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POLITICAL DONATIONS AND POLITICAL RISK IN THE UK: EVIDENCE FROM A CLOSELY-FOUGHT ELECTION

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Abstract

UK regulation discourages corporate political donations but is relatively benign in respect of individual donations. Few UK listed companies make political donations but many more company directors do. We use a unique, hand-collected dataset of political donations to examine whether UK corporate political connections are perceived as being created indirectly *via* directors' personal donations. Basing our tests on the sensitivity of company returns to opinion polls preceding the 2010 General Election we find evidence that, for firms within a set of industries which donate only to the Conservative Party, employing a donating director is associated with a higher sensitivity to the electoral success of the Conservatives. The small sample size means that this evidence must be seen as no more than suggestive. We justify basing our inferences on return sensitivity to polls by confirming that UK domestic political risk, as proxied by opinion poll changes, is priced around General Elections.

JEL classifications: G12, G14

Keywords: political risk; political donations; event studies

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1 INTRODUCTION

The existence of ties between politicians and the corporate world is not a new phenomenon and there is a growing body of research which investigates links between politics and stock markets. Early work, such as Jayachandran, 2006, suggests that domestic political risk is priced; evidence supported by subsequent research such as Boutchkova *et al*., 2012 and Belo *et al*., 2013, which links the cash flow variability of individual firms or industries to government activities. More recently, attention has turned to the sources and value of corporate political connections.

One of the most-frequently analysed sources of connection, particularly in the US, is corporate political donations. Such donations represent a significant proportion of political finance in the US and there is mounting evidence that they contribute to corporate value. For example Cooper *et al*., 2010, find that corporate donations made in the US to political candidates and parties affect both share returns and future profitability (see also Claessens *et al*., 2008 and Akey, 2015).

The US political finance framework contrasts sharply with that of the UK, where regulation discourages corporate political contributions.[1] Conversely, the UK system is relatively benign in respect of individual contributions: while US federal law restricts the amounts that individuals can contribute to each political party or candidate, there is no such limit in the UK. Only 6% of the 300 largest listed UK companies donated to the two main political parties – Conservatives and Labour – in the period between 2005 and 2010, but 17% of these companies employed at least one director who made a personal contribution to these parties.[2] And while total corporate political donations from these 300 companies amounted to less than £500,000 over the period, their directors donated about £2.4 million.[3]

[1] UK companies must obtain shareholder approval for political donations in excess of £5,000 during any 12-month period and all political contributions over £200 must be disclosed in the directors' report in the annual financial statements.

[2] This compares with about 10% of US companies which make political donations via their PACs (see Cooper *et al*., 2010 and Alfonso, 2016).

[3] These amounts may seem small but, unlike the US, political parties' campaign expenditure in the UK is capped. For 2010 the maximum expenditure during the year preceding the polling date was £19.5 million per party (Electoral Commission, 2011, p2). Contributions from privately-held companies were considerably higher than from listed companies and their directors.

An intriguing question is whether the different regulatory frameworks that apply to political finance in the US and UK have implications for the roles played by corporate and individual donations. In particular, since the contribution made by UK listed companies is so slight, might it be that political donations made by their directors are viewed as surrogate corporate donations? This paper investigates these questions and, to our knowledge, is the first to do so.

To do this we use a unique, hand-collected dataset of political contributions made by directors of UK companies, data available only since 2001. Figure 1 summarises the sources of political finance for the two main UK parties between 2005 and 2010, and shows that the Conservatives, traditionally more pro-business, have greater access to funds. Almost half of their donations (£65 million out of £133 million) came from individuals, a higher level of donations than any other group. The trades unions were the major source of funding for the Labour Party (£49 million out of £84 million), potentially creating indirect political links for companies in highly-unionised sectors. We therefore augment our political donations data with industry-level measures of worker unionisation rates.[4]

[Figure 1]

We base our identification strategy around the 2010 UK General Election. The first step in our empirical approach is to adopt a technique developed in Acker and Duck, 2015, using the high-frequency reporting of opinion poll data during the election campaign to obtain firm-level measures of political affiliation and sensitivity. The response of share prices to changes in the polls allows us to identify companies as being either pro-Conservative or pro-Labour.[5] Unlike a standard event study approach, which would examine stock price reactions to the announcement of the election outcome, the technique does not rely on the outcome's unexpectedness, or on the precision with which the event date is determined. This is a particularly attractive feature in the case of the 2010 election, the outcome of which – a Conservative-led coalition government – was unclear for several days following polling day.

[4] We thank an anonymous referee for this suggestion.

[5] A group of studies in the political science literature which also investigates political sensitivities at the firm level (e.g. Herron, 2000 and Knight, 2007) first identifies firms which they predict should be sensitive to particular election outcomes due to director political connections, and then examines the accuracy of the prediction. We allow the data to identify firms' sensitivities and affiliations and then investigate potential causes. Similarly in the economics literature, Coulomb and Sangnier, 2014, find share prices of companies connected to the French presidential candidate Sarkozy react positively to an increase in the perceived probability of his election, whereas share prices in companies connected to his main rival react negatively.

We use these political affiliation and sensitivity measures to address our main question: whether political finance derived from directors of UK listed companies appears to have implications for the value of these companies. If, for example, directors' political donations are viewed by the market as positively related to the value of the company on whose board they sit, companies whose directors are Conservative donors should have pro-Conservative sensitivity measures, their stock prices showing higher (more positive) sensitivity to an increase in the Conservative Party's lead in the opinion polls than companies with no director-donors.

We examine the relationships between the political finance sources and both the sign and the size of the political sensitivities, using a probit model, and ordinary least squares and quantile regressions. The quantile regression enriches the OLS results by allowing for variation in the relationships over the conditional distribution of the political sensitivity measure.

We also explore variation in the relationships across different groups of industries. We focus on a set of industries whose donations – whether direct corporate donations or *via* directors – go *only* to the Conservative Party.[6] We contrast these with a set of 'mixed donor' industries – those which either donate to both parties or which do not donate at all. An additional feature of companies in the 'Conservative-only donor' group is that, over the period which we investigate, each Conservative-donating director sat on the board of only one company, making the donation clearly attributable to a single firm. This contrasts with the 'mixed donor' group whose Conservative-donating directors generally sat on more than one company board, which would dilute any potential benefit from their donation which might accrue to the employing company.

Analysis of the 'Conservative-only donor' industries suggests that, for this group at least, political donations made by directors of UK listed companies may be positively associated with the value of the company on whose board they sit, although the size of the sample means that this evidence is no more than suggestive. We find that for firms in this group the presence of a director who donates to the Conservative Party is positively related to a firm's sensitivity to a Conservative Party election victory. Furthermore, and consistent with this, we find that firms in these Conservative-only donating industries exhibit, on average, higher sensitivity to a Conservative victory than do firms in the 'mixed donor' group of industries.

[6] This allows us to abstract from the influence of donations made to the Labour Party, which is hard to gauge accurately because of their scarcity.

The analysis of firms in this group of 'mixed donor' industries gives more puzzling results, although this is not surprising, given the more diffuse pattern of their political affiliations. We find some evidence that, for these firms, having a Conservative director donor is associated with *lower* political sensitivity to the prospect of a Conservative government. One possible explanation for this negative relationship is that for a company in an industry that benefits more by having a Labour government in power, having a Conservative-leaning director is perceived as bad news.[7] However, this finding is supported in only one of the robustness tests which we apply.

For firms in the 'mixed donor' group we also find some evidence that higher industry unionisation rates are positively related to firms' sensitivity to a Conservative victory, consistent with a view that the presence of unions in conjunction with a Labour government is seen as a threat to a firm's profitability. In this case again the result is tentative, as it is not possible to separately identify the relationship between political sensitivity and unionisation rates from that with potential confounding factors at the industry level.

