)	(0.411)
Election * ICM				−0.065	−0.194	0.024	0.030	0.249	−0.203
				(0.181)	(0.518)	(0.757)	(0.141)	(0.448)	(0.402)
Election * GA * ICM				0.279***	0.988***	0.190*	0.252**	0.623***	0.203*
				(0.063)	(0.347)	(0.107)	(0.119)	(0.212)	(0.116)
Ln(Cash Flow)	0.008	0.054	−0.005	0.008	0.067*	−0.001	0.008	0.066	−0.001
	(0.018)	(0.040)	(0.033)	(0.018)	(0.042)	(0.034)	(0.018)	(0.042)	(0.034)
Ln(Firm Size)	0.015	0.019	0.026	0.015	0.018	0.025	0.015	0.020	0.025
	(0.020)	(0.040)	(0.032)	(0.020)	(0.041)	(0.032)	(0.020)	(0.041)	(0.032)
R&D Intensity	3.267***	−4.247***	0.024	3.268***	−4.573***	−0.036	3.290***	−4.381***	0.091
	(0.818)	(1.424)	(0.755)	(0.821)	(1.455)	(0.781)	(0.823)	(1.444)	(0.769)
Leverage	−0.043***	0.343	−0.072	−0.043***	0.456*	−0.041	−0.043***	0.398*	−0.069
	(0.009)	(0.247)	(0.141)	(0.009)	(0.248)	(0.139)	(0.009)	(0.240)	(0.134)

(*continued on next page*)

Table 9 (*continued*)

Variables	Dependent variable: investment	Dependent variable: project value	Dependent variable: project announced	Dependent variable: investment	Dependent variable: project value	Dependent variable: project announced	Dependent variable: investment	Dependent variable: project value	Dependent variable: project announced
	Panel A: Political Connections			Panel B: ICM Analysis (Measure based on Assets)			Panel C: ICM Analysis (Measure based on Sales)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cash Holdings	0.181	0.865	−0.246	0.181	1.025	−0.175	0.180	1.018	−0.172
	(0.779)	(0.655)	(0.371)	(0.779)	(0.654)	(0.372)	(0.779)	(0.649)	(0.370)
COV_Sales	−0.001	0.005***	0.001	−0.001	0.005***	0.001	−0.001	0.004***	0.001
	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)
Avg. Ind. Investment	0.489***	0.064	0.004	0.490***	0.070	0.006	0.489***	0.070	0.007
	(0.119)	(0.055)	(0.036)	(0.119)	(0.056)	(0.037)	(0.119)	(0.056)	(0.037)
Uncertainty Index	0.242	0.195	−0.046	0.241	0.188	−0.044	0.240	0.177**	−0.053
	(0.269)	(0.157)	(0.123)	(0.270)	(0.160)	(0.123)	(0.270)	(0.160)	(0.123)
GDP Growth	0.003	0.024*	0.011	0.003	0.024*	0.011	0.003	0.025	0.011
	(0.008)	(0.014)	(0.010)	(0.008)	(0.014)	(0.009)	(0.008)	(0.013)	(0.009)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.391	5.154***	1.523***	−0.377	5.230***	1.531***	−0.3818	5.230***	1.550***
	(1.021)	(0.756)	(0.562)	(1.027)	(0.776)	(0.565)	(1.026)	(0.774)	(0.565)
No. of obs	39,270	2616	2616	39,270	2616	2616	39,270	2616	2616

This table reports the regression results of the specification of Table 3 along with the impact of state election for politically connected firms (Panel A) and the firms that have internal capital markets (Panel B). Panel B1 has ICM measure based on assets and Panel B2 has ICM measure based on sales. A firm is defined as politically connected using two parameters: donation given by firms to political parties and members of Parliament sitting on firm's board. PC takes the value of 1 if the firm is politically connected and 0 otherwise. ICM_A/ICM_S takes the value of 1 if Internal CapitalM_A/Internal CapitalM_S > 0 and 0 otherwise. The dependent variable in column (1) is investments, in column (2) it is the project value and in column (3) it is the number of projects announced. All other variables are defined in Appendix B. All firm-level characteristics are 1-year lagged values and all the regressions include firm and year fixed effects. Standard errors (clustered by firm) are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively.