To justify making inferences about political connections based on the relationship between firm political sensitivity and political donations we must confirm that our measure of political sensitivity captures the sign and size of individual companies' political affiliation. To do this we widen our sample of elections to the five UK general election campaigns between 1992 and 2010 and examine the relationship between our political sensitivity measure and the post-polling day abnormal returns at each election. Investigating five elections allows us to sharpen our tests, contrasting the results for closely-fought elections where the outcome was highly uncertain with those for elections which involved much less political risk. The results of the tests strongly suggest that a priced political factor does exist around elections, and that our poll-based measure is a suitable proxy for firms' general political sensitivity. In 2010 and also in 1992, the other closely-fought election in our sample, the announcement of the outcome was associated with abnormal returns strongly related – both in size and sign – to our measure.[8] The possibility that these findings are spurious is countered by the fact that we find no such relationships for the three elections which were not closely fought. We also

[7] We thank an anonymous referee for this point.

[8] We discuss below the issues surrounding the identification of the event period in the 2010 election. It is this difficulty which leads us to focus on our poll-based political sensitivity measure rather than on abnormal returns.

check robustness of our opinion poll based measure to an alternative which uses data from the Intrade prediction market.

Putting aside the difficulties of the small sample size, we should also exercise caution regarding the extent to which any positive findings can be interpreted as suggesting that political donations are made by company directors in the expectation of a tangible benefit, and that the benefit will accrue at least partly to the employing company – for example in a favourable government policy – and will be perceived as such by the market. Certainly such findings are consistent with this interpretation, but we cannot claim that we can rule out others. For example, a positive relationship between firm value and the presence of donating directors could be driven by some form of assortative matching between firms, directors and political parties due to a common unobserved ideology, irrespective of any influence of the donation on government policy. So, while positive findings are consistent with the view that donations are made to support a party which either has historically espoused policies which benefit the industry, or which appears open to adopting such policies, they may also simply suggest that directors who donate to these parties are typically recruited to these firms.

The remainder of the paper is set out as follows. In section 2 we discuss the conceptual framework behind our empirical analysis by exploring possible motives for making individual political donations. In section 3 we outline our estimation approach. Section 4 discusses the data and section 5 presents the results. Section 6 concludes. We also present two appendices, one giving background on the UK election system and on the five elections which we investigate; and the second detailing our tests on the poll-based political sensitivity measures.

2. MOTIVES FOR MAKING INDIVIDUAL POLITICAL DONATIONS

Political donations can be categorised as either consumption or investment goods, depending on the motivation for the donation (see, for example, Ansolabehere *et al*., 2003). As a consumption good a donation is made with no expectation of a direct tangible reward, the motivation being individual utility maximisation, as might be the case with purely charitable donations.

Nevertheless, it is plausible that political donations are, at least in part, made as an investment in the expectation of a tangible benefit. The benefit, such as the award of a political position, might accrue directly to the donor. In the UK there is evidence that individuals are keen to buy their way into the UK political arena, perhaps attracted to the *kudos* of being a member

of the aristocracy, carrying with it the entitlement to sit in the House of Lords. For example, Mell *et al*., 2015, provide evidence that donations are linked to individual peerage nominations; and in December 2006 Prime Minister Tony Blair and politicians of other parties were questioned by police as part of their investigation into the Cash for Honours affair, which concerned the possibility that political parties were taking loans from supporters in return for nominations to the House of Lords. More recently, concerns were raised about potential conflicts of interest when Mr John Nash was given a peerage and made education minister in January 2013, after he and his wife made a series of donations to the Conservative party over a number of years. [9]

As the disquiet regarding these donations demonstrates, if the donor is the director of a company the benefit from the donation might accrue indirectly to the employing firm. One obvious route is through the award of contracts [10] but, in general, these indirect rewards are likely to be less easy to identify and quantify. Donations might facilitate access to politicians, for example, allowing directors to influence political decision-making in a way that benefits the company. In a recent example of this the Conservative Party treasurer, Peter Cruddas, was forced to resign in March 2012 after he was covertly filmed offering "access to David Cameron and other leading members of the Government in exchange for donations to the Conservative party. As party treasurer, he told the [Sunday Times'] undercover reporters that if they made substantial donations to the party they would have an opportunity to

[9] (https://www.theguardian.com/education/2013/jan/10/gove-appoints-john-nash-education-minister). These concerns followed others relating to donations from Mr Nash to the Conservatives' health spokesman, made in 2010 when Mr Nash was chairman of Care UK, a company providing services to the National Health Service (NHS). (http://www.dailymail.co.uk/news/article-1243579/Andrew-Lansley-embroiled-cash-influence-row-accepting-21-000-donation-Care-UK-chairman-John-Nash.html)

[10] See, for example, reports of NHS contracts being awarded to Circle Health, a private healthcare firm, in February 2014, following donations to the Conservative Party made by linked investors. (http://www.mirror.co.uk/news/uk-news/fury-tory-party-donors-handed-3123469). And advertising and publicity contracts awarded to Carat, part of the Dentsu Aegis Network after regular donations made by Jerry Buhlmann, its chief executive to the constituency of Michael Gove, the Conservative Party's then Justice Secretary. (http://www.independent.co.uk/news/uk/politics/conservative-party-donor-jerry-buhlmann-receives-39m-treasury-contracts-a6927866.html).

influence Government policy and to gain unfair commercial advantage through confidential meetings."[11]

Of course this type of political access and influence need not imply corruption, but rather an efficient transfer of knowledge which can inform optimal policy decisions: politicians wanting advice or expertise relating to particular sectors might simply find it more efficient to seek it from donors with whom they have an established connection. The time a politician spends in becoming informed on a particular issue does, after all, impose an opportunity cost (see section 5.3 of Grossman and Helpman, 2001, for a discussion of this issue). Equally, making donations may be a matter of maintaining reputation and social capital in general. For example, company directors are likely to attend charitable and social events, some of which may be political fundraisers for the Conservative party. Any associated donations may not therefore necessarily reflect directors' specific political preferences.[12]

Our empirical exercise is founded on the premise that if political donations are investment goods we would expect the investment to deliver a greater benefit to the individual or firm if the party to which they donate gains political power. The winning party has the ability to make individual political appointments, and to determine regulation, fiscal policy and industrial policy in a way that might positively affect firm success. On the basis of this argument we investigate whether there is evidence that directors' donations are perceived as investment goods which do not solely benefit the director, by examining whether political donations are positively associated with firm value.

Evidence of a positive association between a firm's market value and its directors' donations to the winning party supports this hypothesis, but does not rule out the possibility that the donating directors also gain direct rewards, or simply increased utility, from their donations. In particular, a positive relationship between firm value and the presence of donating directors could be driven by some form of selection or assortative matching. Assortative matching between firms, directors and political parties due to some common unobserved ideology would result in a positive correlation between sector-level, and within that,

[11] (https://www.thetimes.co.uk/article/the-sunday-times-statement-vkzhxhp85hx). More recently, reports are emerging that directors of oil companies have donated over £390,000 to the Conservative Party since Theresa May became Prime Minister, (https://www.theguardian.com/business/2017/may/23/oil-bosses-have-given-390000-to-tories-conservatives-under-theresa-may).

[12] We are grateful to an anonymous referee for this point.

company-level returns, even if government policy is not in any way influenced by the donation or the donating director. For example, certain sectors might be favoured by a particular political party's stance, firms within these sectors might recruit directors who share the same political leanings and who also donate to the party, and these views may have also determined the director's own choice of job. Indeed those firms that could gain the most within a sector from a particular political party being in power are more likely to recruit, and more likely to be attractive to donating directors. We return to these issues in the discussion of the results.

3. ESTIMATION APPROACH

In this section we first specify the returns model we use to estimate both our measure of company political sensitivity and post-polling day abnormal returns. We then discuss how we exploit variation in electoral conditions between 1992 and 2010 to test whether political risk is priced around general elections, and to confirm the validity of our measure of individual firms' political sensitivity. Finally we outline how we investigate the relationships between our measure of political sensitivity and financial political connections.

3.1 Returns and the pricing of domestic political sensitivity

3.1.1 Returns framework

There is a large literature that investigates the degree to which equity markets are globally integrated, Stehle, 1977, being probably the earliest example. With full global integration, country-specific risk – and domestic political risk in particular – will not be priced. But domestic risk will command a premium if not all investors within a country are globally diversified. While there is general agreement that the degree of integration is time-varying (see Bekaert and Harvey, 1995 and Arouri *et al*., 2012 for example), the evidence for full *versus* partial integration is mixed. For example, Bali and Cakici, 2010, find that world market risk is not priced, while country-specific total and idiosyncratic risks do carry a premium. This finding is contradicted for developed markets by Arouri *et al*., 2012, who find that the total risk premium in these markets is largely explained by global factors.

Many studies examine markets around election dates, on the argument that a priced domestic political factor is likely to be particularly evident at these times. Although Santa-Clara and Valkanov, 2003, find that their US Democratic risk premium is not concentrated around election dates, much other work does find evidence of such a factor. For example Li and

Born, 2006, studying the US market, and Bialkowski *et al*., 2008, studying 27 OECD countries, establish that volatility rises around elections, particularly those where the outcome is uncertain. Work by Pantzalis *et al*., 2000, on 45 countries suggests that at least some of this volatility, and its resolution, is associated with higher returns. More recently, Liu, Shu, and Wei, 2017, provide evidence that political risk is priced in China.

Our returns model is based on the premise that country-specific risk is priced, and that domestic political risk is particularly evident at election dates. We use the partial integration framework given in equation (1).

$$R_{i,t} = \alpha_i + \beta_i R_{w,t} + \sum_z \delta_{z,i} R_{z,t} + \varepsilon_{i,t} \qquad (1)$$

where $R_{i,t}$ is the excess return – over the risk-free rate – on stock *i* on day *t*; $R_{w,t}$ is the excess return on the world market index on day *t*; β_i is stock *i*'s loading on the world market index; and $R_{z,t}$ is the return on a portfolio that provides unit exposure to priced domestic risk factor *z*.

We model the error term as in equation (2).

$$\varepsilon_{i,t} = \gamma_i R_{s,t} EL_t + \eta_{i,t}\,, \qquad (2)$$

where EL_t is an indicator variable which equals 1 when *t* is in the 'campaign' period, and 0 otherwise. The campaign period is the interval preceding an election during which opinion polls are revised on a daily basis, beginning approximately three weeks before polling day. [13] $R_{s,t}$ is the return on day *t* of a portfolio with unit exposure to UK election-related political risk, which we assume to be approximately zero outside the campaign period. $\hat{\gamma}_i$ is therefore our measure of firm *i*'s political sensitivity.

The four main domestic-market attributes which the partial integration literature suggests represent risk which is priced in a global context are three corporate characteristics – dividend yield, price-earnings (P/E) ratio, the book-to-market price ratio – and the exchange rate relative to a currency such as the US$. [14] The first three of these variables reflect the

[13] UK election campaigns have historically been far shorter than those in the US. Before 2011 parliaments were of variable length, the election date being announced about one month in advance (see Appendix A).

[14] The main additional factor which has been found to be important elsewhere is expected inflation. We omit this as changes in expected inflation are inappropriate for a relatively short estimation period using daily data.

pricing of expectations of corporate risk and growth, and are affected by domestic tax regimes, while the second and third are also influenced by country-specific reporting requirements. For these reasons it is plausible that differences between domestic and world measures might drive domestic-specific risk premia. The question of whether or not exchange risk is priced is the subject of much research, and there is sufficient evidence that it might be priced to merit its inclusion.

We assume that the premium on each of the first three priced domestic risks is proportional to the daily change in the difference between the relevant domestic measure and its global equivalent. We therefore include the following explanatory variables in equation (1) as proxies for returns on these factors: ΔDY_t, the day-*t* change in $\left(DY_{m,t} - DY_{w,t}\right)$, the dividend yield on the UK market index minus the dividend yield on the world market index; ΔPE_t and ΔBM_t, which are equivalent to ΔDY_t for the P/E ratio and book-to-market ratio respectively. Finally, we use the day-*t* change in the US$/sterling exchange rate, ΔER_t, as a proxy for the return on the exchange risk factor.

3.1.2 Political sensitivity

We estimate the $\hat{\gamma}_i$ s in equation (2) together with the coefficients in equation (1), as shown in equation (3).

$$R_{i,\tau} = \alpha_i + \beta_i R_{w,\tau} + \sum_z \delta_{z,i} R_{z,\tau} + \gamma_i \Delta p_\tau EL_\tau + \eta_{i,\tau}\,, \qquad (3)$$

where τ denotes a day in the estimation period. Our estimation period is the 250 days ending 2 months before the election is called, plus the campaign period, as defined above. Δp_τ is the change in the probability of success of the eventual winning party (p_τ) on day τ. We assume that the return to the political factor on day τ, $R_{s,\tau}$, is proportionate to the change in p_τ, so the loadings on the political factor are estimated up to a constant of proportionality.

Measurement of Δp_τ is discussed in detail in section 4.5. Our primary source of data on p_τ is opinion polls published in the press and the media. As a robustness check we also use data on contract prices on Intrade, a major prediction market.

As can be seen from equation (3), the sign of the political sensitivity measure, $\hat{\gamma}_i$, indicates the political affiliation of firm *i*. In an election ultimately won by the Conservatives, for example, $\hat{\gamma}_i$ will be positive for those stocks which during the election campaign exhibit a

tendency to rise with the expectation of a Conservative victory (pro-Conservative stocks), and negative for pro-Labour stocks. The absolute magnitude of $\hat{\gamma}_i$ is a measure of the extent to which stock *i* is generally sensitive to the election outcome.

3.1.3 Abnormal returns

The post-election period abnormal return for stock *i* is calculated as in equation (4).

$$AR_{i,T} = R_{i,T} - \hat{\alpha}_{i,T} - \hat{\beta}_i R_{w,T} - \hat{\delta}_{1,i}\Delta DY_T - \hat{\delta}_{2,i}\Delta PE_T - \hat{\delta}_{3,i}\Delta BM_T - \hat{\delta}_{4,i}\Delta ER_T, \qquad (4)$$

where coefficient estimates are derived from equation (3). A suffix *T* denotes the change over period *T*, where *T* is the event day or period, and $\hat{\alpha}_{i,T}$ is $\hat{\alpha}_i$, adjusted appropriately for event periods of more than one day.

3.2 Testing the measure of political sensitivity

Our approach relies on the $\hat{\gamma}_i$ measures providing a good proxy for political sensitivity. We test this by exploiting variation in electoral conditions over time and calculating separate sets of $\hat{\gamma}_i$ s for all elections between 1992 and 2010. This allows us to contrast the results for closely-fought elections where the outcome was highly uncertain with those for elections involving much less political risk. Political risk during an election will be at its highest and most clearly observable when an election outcome is unpredictable – with probabilities of success for each of the two main UK parties of around 50%, and/or substantial variability in opinion poll predictions – and when there are clear differences between the policies of the contending parties. In addition, the announcement of the election result will have a greater effect on stock returns the more surprising is the result.

A description of the UK electoral system and of the elections themselves is given in Appendix A. Of the five elections, those in 1997, 2001 and 2005 were the most predictable and had the smallest variability in opinion poll predictions during the campaigns. The differences between the parties were at their highest in 1992 and 2010. In 1992 there were strong ideological differences between the two parties, especially about privatisation, differences that had largely disappeared by 1997 with the advent of Tony Blair and New Labour. In 2010 there was sharp disagreement about the correct response to the credit crisis, especially about the speed with which the UK budget deficit should be eliminated.

If political risk is priced and our $\hat{\gamma}_i$ measures are fair estimates of sensitivity to this risk, we should therefore observe not only that pro-Conservative companies show positive (cumulative) abnormal returns at the resolutions of the 1992 and 2010 elections, with pro-Labour companies showing the opposite, but also that the abnormal returns are positively related to the $\hat{\gamma}_i$ measures. Moreover the abnormal returns should be more evident in the 1992 election than the 2010 election because of the misleading opinion polls and consequent surprise result in 1992; and also because of the protracted post-poll negotiation period in 2010, which makes it difficult to identify the 'announcement' date.[15] In contrast, there should be little or no evidence of politically-related abnormal returns at the resolution of the 1997, 2001 and 2005 elections, whose results were strongly and accurately predicted. Appendix B outlines how we test these predictions using OLS regressions and returns on portfolios constructed on the basis of the $\hat{\gamma}_i$ s.