Table 10
Dependence on public sector.

Variables	Dependent Variable: Investment	Dependent Variable: Project Value	Dependent Variable: Project Announced	Dependent Variable: Investment	Dependent Variable: Investment	Dependent Variable: Project Value	Dependent Variable: Project Value	Dependent Variable: Project Announced	Dependent Variable: Project Announced
	Panel A: Overall analysis			Panel B: Subsample analysis					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All	All	All	High	Low	High	Low	High	Low
Election	−0.255***	−0.748***	−0.214***	−0.499***	−0.187**#	−0.888***	−0.694***	−0.490***	−0.199@
	0.060	0.141	0.077	0.056	0.097	0.168573	0.149693	0.147758	0.096774
Election * GA	0.413***	1.054***	0.271***	0.912***	0.417***#	1.903***	1.048***#	0.552***	0.301**
	0.099	0.177	0.107	0.087	0.147	0.20399	0.179364	0.178801	0.115955
Dependence	0.0612	−0.440**	−0.273***						
	0.141	0.221	0.084						
Dependence * GA	0.567***	1.519***	0.734***						
	0.173	0.356	0.297						
Election * Dependence	0.1826	0.3853	−0.249*						
	0.125	0.338	0.136						
Election * GA * Dependence	0.391**	0.080**	0.309**						
	0.168	0.038	0.183						
Ln(Cash Flow)	0.009	0.062*	−0.0005	−0.008	0.018	0.116***	0.064***@	−0.041**	0.012***$
	0.018	0.035	0.031	0.011	0.018	0.021877	0.020898	0.019175	0.01351
Ln(Firm Size)	0.0188	0.0108	0.02	0.023**	0.010	0.106***	−0.013#	0.099***	0.010#
	0.020	0.034	0.029	0.010	0.017	0.020606	0.02038	0.018061	0.013175
R&D Intensity	2.923***	−5.039***	−0.2346	1.535***	1.795**	−12.740***	−4.154***#	−3.680***	0.199#
	0.804	1.416	0.761	0.385	0.796	0.928758	0.870516	0.814075	0.562772
Leverage	−0.011**	0.3381	−0.0681	−0.046***	−0.034***@	−1.220***	0.729***#	−0.575***	0.019#
	0.006	0.252	0.142	0.003	0.007	0.215724	0.175885	0.189087	0.113706
Cash Holdings	−0.0997	0.6982	−0.3422	−0.057	1.522***#	0.351142	0.991**	−0.912**	−0.04309
	0.786	0.653	0.389	0.063	0.288	0.52406	0.516131	0.459349	0.333669
COV_Sales	−0.001	0.005***	0.0009	0.000	0.002	−0.00056	0.002543	−0.00211	0.002**#
	0.001	0.002	0.001	0.001	0.001	0.001596	0.00171	0.001399	0.001105
Avg. Ind. Investment	0.508***	0.0744	0.009	0.396***	0.619***#	0.383***	−0.033#	0.138***	−0.02081
	0.119	0.054	0.039	0.013	0.025	0.03367	0.031831	0.029513	0.020#
Uncertainty Index	0.1028	0.1499	−0.0794	0.081***	0.157***	1.719***	1.255***#	0.397***	0.266***#
	0.270	0.158	0.126	0.018	0.031	0.03934	0.03941	0.034482	0.025478
GDP Growth	−0.0004	0.026***	0.0117	−0.014***	−0.001$	−0.01113	0.056***#	0.008638	0.020***
	0.008	0.014	0.009	0.006	0.010	0.01277	0.011386	0.011193	0.007361
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.2233	5.497***	1.726***	0.000	−0.002	0.003	0.044	0.002	0.008
	1.027	0.750	0.585	0.008	0.068	0.017	0.076	0.015	0.049
No. of obs	39,270	2616	2616	6944	32,326	466	2150	466	2150