3.3 Political finance and political sensitivity

For our main analysis of the 2010 election, we take a number of approaches to evaluate the relationships between firm characteristics and both the sign and the magnitude of our political sensitivity measure, $\hat{\gamma}_i$. We begin by estimating equation (5), a probit model, where the dependent variable, $\hat{\gamma}_i^{Pos}$, takes the value one if $\hat{\gamma}_i$ is positive, and where $\boldsymbol{X_i}$ represents a set of explanatory variables.

$$\Pr\left(\hat{\gamma}_i^{Pos} = 1\right) = \Phi(\boldsymbol{\theta X_i}). \qquad (5)$$

$\boldsymbol{X_i}$ includes three types of variable: measures of financial connections, which are our main variables of interest; firm-level control variables; and industry indicators.

[15] For all the elections other than 2010 we measure abnormal returns over the day following polling day, when the results were officially announced. We discuss the 2010 election in Appendix A, where we consider two possible event periods, one ending on 12 May (a 4-day trading period), the second ending on 13 May.

Financial connections

DonDirCon$_i$, an indicator variable which equals 1 if company *i* has a Conservative 'director-donor', that is, any director on company *i*'s board at the time of the election who donated to the Conservative Party between June 2005 and April 2010; and

UN_i^j, a measure of the degree of unionisation in firm *i*'s two-digit industry, *j*, measured as the share of industry employees who are union members in 2009.

In some specifications we included additional donation-related indicator variables: [16]

HiDonDirCon$_i$, which equals 1 if company *i*'s directors make high-value donations to the Conservative Party (lying above the median value of per-director total donations); [17] and

DonLab$_i$, which equals 1 if company *i* donated to the Labour Party between June 2005 and April 2010, either directly or *via* a director.

Our prior is that if director donations represent a form of political connection which is perceived by the markets to be valuable for the employing company, then the probability of $\hat{\gamma}_i$ taking a positive value will be positively associated with the Conservative Party director-donor indicator. The predicted relationship between the sign of $\hat{\gamma}_i$ and the degree of unionisation is less clear-cut. One could argue that companies with a history of high worker representation would be closer to the Labour Party and hence benefit from its election. Alternatively, a highly-unionised workforce combined with a Labour Party in power might be seen by the markets as a threat to profits. We are therefore agnostic about the sign on the UN_i^j variable.

Firm-level control variables

We incorporate as control variables two other firm-level characteristics which might plausibly affect their political sensitivity:

LnMV$_i$, log of company market value; and

[16] We do not use donation values as the distribution is so skewed that the results are strongly influenced by outliers.

[17] We also included an indicator variable for direct company donations to the Conservative Party. The coefficient on this variable was never significant and its inclusion or exclusion did not affect the results, so we exclude it from results discussed below.

Leverage$_i$, since a major focus of debate in this election was how to deal with the credit crisis, so highly-leveraged companies might be expected to be particularly sensitive to the outcome.

A firm's percentage of foreign sales is also a potentially important independent variable. This was available for 245 out of the 300 firms in our sample and we incorporated it in some specifications. The coefficients were never significant at conventional levels, and its inclusion or exclusion had no material effect on other results so we exclude it from the results presented.

Industry indicators

We include two alternative types of industry indicator.

IND_i^k is a standard indicator variable which equals 1 if company *i* is in broad industry *k*, based on ten categories defined using the Industry Classification Benchmark.

Indicators for the 'Conservative-only donor' industries versus the 'mixed donor' industries. *GpA*$_i$, is an indicator variable which equals 1 if firm *i* is in Group A, the set of industries whose donations – whether direct corporate donations or *via* directors – go *only* to the Conservative Party. *GpB*$_i$, is an indicator variable which equals 1 if firm *i* is in the set of 'mixed donor' industries – those which either donate to both parties or which do not donate at all. We also consider interactions between these indicators and our main variables of interest to examine cross-group heterogeneity in the estimated coefficients.

To focus on the relationship between the magnitude of $\hat{\gamma}_i$ and the political connections measures we estimate OLS and quantile regressions. The quantile regressions both mitigate the effect of outliers and incorporate more flexibility than is possible in an OLS conditional mean model, allowing us to explore how the estimated relationships vary across the conditional distribution of $\hat{\gamma}_i$. For example, we might expect larger companies to be less vulnerable to domestic political events than smaller ones so their $\hat{\gamma}_i$ s will generally be closer to zero. For pro-Labour companies, with negative $\hat{\gamma}_i$ s which lie in the low conditional quantiles, market value will therefore have a dampening, *positive* influence. For pro-Conservative companies, with positive $\hat{\gamma}_i$ s in the high conditional quantiles, market value will have a dampening, *negative* influence. Furthermore, using a quantile regression will allow us to identify whether there is a different relationship between donations and the $\hat{\gamma}_i$ s in

the tails of the conditional distribution. For example, it is possible that the marginal effect of having a Conservative director-donor is greater among companies in the top tail of the distribution, which would potentially benefit the most from a Conservative-led government. Hence we estimate the models shown in equations (6a) and (6b).

$$\hat{\gamma}_i = \boldsymbol{\theta} \boldsymbol{X}_i + u_i \tag{6a}$$

$$\hat{\gamma}_i = \boldsymbol{\theta_q} \boldsymbol{X}_i + u_{qi}, \qquad \text{where } Quant_q\left(\hat{\gamma}_i \middle| \boldsymbol{X}_i\right) = \boldsymbol{\theta_q} \boldsymbol{X}_i, \tag{6b}$$

$Quant_q\left(\hat{\gamma}_i \middle| \boldsymbol{X}_i\right)$ is the qth conditional quantile of $\hat{\gamma}_i$ given $\boldsymbol{X}_i$, and $\boldsymbol{\theta_q}$ is the vector of parameters relating to that quantile.

Finally, we conduct robustness tests to address potential estimation error in our measure of political sensitivity. We benchmark our preferred measure, the poll-based $\hat{\gamma}_i$, against the three alternative political sensitivity measures which we discussed above: post-poll cumulative abnormal returns (CARs) over the two proposed 2010 event periods, one ending on 12 May, the second ending on 13 May (see footnote 15); and a $\hat{\gamma}_i$ based on Intrade share prices rather than opinion polls. We repeat the main tests using a set of firms whose poll-based $\hat{\gamma}_i$ s are most consistent with their sensitivity measured under each of these three possible alternatives. To do this we divide the sample into quintiles based on the poll-based $\hat{\gamma}_i$ s, and construct an equivalent set of quintiles for each of the alternative political sensitivity measures. We estimate the regressions on subsets of firms which (i) are in the same quintile for both the poll-based $\hat{\gamma}_i$ s and the alternative measure; or (ii) are no more than one quintile apart under the two measures. For specifications in which we allow for heterogeneity across the two groups of industries A and B, we use only sample (ii) to preserve sample size. In these specifications we further augment the robustness tests by replacing the poll-based $\hat{\gamma}_i$ s as the dependent variable with each of the two CARs in turn.

4. DATA AND DESCRIPTIVE STATISTICS

For our main analysis of political finance at the 2010 General Election we need a sufficiently large sample of donations, while minimising effects of thin trading on the estimation of the $\hat{\gamma}_i$ s. We first collected data on donations made by the largest 500 UK listed companies or by their directors, and of these we selected the largest 300 for use in estimation, as this captured almost all of those which donated either directly or *via* directors. For our tests of the validity

of the $\hat{\gamma}_i$ s as political sensitivity measures across all five elections between 1992 and 2010 we chose a slightly smaller sample size of the largest 250 companies,[18] because this further mitigates the thin trading problem and we are not constrained by the requirement to have a useable donations sample. We repeated these tests on the larger 2010 sample as a robustness check.

Table 1 presents descriptive statistics on the independent and dependent variables relating to the largest 300 firms in 2010 and the following sections discuss these variables in more detail.