This table reports the regression results of the specification of Table 3 along with the impact of state election on the firms with high dependence on the public sector. Dependence is a dummy variable which takes the value of 1 for high public sector dependence firms and 0 for low dependence firms. Panel A shows the overall analysis and Panel B shows subsample analysis – for high vs. low dependence firms. In Panel A, the dependent variable in column (1) is investments, in column (2) it is the project value and in column (3) it is the number of projects announced where as in Panel B, the dependent variable in columns (4) and (5) is investments, in columns (6) and (7), it is the project value and in columns (8) and (9), it is projects announced. All other variables are defined in Appendix B. All firm-level characteristics are 1-year lagged values and all the regressions include firm and year fixed effects. Standard errors (clustered by firm) are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. In Panel B, we also report statistical difference test of coefficients between high and low dependence firms based on seemingly unrelated regressions (SUR) where #, $ and @ indicate statistical significance at 1%, 5% and 10%.

Table 11
Post-election firm investment, profitability & growth and stock market performance.

	Panel A: Post-election Investment			Panel B: Post-election Firm Profitability and Growth						Panel C: Post-election stock market performance
	Dependent Variable									
	Investment	Project Value	Project Announced	Ln (Sales/ Assets)	Sales Growth	ROA	ROCE	EBITDA/ TA	Net Income/ Sales	MB
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Election	−0.198***	−0.834***	−0.245***	−0.143***	−3.009***	−0.381	−0.195	−0.582***	−0.044***	−0.105***
	(0.056)	(0.138)	(0.074)	(0.037)	(0.840)	(0.248)	(0.218)	(0.129)	(0.006)	(0.020)
Election * GA	0.355***	1.262***	0.326***	0.242***	2.218*	1.008***	0.360	1.214***	0.094***	0.279***
	(0.088)	(0.175)	(0.098)	(0.076)	(1.274)	(0.401)	(0.433)	(0.247)	(0.012)	(0.039)
Post_Election_Year	−0.201***	−0.662***	−0.167	−0.175***	−3.337***	−0.354	−0.299	−0.581***	−0.035***	−0.128***
	(0.053)	(0.167)	(0.113)	(0.038)	(0.850)	(0.242)	(0.218)	(0.129)	(0.007)	(0.020)
Post_Election _Year × GA	0.417***	1.003***	0.222*	0.258***	2.108*	0.688*	0.341	0.910***	0.081***	0.325***
	(0.090)	(0.205)	(0.130)	(0.076)	(1.306)	(0.403)	(0.422)	(0.246)	(0.013)	(0.042)
Ln(Cash Flow)	0.007	0.064	−0.001	0.013	0.400**	0.189***	0.141**	0.084**	0.004*	0.011
	(0.018)	(0.041)	(0.034)	(0.014)	(0.208)	(0.068)	(0.075)	(0.042)	(0.002)	(0.008)
Ln(Firm Size)	0.015	0.018	0.025	0.013	−0.042	−0.088	−0.063	−0.049	0.000	0.008
	(0.020)	(0.040)	(0.032)	(0.014)	(0.207)	(0.066)	(0.074)	(0.040)	(0.002)	(0.008)
R&D Intensity	3.246***	−4.698***	−0.073	9.619***	68.588***	26.056***	45.202***	30.491***	0.843***	3.879***
	(0.816)	(1.432)	(0.779)	(1.131)	(8.361)	(5.979)	(6.313)	(4.503)	(0.135)	(0.840)
Leverage	−0.043***	0.429*	−0.039	−0.005**	−0.075*	−0.075**	−0.054*	−0.014**	−0.001*	−0.011***
	(0.009)	(0.248)	(0.139)	(0.003)	(0.042)	(0.040)	(0.034)	(0.007)	(0.001)	(0.003)
Cash Holdings	0.183	0.955	−0.204	−0.429**	−5.426	2.700**	3.840**	1.374**	0.018	0.161*
	(0.779)	(0.669)	(0.381)	(0.203)	(3.628)	(1.265)	(1.686)	(0.718)	(0.022)	(0.094)
COV_Sales	−0.001	0.005***	0.001	−0.006***	0.188***	−0.031***	−0.027***	−0.023***	−0.001***	0.001***
	(0.001)	(0.002)	(0.001)	(0.001)	(0.015)	(0.004)	(0.004)	(0.002)	(0.000)	(0.000)
Avg. Ind. Investment	0.488***	0.054	0.003	0.238***	2.101***	1.000***	0.933***	0.991***	0.028***	0.100***
	(0.119)	(0.056)	(0.037)	(0.025)	(0.315)	(0.112)	(0.123)	(0.067)	(0.004)	(0.011)
Uncertainty Index	0.232	0.188	−0.054	−0.165***	2.308*	0.585	0.106	−0.284	0.006	−0.327***
	(0.268)	(0.158)	(0.122)	(0.059)	(1.354)	(0.410)	(0.414)	(0.253)	(0.011)	(0.043)
GDP Growth	0.005	0.027**	0.012	−0.001	0.352***	0.053**	0.091***	0.027**	−0.001	0.011***
	(0.008)	(0.014)	(0.010)	(0.004)	(0.087)	(0.027)	(0.025)	(0.014)	(0.001)	(0.002)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.331	5.241***	1.582***	1.722***	5.870	−1.339	1.632	13.680***	0.016	2.296***
	(1.018)	(0.758)	(0.562)	(0.294)	(6.369)	(2.019)	(2.052)	(1.228)	(0.051)	(0.208)
No. of obs	39,270	2616	2616	39,270	39,270	39,270	39,270	39,270	39,270	39,270

This table examines the post-election investment, profitability and stock market performance. Panels A, B and C show the results of post-election investment, profitability & growth and stock market performance. *Post_Election_Year* is a dummy variable that takes the value of 1 for the year after the state election. The table reports the results of regression in which the dependent variable is Investment in column 1 and the main explanatory variables are State Election; interaction between State Election and GA; State Post Election Year; and interaction between State Post Election Year and GA. The other two proxies of corporate investments, project value and number of projects announced, are used as the dependent variables in columns 2 and 3, respectively. All other variables are defined in Appendix B. All firm-level characteristics are one-year lagged values and all the regressions include firm and year fixed effects. Standard errors (clustered by firm) are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively.

number of projects announced, in Columns (1), (2), and (3), respectively. These results reiterate that business group family firms are unlikely to have made distortive investments to favour politicians in their re-election bids during election years.

5.4.3. Post-election operating performance

Next, we compare the post-election operating outcomes for group-affiliated and standalone family firms. We examine two measures of revenue (sales revenue as a fraction of total assets and annual sales growth) and four measures of profitability (return on assets [ROA], return on capital employed [ROCE], EBIDTA to total assets, and net income to sales) in the post-election years. We use the following specification to examine the post-election performance.

$$Y_{ijt} = \propto_i + \beta_1 Election_{jt} + \beta_2 GA_{it} + \beta_3 \left(Election_{jt} \times GA_{it}\right) + \beta_4 Post\_Election\_Year_{jt} + \beta_5 \left(Post\_Election\_Year_{jt} X GA_{it}\right) + \gamma' Controls_{it} + \epsilon_{ijt} \quad (7)$$

where *Y* is the dependent variable that captures the revenue, revenue growth, or profitability of firm *i* in state *j* at time *t*. *Post_Election_Years* is a dummy variable that takes the value of one for years 1 and 2 after the election and zero for years before the election year. The variable of interest here is the (*Post_Election_Years X GA*) interaction term. As controls, we include cash flow, firm size, R&D intensity, leverage, cash holdings, revenue uncertainty, average industry investment, the uncertainty index, and state-level GDP growth. We include firm- and year-fixed effects, and the standard errors are clustered at the firm level. Panel B of Table 11 reports the results.

We find that group-affiliated family firms experience positive sales growth and better asset utilisation in post-election years. Similarly, we observe that all profitability measures are positive and statistically significant, suggesting that the operating and net profitability of the group-affiliated family firms are significantly higher than those of standalone family firms in the post-election years.