[Table 1]

4.1 Donations

From January 2001 donations to political parties amounting to more than £7,500 from a single source in a calendar year have been published by the UK Electoral Commission. The data are available from its website and include the date of donation, donor type, donor name, donation recipient and the amount donated. We downloaded details of all donations to political parties and candidates reported by the Commission between June 2005 – the month following the 2005 election – and April 2010.[19]

Using BoardEx we matched donations by individuals to information on directors of our sample of companies. Matching donor names with director names is not straightforward because in many cases the names of donors in the Electoral Commission dataset contain an abbreviation of some sort. We therefore carried out the matching manually.

We define company *i* as a 'director-donor employer' if at the time of the 2010 UK General Election it employed at least one director who made at least one personal political donation between June 2005 and April 2010. Note that one director could sit on the boards of several companies at the same time and, if that was the case, we attribute the donation to all the companies that employed the director. The busiest director in our sample was sitting on the boards of three different companies at the time of the election.

Panel A of Table 1 shows that 14% of companies in our sample are identified as employing Conservative director-donors, while only 2% of companies employed Labour director-

[18] In all cases the market value was measured at the start of the month in which the relevant election was called.

[19] We assigned donations made to individuals to the political party which the candidate represented.

donors. In terms of *corporate* donations only 2% and 3.7% of the companies donated directly to the Conservatives and Labour respectively. The average amount donated attributable to one company conditional on the company being a Conservative director-donor employer was £55,877, with a maximum of £578,621 and a minimum of £1,500. The value of these donations dwarfs donations made by directly by companies, and donations to the Labour Party.

4.2 Political sensitivity and donation patterns

Panel B in Table 1 summarises for the whole sample the main dependent variable, the poll-based political sensitivity measure, $\hat{\gamma}_i$. The mean and median are similar, both around +0.05: as might be predicted, there is a tendency for share returns to indicate more support for the traditionally pro-business party, the Conservatives, rather than for Labour. The remainder of Panel B summarises the alternative dependent variables which we use in the robustness tests, including cumulative abnormal returns (cumulated over two event periods, one ending on 12 May, the second ending on 13 May – see footnote 15).

All of these variables are analysed at industry level in Panel C, which shows that the donation patterns vary quite widely across industries. Indeed, no donations come from any companies or directors in the Technology industry.[20] Group A industries, where no donations to the Labour Party are observed, have markedly higher mean $\hat{\gamma}_i$ s [21] and cumulative abnormal returns than do Group B industries. *t*-tests of the differences between the two groups' means, (not tabulated to conserve space), showed that all were statistically significant at standard levels. We discuss the differences between these groups in more detail in section 4.3.

The last column in Panel C summarises UN_i^j, the degree of unionisation in firm *i*'s two-digit industry, *j*. This is measured as the fraction of workers that report being union members in 2009, and varies at the two-digit industry level. It is derived from the UK Labour Force Survey. Unionisation rates are similar across the Group A and B industries.

[20] This chimes with the outcome of a US-based study in 2010, which reports that companies in the Information Technology industry – equivalent to our Technology industry – were the least likely to make politically-driven expenditure (Welsh and Young, 2010, p7).

[21] $\hat{\gamma}_i$ s based on Intrade prices exhibited the same patterns so are not shown, for reasons of space.

4.3 Company characteristics

Panel D in Table 1 summarises mean company characteristics by industry. Company financial characteristics are obtained from Datastream, and characteristics on board membership from BoardEx. The asterisks against the Group A industry means in row 1 of the panel denote the statistical significance of *t*-tests of differences between Group A and Group B means.

Market value was measured at the start of March 2010, the month in which the election was called. Group A companies are, on average, significantly larger than Group B companies. We incorporate (logged) market value in our regression tests, as we do leverage – the book value of debt divided by total assets – which is lower for Group A companies but only moderately so. The means of return on assets (RoA) and Tobin's q are not significantly different between the two groups.

Group A firms have slightly higher board size, as would be expected given their higher market values, but not markedly so. However, the characteristics of the Conservative-donating directors within the two groups of industries differ in one important respect. In Group A none of these directors sat on more than one company's board, while the average number of boards for Group B Conservative donors was 1.6, with a maximum of 3 (none of them sat on the boards of companies in Group A). This means that, in cases where Group B directors did donate to the Conservative party, not only was any impact of their donations on the company frequently 'diluted' by donations to the Labour party but it was also diluted by being associated with more than one company.

We also examined changes in RoA and sales following the election to identify whether donating exclusively to the Conservative party might have improved company performance, as is hinted at by the anecdotal evidence discussed in section 2. We do not present the data as, although summary statistics suggested that RoA increased more for Group A firms in the first year after the election, and, more strongly, that sales rose more for Group A firms, we found no evidence that these differences could be ascribed to donating characteristics.

4.4 Financial data

All financial data are from Thomson Datastream. $R_{w,t}$ in equation (1) is the day-*t* excess return on the Datastream world market index (which is denominated in $US); dividend yield indices are Datastream's total UK market index dividend yield and world market index

dividend yield respectively; and similarly for P/E ratio and book-to-market. All three measures are denominated in $US.

The US$/sterling exchange rate is also obtained from Datastream. Because we are explicitly including the exchange rate change as an explanatory variable, the excess returns on UK stocks are denominated in sterling and those on the world market are denominated in $US.

4.5 Variation in the probability of winning the election, Δp_τ

p_τ in equation (3) is measured as the difference between the opinion poll percentage favouring the eventual election winner and that favouring the eventual loser.

For the 2010 election we have three sources of publicly-available data that were updated daily: the BBC Poll of Polls, the Aggregate Poll published in the Guardian newspaper, and the YouGov poll, published in the Sun or the Sunday Times newspapers. Of these the Poll of Polls and the Aggregate Poll incorporated many other opinion polls; the Poll of Polls was based on the smoothed median of recent opinion polls, while the Aggregate Poll did not distinguish between 'stale' and recent polls. Raw data from many polls are also available to us for this election so there are many different methods we could choose to combine the data, and no theory to guide us on the most appropriate choice. Our main method takes a simple average of all three daily-updated polls, as being as good a combination scheme as any other: it gives more weight to the individual poll which changes daily, incorporates other polls, and adopts a certain degree of smoothing *via* the Poll of Polls.

As a robustness check we use data on contract prices on Intrade, the main prediction market operating at the time of the 2010 election. Prediction markets offer the opportunity to trade in shares which pay out a fixed amount on the occurrence of an event, such as 'The Conservatives to win the UK Election'. Since they pay out nothing if the event does not occur, the price of such shares is generally taken to be the market's estimate of the probability of the event occurring. Wolfers and Zitzewitz, 2007, for example, cite numerous empirical studies which have found that the probability of a binary prediction-market contract paying off is fairly represented by its price (for example Berg *et al*., 2008, Wolfers and Zitzewitz, 2006 and Tetlock, 2004). The Conservatives-to-win Intrade contract price is

therefore a more direct indication of opinions about the probability of Conservative election success than the party's percentage vote share as predicted by the polls.[22]

For the analysis of the 1992 election we use the data given in ap Gwilym and Buckle, 1994. Data for the 1997, 2001 and 2005 elections are available from various internet sources, and we construct averages of percentages across those polls for which we can obtain information, taking account only of newly-published polls.

5. RESULTS

We first summarise our tests to demonstrate the validity of our political sensitivity measure, and then discuss our results on the relationship between our measure of political sensitivity and political financial connections.

5.1 Tests on $\hat{\gamma}_i$ as a political sensitivity proxy

In this section we summarise the evidence for the validity of our $\hat{\gamma}_i$ estimates as a measure of political sensitivity; Appendix B presents the full results of the tests. Following the predictions in section 3.2 we first estimate OLS regressions to estimate the relationship between the $\hat{\gamma}_i$ measures and company abnormal returns for each of five elections, contrasting the results for the closely-fought elections with those for which the outcome was easily predicted. We find little evidence of a relationship between the $\hat{\gamma}_i$ measures and abnormal returns in the non-closely fought elections, but for both the 1992 and 2010 elections we find a positive and significant relationship between the political sensitivity measure and (cumulative) abnormal returns, particularly for 1992.

These results are supported by a set of tests on (cumulative) abnormal returns of portfolios which are long in high $\hat{\gamma}_i$s and short in low $\hat{\gamma}_i$s. The 1992 abnormal returns dominate the others and, although the 2010 returns are much lower than the 1992 ones, both the parametric and non-parametric tests predominantly suggest that these returns are significantly different from zero. In contrast to the closely-fought 1992 and 2010 elections, the 1997, 2001 and 2005

[22] The contract was for Conservatives to win outright, or to be the majority party in a coalition. The prediction market also has the advantage that we can identify the time at which a trade was made and a price set, unlike opinion poll data, for which it is not clear exactly when the data become public information. However, there is relatively thin trading in the shares, so we use this measure simply as a robustness test of the poll-based one.

election portfolios have abnormal returns that hover around 0 and no strong indication of significant abnormal returns related to the election.

These results all suggest that the $\hat{\gamma}_i$ s are suitable data-driven measures of general political sensitivity.

5.2 Political sensitivity and political financial connections

We now turn to the main tests of the paper. Table 2 shows the results of estimating equations (5), (6a) and (6b) with a full set of industry dummies, IND_i^k. In Panel A of Table 2 we include as the donation measure only *DonDirCon*$_i$, an indicator of whether or not the company has a director who donated to the Conservatives between 2005 and 2010. In Panel B we add *HiDonDirCon*$_i$, which equals 1 if company *i* directors made above-median donations to the Conservative Party. *p*-values are given in parentheses. We report marginal effects for the probit specifications. For the quantile regressions we report coefficient estimates, and mean and median predicted $\hat{\gamma}_i$ s for the 25th, 50th (median) and 75th conditional quantiles.

[Table 2]

[Figure 2]

Panel A suggests there is no evidence that employing a director who donates to the Conservative Party is associated with a company having a positive (column 1), or more generally, a higher value of $\hat{\gamma}_i$ (columns 2 to 5); if anything the coefficient estimates point towards the opposite being true, although they are generally not statistically significantly different from zero. Panel A of Figure 2 displays the estimated coefficients across the conditional distribution of the $\hat{\gamma}_i$ s, following the quantile regressions, with the grey shaded areas depicting the 95% confidence intervals around these estimates. In each case the horizontal dashed line shows the coefficient estimate from the OLS specification in column 2, and the dotted line shows the 95% confidence interval around this estimate. Although in general the coefficient estimates lie within the confidence interval of the OLS estimate, they do display some interesting variation. In line with the results in columns 3 to 5 the results show some evidence of a slight increase in the marginal effect of an additional Conservative director donor in the higher conditional quantiles of $\hat{\gamma}_i$, although it is still generally negative.

Turning to the other variables, we find no evidence of a statistically significant relationship between the $\hat{\gamma}_i$ s and industry unionisation levels. As indicated by Panel A of Figure 2, the

relationship between the political sensitivity measures and market value and leverage exhibit some variation across the conditional distribution of the $\hat{\gamma}_i$ s. Market value has a negative relationship with a company's $\hat{\gamma}_i$ but the estimated coefficient is not significantly different from zero in the bottom quantile, where $\hat{\gamma}_i$ s tend to be negative; while it is larger in absolute size and strongly significant for top-quantile, positive $\hat{\gamma}_i$ s. As discussed earlier, it appears that, for companies with positive $\hat{\gamma}_i$ s, the larger the company the lower tends to be its political sensitivity, but there is no equivalent dampening – positive – effect for negative $\hat{\gamma}_i$ s. The overall relationship between leverage and political sensitivity is strongly negative. The relationship is considerably stronger in the lower (more negative) $\hat{\gamma}_i$ conditional quantiles, so for these observations leverage tends to amplify political sensitivity as we anticipated. Against our expectations leverage also has a negative relationship with political sensitivity in the higher quantiles but it is considerably weaker in these quantiles. [23]

One of the most striking features is that the industry dummies indicate significant variation in political sensitivity across our two broad industry groups. The base-line industry is 'Healthcare' which is in Group A, and which has a mean $\hat{\gamma}_i$ which lies roughly in the middle of the distribution of $\hat{\gamma}_i$ s across the industries. In line with the data presented in Panel C of Table 1 the Conservative-only donor Group A industries – and Basic Materials, and Oil and Gas in particular – have significantly higher $\hat{\gamma}_i$ s than the baseline (even more so in the upper conditional quantiles), while Group B industries tend to exhibit lower values.

Panel B of Table 2 replicates Panel A but includes the additional indicator variable for companies whose directors make an above-median value donation to the Conservative Party. There is no evidence that having relatively generous director donors has a positive association with political sensitivity. Again, if anything the results are suggestive of a negative relationship.

5.2.1 Industry heterogeneity

[23] The relationship is robust to alternative definitions of leverage.

In Table 3 we examine heterogeneity in the main relationships of interest across the two broad industry groups, A and B. We do not report the probit results as in some cases the outcome is perfectly predicted, and hence there is no variation with which to identify the coefficients. The first four columns show the OLS and quantile regression results for specification (1), where we incorporate $DonDirConA_i$ and $DonDirConB_i$, which interact the $DonDirCon_i$ variable with the GpA_i and GpB_i indicators. We also replace the industry dummies with GpA_i. Otherwise the specification is comparable to that in Table 2 Panel A.

[Table 3]

The results for specification (1) reveal stark differences between the Group A and Group B industries. For the Conservative-only donor group, A, the Conservative director-donor dummy is consistently positive, whereas for the mixed donor group, B, it is consistently negative. At the bottom of the table we report the results of a test of equality between the coefficients on the director-donor dummies which show that, other than for the lower quartile of the quantile regression results, the coefficients are statistically significantly different from each other. The OLS results suggest that, for a firm in Group A, employing a director who donates to the Conservative Party is associated with an increase in the political sensitivity measure of around 0.2. In our estimation sample this corresponds to around two-thirds of a standard deviation, or a move from the median value of $\hat{\gamma}_i$ to the top quartile of the distribution. It is also worth noting that the coefficient on the Group A dummy, GpA_i, is consistently positive and statistically significant.

For a firm in a Group B industry, employing a director who donates to the Conservative Party is associated with a decrease in $\hat{\gamma}_i$ of 0.14, around one half of a standard deviation. It is not immediately clear why this should be the case but one possibility is that these results are driven by industry-level unobservables. We therefore experimented with substituting the GpA_i dummy with a full set of industry dummies as in Table 2. This resulted in both of the coefficients on the two director-donor dummies shrinking towards zero, but their signs remained the same and they remained statistically significant at the 10% level. We also experimented with including $DonLab_i$, which indicates whether the firm was associated with a financial donation to the Labour Party. The coefficient on this Labour donor dummy was negative (-0.090) but statistically insignificant (*p*-value 0.184), and its inclusion had little effect on the estimated coefficient on the Group B Conservative director-donor dummy.

Of course, for both the Group A and Group B Conservative director donor dummies, there is always the caveat that the coefficient estimates may be influenced by firm-level unobservables, such as some form of selection or sorting. For example, those firms within Group A industries that could in any case gain the most from a Conservative government being in power might be more likely to try and recruit, and be a more attractive employer for, directors with Conservative political leanings who also donate to the party, creating a form of assortative matching.

As an additional exercise we investigated differences in director characteristics across these two groups of industries. One such characteristic is consistent with director-firm sorting within Group A industries, and could help explain why our results are more robust for Group A industries than for Group B: at the time of the election each Conservative-donating director within Group A industries sat on the board of only one company, whereas for Group B these directors generally sat on more than one company board. Hence, for Group A companies the donation is clearly attributable to a single firm, while for Group B companies any potential benefit from the donation might be diluted or less transparent. Therefore it is possible that the negative coefficients observed on the director donor dummies in Group B industries represent the net effect of a weakened positive relationship with $\hat{\gamma}_i$, and a negatively correlated firm-level unobservable.