5.4.4. Post-election stock market performance

Finally, we examine the impact of election-year investments on the market performance of group-affiliated and standalone family firms in the post-election years. If business group family firms can withstand political uncertainty and invest in profitable projects during election years, these projects may positively contribute to firms' stock market performance. To test this conjecture, we used the market-to-book ratio as a proxy for market performance. We use the following specification to examine post-election performance.

$$Y_{ijt} = \propto_i + \beta_1 Election_{jt} + \beta_2 GA_{it} + \beta_3 \left(Election_{jt} \times GA_{it}\right) + \beta_4 Post\_Election\_Year_{jt} + \beta_5 \left(Post\_Election\_Year_{jt} X GA_{it}\right) + \gamma' Controls_{it} + \epsilon_{ijt} \quad (8)$$

where *Y* is the dependent variable that captures the market performance (market-to-book ratio) of firm *i* in state *j* at time *t*. *Post_Election_Years* is a dummy variable that takes the value of one for years 1 and 2 after the election and zero for years before the election year. As before, our main variable of interest is the (*State Election X GA*) interaction term. As controls, we include cash flow, firm size, R&D intensity, leverage, cash holdings, revenue uncertainty, average industry investment, the uncertainty index, and state-level GDP growth. We include firm- and year-fixed effects, and standard errors are clustered at the firm level. The results are presented in Panel C of Table 11, where Column (10) reports the results for the first year after the election and Column (11) for the second year after the elections. The market-to-book ratio decreases for firms in the first and second years after an election, as indicated by the negative coefficient of $Post\_Election\_Year_{jt}$ in Columns (10) and (11). However, as shown in Column 10, the ($Post\_Election\_Year_{jt} \times GA_{it}$) interaction dummy is positive and significant, suggesting that group-affiliated family firms command a higher increase in firm valuation than standalone family firms 1 year after the state elections. This result supports our hypothesis that group-affiliated family firms are subject to less political uncertainty and benefit from continued investment during election years. We observe similar results for the 2-year post-election analyses, as reported in Column (11).

Overall, we observe higher investments by group-affiliated family firms in public sector-dependent firms. However, the post-election investments and operating performance strongly suggest that investments are less likely due to political pressure and more likely due to their ability to withstand political uncertainty because of internal capital markets or the group support during election years.

6. Conclusion

Using staggered state election data from India, we examine how family business groups invest relative to standalone family firms during periods of political uncertainty. Given the unique characteristics of group-affiliated firms, we argue that these firms should be in a stronger position to withstand political uncertainty. More specifically, we hypothesise that the presence of internal capital markets and their access to politicians should lead group-affiliated family firms to invest differently than standalone family firms. Internal capital markets that allow group-affiliated family firms to obtain internal finance would be important during election years when a crowding-out effect due to increased government spending puts significant constraints on external financing for private firms. Moreover, political connections can be cut both ways. On the one hand, incumbents may try to influence business groups to make investments beneficial for them but distortive to the firms. On the other hand, business groups could obtain important concessions during uncertain periods and make value-relevant investments.

Using a sample of around 40,000 family firm-year observations and three different measures of investments (change in fixed assets, the value of new projects, and the number of new projects announced), we also document a significant negative impact of political uncertainty on firm-level investments. Although consistent with Amore and Minichilli (2018), family firms invest significantly more than non-family firms. We also observe that not all family firms make significant investments during election years. We find that investments by group-affiliated family firms are significantly higher than those by standalone family firms, supporting our hypothesis. Our results are robust to a battery of tests, including instrumental variable regressions. Cash holdings in group-affiliated firms are significantly lower during election years than in standalone family firms.

We perform several additional tests to identify whether the internal capital markets or the political connections channel drives the results. Overall, the results do not provide evidence of distortive investments by group-affiliated firms during the election years. First, we find that the investments by group-affiliated family firms that are more dependent on the public sector are relatively higher than those by standalone family firms. We find support for the internal capital market and political connections channels using direct measures also. We show that the investment by group-affiliated family firms is significantly higher compared to standalone family firms in the internal capital market and political connections setting. Second, investments by group-affiliated family firms do not decline in the post-election year, something we would observe if election or pre-election investments were distortive. Finally, the post-election market and operating performance of group-affiliated family firms are significantly superior to those of standalone family firms. As both channels (political connections and internal capital market) significantly contribute to large investments by group-affiliated family firms during political uncertainty, political connections help group-affiliated family firms obtain concessions during uncertain periods. However, internal capital markets and group support help them withstand political uncertainty and make value-relevant investments instead of distortive investments.