The coefficients on the unionisation rate variable in specification (1) of Table 3 are larger (more positive) than in either of the panels of Table 2. They are statistically significant in the OLS results and for the lower conditional quartile of the quantile regression. This is primarily driven by the replacement of the set of industries dummies with the broader GpA_i indicator variable: due to a lack of variation in the unionisation rate measure within some industrial sectors it is very difficult to separately identify the coefficient on the unionisation variable from those on the industry dummies which are incorporated in the Table 2 tests. The results for specification (1) in Table 3, where the coefficient is identified from variation across industries within Groups A and B, imply that higher unionisation rates are associated with higher values of $\hat{\gamma}_i$, and that this relationship is stronger in the lower conditional quartile of the $\hat{\gamma}_i$ distribution where the $\hat{\gamma}_i$s are typically negative. This suggests that for firms in more highly unionised sectors an increase in the likelihood of a Conservative government might be perceived as a positive signal for future profitability, although we cannot rule out that this relationship is driven by other industry-level unobservables. In unreported tests where we

replace the GpA_i dummy with a full set of industry dummies the coefficient on the unionisation rate variable in the OLS estimates reduced to 0.124 and was no longer significant.

In specification (2) in the final four columns of Table 3 we interact all the right-hand side variables with the Group indicator dummies – allowing each to vary according to whether a company is in a Group A or Group B industry. The coefficients on the director-donor dummies are largely unchanged. The positive and significant coefficient on the unionisation rate variable discussed above appears to be driven by firms in Group B industries, which includes the set of industries which donate to the Labour Party as well as the Conservatives. However, as before, there is insufficient variation to separately identify the unionisation coefficient once we include a full set of industry dummies, IND_i^k. In tests in which we included these dummies the coefficient on the unionisation rate variable for firms in Group B industries again reduced in magnitude and statistical significance.

Figure 2 Panel B shows the coefficients on the Conservative director-donor dummy and unionisation variables for the Group A and Group B industries across the conditional distributions of the $\hat{\gamma}_i$ s (note the differences in the y-axis scales). Though again the estimates are not statistically significantly different from the OLS coefficient for each variable, the graphs demonstrate the differences in the relationships between the two groups. The coefficients on the Conservative director-donor dummies for Groups A and B are consistently positive and negative respectively. The coefficients on the unionisation rate variable are increasing across the conditional distribution for firms in Group A industries, and decreasing for firms in Group B industries.

In summary, for firms in industries which donate only to the Conservative Party and for which we can therefore abstract from the influence of Labour Party donations, the results present some evidence that political donations made by directors are associated with positive connections between the value of their companies and the electoral success of the Conservative Party. In addition, firms in these industries have, on average, markedly higher (and more positive) political sensitivities to the probability of a Conservative win. But for the set of firms in industries that make donations to both the Conservative and Labour parties – or in one case, make no financial donations at all – director donations to the Conservative Party appear to have a negative relationship with our measure of political sensitivity. However, as we discuss below, this result is not borne out strongly in the robustness checks.

For this latter group of firms we find some evidence of a positive relationship between political sensitivity and the industry unionisation rate, although it is not possible to cleanly identify this due to potentially confounding industry-level unobservables.

5.2.2 Robustness checks

Finally we report on the series of robustness tests. We focus on those companies whose $\hat{\gamma}_i$ s appear to be estimated with least error, in that they lie in a quintile confirmed by one of the other three sensitivity measures: the cumulative abnormal returns over two alternative event periods in 2010 (days 1 to 4 and 1 to 5 following polling day)**;** and the $\hat{\gamma}_i$ estimated using Intrade prices. To save space we do not report the quantile regression specifications, as they yielded qualitatively similar results to the OLS regressions. Neither do we report the coefficients on the industry indicator variables.

In Table 4 we show the re-estimated OLS equations in specifications which are equivalent to those in column 2 of Table 2, Panel A. Where the subsamples are formed on the intersection of poll-based $\hat{\gamma}_i$ and CAR quintiles, around 85 of the 300 observations (28%) are in the 'same-quintile' subset, and about twice as many are in the 'adjacent-quintile' subset. There are more observations – 40% and 72% of observations respectively – in the subsamples formed on the intersection of the two measures of $\hat{\gamma}_i$ derived from the opinion poll and Intrade prediction market data. As in Table 2, Panel A, we find little compelling evidence that director donations to the Conservative Party are related to political sensitivity. The majority of the estimated coefficients on the $DirDonCon_i$ variable are statistically insignificantly different from zero. For the unionisation rate variable we again find generally statistically insignificant coefficients, with evidence of a positive and statistically significant relationship with political sensitivity for only one estimation sample.

[Table 4]

In Table 5 we carry out the same robustness checks on specification (2) in Table 3. Due to the small sample sizes in the 'same-quintile' samples we are unable to estimate the full set of interaction terms, so we carry out these checks only on the larger 'same-and-adjacent quintile' subsamples. There is also insufficient variation in the unionisation rate variable to be able to reliably estimate the coefficients for the two separate groups of industries so we exclude this variable altogether. The results in the first two columns, where we benchmark the poll-based $\hat{\gamma}_i$ s against the two measures of cumulative abnormal returns provide support

for a positive relationship between having a Conservative donating director and political sensitivity in Group A industries, with the estimated coefficients being of a magnitude similar to those in Table 3. The coefficients on the Conservative director donor dummy for Group B industries are less negative than those in Table 3 and are both statistically insignificant. In contrast to specification (2) in Table 3 the dummy for Group A industries, GpA_i, is significant, although it is possible that this indicator is now picking up some of the variation in the (now omitted) unionisation rate measure.

[Table 5]

In the third column we benchmark our preferred measure against the alternative estimated using the Intrade prediction market data. The coefficient on the $DirDonConA_i$ dummy remains positive but is slightly lower than those in the first two columns, and is less precisely estimated, losing statistical significance. The coefficient on the $DirDonConB_i$ dummy is, however, negative and statistically significant and more similar to those in Table 3. The lack of consistency between the CARs benchmark specification and this one is explained by the effects of estimation error on the sample constituents. Because the two types of $\hat{\gamma}_i$ used to define the sample in Panel B are estimated using similar data they are subject to similar sources of error, which is not the case when benchmarking against the CARs. In fact, the observations which are included in the Intrade-$\hat{\gamma}_i$ robustness sample but which are excluded from the CAR robustness samples tend to be those with the more extreme $\hat{\gamma}_i$ measures (we do not tabulate the data, to save space). This suggests that these extreme $\hat{\gamma}_i$ measures are more likely, *ceteris paribus*, to be subject to estimation error, so that we should perhaps place more weight on the robustness tests in the first two columns.

Finally, in Table 6, we repeat the robustness tests, but this time using the CARs as the dependent variable. As in Table 5 we repeat the specification (2) regression shown in Table 3, again presenting only the results of the OLS regressions. Results are qualitatively similar to those in Table 5, particularly the strongly significant coefficients on the Group A dummy (at the bottom of both panels). In these results, though, while coefficients on donations from Group A directors tend to have larger economic significance than those on donations from Group B directors, the Group B ones have positive, rather than negative, coefficients. Although the coefficients on Group B directors' donations are lower than those of Group A, the differences are not statistically significant at standard levels. These tests therefore give us no reason to question our tentative findings suggestive of the positive effect on firm value of

a Conservative-donating director. They also support the indication of the results in Table 5 that the negative effect of a Conservative-donating director in Group B firms may not be robust. The lack of stability of this effect is not very surprising, given our inability to control for donations to Labour because of the small sample size, and the fact that Conservative-donating directors in this industry tend to sit on multiple boards.

[Table 6]

6 CONCLUSIONS

The main objective of this paper is to test whether indirect forms of political financial support from company directors are viewed by the markets as surrogate corporate political donations, which have been found in the US to create party-political links, but which are subject to strong regulation in the UK. To do this we investigate the relationship between donations to the Conservative Party by company directors and companies' political sensitivity.

We use the relationship between changes in opinion polls and individual company returns as our primary firm-level measure of sensitivity to domestic political risk. To support our main tests we confirm that domestic political risk appears to be priced in the UK around elections, and that information conveyed by opinion polls is a suitable proxy for this risk. To do this we link the poll-based sensitivity measure to abnormal returns on the announcement of election results, and exploit variation in electoral conditions over time by investigating all elections between 1992 and 2010.