Authorship statement

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated sufficiently in the work to take public responsibility for the content, including participation in the concept, design, analysis, writing, or revision of the manuscript. Furthermore, each author certifies that this material or similar material has not been and will not be submitted to or published in any other publication before its appearance in the Emerging Markets Review Journal.

Authorship contributions

Conception and design of study: Kavita Wadhwa.
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Analysis and/or interpretation of data: Sudhakara Reddy Syamala.
Drafting the manuscript: Sudhakara Reddy Syamala.
Revising the manuscript critically for important intellectual content: Kavita Wadhwa and Sudhakara Reddy Syamala.

Acknowledgements

All persons who have made substantial contributions to the work reported in the manuscript (e.g., technical help, writing and editing assistance, general support), but who do not meet the criteria for authorship, are named in the Acknowledgements and have given us their written permission to be named. If we have not included an Acknowledgements, then that indicates that we have not received substantial contributions from non-authors.

Appendix A. Timing of state legislative elections in India

State	Years	Number
Andhra Pradesh	2004, 2009, 2014	4
Arunachal Pradesh	2004, 2009, 2014	4
Assam	2001, 2006, 2011, 2016	5
Bihar	2005, 2010, 2015	5
Chhattisgarh	2003, 2008, 2013	3
Delhi	2003, 2008, 2013, 2015	5
Goa	2002, 2007, 2012, 2017	5
Gujarat	2002, 2007, 2012, 2017	5
Haryana	2005, 2009, 2014	5
Himachal Pradesh	2003, 2007, 2012, 2017	5
Jammu and Kashmir	2002, 2008, 2014	4
Jharkhand	2005, 2009, 2014	4
Karnataka	2008, 2004, 2013	4
Kerala	2001, 2006, 2011, 2016	5
Madhya Pradesh	2003, 2008, 2013	4
Maharashtra	2004, 2009, 2014	5

(*continued on next page*)

(*continued*)

State	Years	Number
Manipur	2002, 2007, 2012, 2017	5
Meghalaya/Mizoram/Nagaland	2003, 2008, 2013	12
Odisha	2004, 2009, 2014	5
Puducherry	2001, 2006, 2011, 2016	5
Punjab	2002, 2007, 2012, 2017	5
Rajasthan	2003, 2008, 2013	4
Sikkim	2004, 2009, 2014	4
Tamil Nadu	2001, 2006, 2011, 2016	5
Telangana	2014	1
Tripura	2003, 2008, 2013	4
Uttar Pradesh	2002, 2007, 2012, 2017	5
Uttarakhand	2002, 2007, 2012, 2017	4
West Bengal	2001, 2006, 2011, 2016	5
Total		106

Appendix A indicates the years in which state elections took place in India between 2001 and 2017.

Appendix B. Description of the variables used in the study

Variables	Definition
Avg. Ind. Investment	The average investment in 2-digit industry by year.
Cash Holdings	Cash Holdings is ratio of cash and cash equivalents to total assets.
COV_Sales	COV_Sales denotes revenue uncertainty which measures firm level uncertainty and is the coefficient of variation of firm's revenue.
Dependence	Dependence is a dummy variable which takes the value 1 if the firm belongs to an industry which is considered to be highly dependent on the public sector and 0 otherwise. We consider firms in tobacco, pharmaceuticals, health care services, defense, petroleum & natural gas, telecommunications, transportation, agriculture products, medical equipment and power industries as high dependency industries.
EBITDA/TA	Earnings before interest, tax, depreciation, and amortization divided by total assets.
Election	Election is a dummy variable that takes the value of 1 for the fiscal year (April 1 of year t-1 to March 31 of year t) associated with the calendar year t in which state elections took place. For example, the Election dummy takes the value of 1 for fiscal year beginning April 1, 2010, and ending March 31, 2011 for any state election held in the calendar year 2011.
Family firm (FAM)	FAM is a dummy variable that takes the value of 1 if the firm is a family firm and 0 otherwise. We consider a firm to be a family firm if it satisfies two conditions: (1) promoters (founders) hold at least 20% of the firm and (ii) a promoter is present on the board of directors.
GDP Growth	GDP Growth is state-wise annual growth of gross domestic product (GDP).
Group-affiliation (GA)	Group-affiliation (GA) is a dummy variable that takes the value of 1 if the firm is a group-affiliated firm and 0 if the firm is a stand-alone firm. We classify firms into group-affiliated and stand-alone firms based on CMIE's Prowess database classification.
Investment	Investment is computed as annual change in net fixed assets plus annual depreciation scaled by the beginning total assets.
ICM	ICM is a dummy variable which takes value 1 if Internal CapitalM_A (based on assets)[a] or Internal CapitalM_S (based on sales)[b] >0 and 0 otherwise.
Leverage	Leverage is the ratio of debts to total assets.
Ln (Age)	Ln (Age) is the natural logarithm of firm's age.
Ln (Cash Flow)	Ln (Cash Flow) is the natural logarithm of profits before interest, tax, depreciation and amortization.
Ln (Firm Size)	Ln (Firm Size) is the natural logarithm of firm's sales.
Market to Book (MB)	MB is the ratio of market value of equity to book value of equity.
Net Income/Sales	Profit after tax divided by sales.
Placebo_Election	Placebo Election is a dummy variable which takes the value of 1 for 1 year prior to a state election year and 0 for 2 years prior to the election year.
Post_Election_Year	Post_Election_Year is a dummy variable that takes the value 1 for the first year after the election and 0 otherwise.
Post_Election_Years	Post_Election_Years is a dummy variable that takes the value of 1 for the first and second year after the election, and 0 for years prior to the election year.
Post Election_1	Post Election_1 period refers to 1 year after the election year.
Post Election_2	Post Election_2 period refers to 2 years after the election year.
Pre Election_1	Pre Election_1 period refers to 1 year before the election year.
Pre Election_2	Pre Election_2 period refers to 2 years before the election year.
Project Announced	Project Announced is the total number of capital expenditure projects announced by the firm as captured by CMIE's CAPEX database.
Project Value	Project Value is the log of the total cost of projects announced by the firm as captured by CMIE's CAPEX database.
PC	PC is a dummy variable which takes value 1 the firm is politically connected and 0 otherwise.
R & D Intensity	R&D Intensity is the ratio of research, development and advertising expenses to total assets.
ROA	Return on assets is profit after tax divided by total assets.
ROCE	Return on capital employed is operating profit (earnings before interest and tax) divided by capital employed.
Sales/Assets	Ratio of sales to total assets.
Sales Growth	Difference of current year sales and previous year sales scaled by previous year sales.
Scheduled_Election	Scheduled Election dummy variable that takes the value of 1 if 5 years have passed since the last election and 0 otherwise.
Uncertainty Index	Uncertainty Index is computed as the annual Indian average of uncertainty index developed by Baker et al. (2016).

[a] The computation of Internal CapitalM_A is given in Section 5.1.
[b] The computation of Internal CapitalM_S is given in Section 5.1.

Appendix C

In this appendix, we show the typical structure of some of the prominent Indian business groups with respect to their group firms. Although this study considers listed business group firms, this table gives a fair idea of the number of listed and unlisted firms in a typical business group.

Table C1
Ownership structure of select business groups in India.

Business group	No. of listed firms	No. of unlisted firms	Total No. of firms
Bajaj Group	12	60	72
Dalmia Group	5	62	67
HCL Group	4	36	40
IFB Group	3	10	13
India Cement Group	2	17	19
MRF Group	1	3	4
NICCO Group	3	12	15
Oswal Agro Group	3	3	6
Reliance Group [Mukesh Ambani]	3	146	149
Tata Group	28	292	320
Thapar Group	6	40	46
Videocon Group	3	30	33
WIPRO Group	1	22	23
Total	74	733	807

This table shows the ownership structure (number of listed and unlisted frims) of few prominient Indian business groups as on 31st March, 2017. Although data of our study includes only listed firms, the following information is provided just to have a fair idea on the ownership structure of business groups in India.

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