Focusing on the 2010 election, we present evidence that in some cases political donations made by directors may create political connections for their companies, although the sample size is small and the results are not fully robust, so this evidence is no more than suggestive. Firms in a set of 'Conservative donor only' industries, where we observe corporate or director donations to the Conservative Party but no donations to the Labour Party, have, on average, markedly higher and more positive sensitivities to the electoral fortunes of the Conservative Party. Conditional on this, for firms in these industries it appears that employment of a director who donates to the Conservative Party is positively related to a firm's sensitivity to the Conservative Party winning the election.

For firms in the remaining industries, where it is difficult to assess the effect of donations to the Labour Party due to the small number of such donations, and the multiple boards on which Conservative-donating directors serve, we find some tentative evidence of a negative relationship between employing a Conservative-donating director and sensitivity of the firm's

value to the Conservative Party's chances of winning. However, this evidence is supported by only one of the robustness tests.

For both groups of industries it remains of course possible that these relationships are driven by firm unobservables, such as some form of director-firm positive assortative matching, according to the benefits that companies might derive from different parties holding political power, and director political leanings. In addition, we have not been able to analyse the significant political donations made by private companies and their directors, in which there is generally less distinction between the owners, the managers and the company itself.

APPENDICES

A. UK ELECTIONS BETWEEN 1992 AND 2010

The pre-2011 UK electoral system aids identification of election campaign periods when a priced political factor might be measurable. Until 2011 the UK had variable-term parliaments with a maximum term of five years.[24] Each election campaign had a clearly-defined starting point: the announcement of the election date approximately a month before the election took place. This announcement triggered intense campaigning and opinion polling, with domestic political news dominating the media. Consequently within this period election-related information reached the markets with high frequency and visibility. The relatively short campaign period, characterised by a heightened importance of domestic political news, means that changes in a stock's price during this period are especially likely to be heavily influenced by its sensitivity to the flow of political information.

Our estimation and tests of the poll-based political sensitivity measure focus on the five elections between 1992 and 2010. The two main contenders for government in these elections were the Labour Party and the Conservative Party. The UK parliamentary election system means that the party with the higher percentage of supporting voters is generally the eventual winner, although the geographical distribution of support also plays a part.[25] Table A1 summarises the details of the elections we analyse that are relevant to our study. The table shows that decisive wins were correctly predicted by the opinion polls and the press in 1997 and 2001. The 2005 outcome – including the loss of Labour seats – was also predicted correctly.

[Table A1]

[24] The Fixed-Term Parliaments Act 2011 introduced fixed-term elections for the first time so, in normal circumstances, parliamentary elections will now be held every five years, beginning in 2015. The recent political turmoil in the UK has already resulted in an 'abnormal' circumstance, with a surprise election being called for June 2017, some two years into the first fixed-term parliament.

[25] The system is a 'first past the post' one, in which the candidate in each constituency who wins more votes than any other candidate is elected to Parliament. There is no requirement to win a majority of the votes. The party which has more Members of Parliament than all the other parties forms the government. Consequently the overall percentage of voters who support a party is only approximately related to the number of seats that the party will win, because the distribution of the voters across constituencies is also important.

The 1992 and 2010 elections were different from the other three in our sample. Both of these elections were more closely fought than were the other three. The 1992 election was unusual in that the opinion polls and the press were wrong throughout the election campaign: they predicted a Labour win and the eventual outcome took the country by surprise. The 2010 election was unusual in that it resulted in a hung parliament for the first time since 1974. Support for the third major party, the Liberal Democrats, was sufficiently strong compared with support for the other two parties that, although there was the possibility of an outright Conservative win, a hung parliament was believed to be more likely. In the event the Conservative Party did win more seats than the Labour Party, but not enough for an outright majority. Polling day was followed by a five-day period of bilateral negotiations between the Liberal Democrats and each of the two main parties, each attempting to form a coalition. Eventually the Conservatives were successful, despite the Labour Party having more political affinity with the Liberal Democrats. Table A2 gives a more detailed timeline relating to this election, which informs our decisions regarding event-period timing.

[Table A2]

B. TESTING THE POLITICAL SENSITIVITY MEASURES

We carry out two forms of tests of the predictions in section 3.2. In the first test we use event day/period returns to estimate equations of the form shown in equation (B1).

$$AR_{i,T} = a + b\hat{\gamma}_i + e_i, \qquad \text{(B1)}$$

where $AR_{i,T}$ denotes the abnormal return on stock i on event day T, or a cumulative abnormal return for the 2010 election. If the $\hat{\gamma}_i$ s are suitable proxies for general political sensitivity, the less predictable is the outcome of an election, the larger and more significant should be the coefficient on $\hat{\gamma}_i$.

The choice of the event day for all elections other than 2010 is clear: for all these elections the outcome was known by the end of the day following polling day. The final outcome of the 2010 election was revealed almost a week after polling day, and the timeline in Table A2 of Appendix A suggests that, given that the London Stock Exchange close of trade is at 4.30 pm, Wednesday 12 May or Thursday 13 May are the most appropriate event days. We therefore consider two event periods, cumulating abnormal returns from the day after polling day to 12 May and to 13 May.

Since the $\hat{\gamma}_i$ s are estimated, they will inevitably be subject to measurement error. To address this issue our second test investigates (cumulative) abnormal returns of portfolios formed according to the $\hat{\gamma}_i$ s. For each election we rank the stocks in order of $\hat{\gamma}_i$ and construct an equally-weighted portfolio long in high-$\hat{\gamma}_i$ stocks and short in low-$\hat{\gamma}_i$ stocks. If our hypotheses are valid, the less predictable is the outcome of an election, the higher (more positive) should be the portfolio abnormal return on the event day. One advantage of this approach is that it requires only a reasonably accurate ranking of the $\hat{\gamma}_i$ s, rather than accurate estimates of their values, as in the regression test.

The choice of the number of stocks to include in the portfolio is, of course, subjective. We want a sufficient number of stocks to obtain meaningful results, but not so many that differences between the groups are obliterated. We therefore try portfolios ranging from 30 in each of the high- and low-$\hat{\gamma}_i$ groups, up to 100 in each group.

We assess whether the (cumulative) abnormal returns of the high-minus-low portfolios are different from zero using a parametric test and a non-parametric rank test. The parametric test is the Kolari and Pynnönen, 2010, ADJ-BMP statistic and the non-parametric test statistic is the GRANK-T statistic of Kolari and Pynnönen, 2011. Both tests correct for the upward bias in test statistics caused by ignoring non-event period interdependence. We also adjust for event-day-induced variance, as in Patell, 1976, modified for cumulative abnormal returns (see, for example, Salinger, 1992, p41).

Table B1 presents the coefficients on $\hat{\gamma}_i$ in equation (B1) for each of the elections (estimated using a Huber-White adjusted covariance matrix). For 2010 we show results for both poll-based and Intrade-based $\hat{\gamma}_i$ s. [26]

There is little evidence of the election outcome, or sensitivities to that outcome, having any role in explaining returns for the 1997 or 2005 elections. The coefficient on $\hat{\gamma}_i$ for 2001 is positive and has a *p*-value bordering on conventional levels of significance, at 11.1%. This apparent significance is shown by the portfolio return tests to be caused by outliers; we

[26] The poll-based and Intrade-based coefficient sizes are not comparable as the proxies for Δp_τ are of different orders of magnitude.

discuss this in more detail below. For both 1992 and 2010 the coefficients on $\hat{\gamma}_i$ are significant and positive.

[Table B1]

The portfolio-returns tests confirm the regression results and shed some more light on the near-significant coefficient in 2001. Figure B1 summarises the event-period (cumulative) abnormal returns of the portfolios that are long in high-$\hat{\gamma}_i$ and short in low-$\hat{\gamma}_i$ firms, for between 30 to 100 firms in each set (that is, total portfolio sizes 60 to 200). The left-hand column shows the means and medians while the right-hand one shows the *p*-values of the parametric and non-parametric tests.

The Figure confirms the general picture presented by the regression tests. The 1992 results dominate the others: the abnormal returns are about three times higher and the *p*-values on both tests are so small as to be almost invisible. They also suggest that the returns are very closely related to the size of the $\hat{\gamma}_i$ s, because as the portfolio sizes increase and stocks with less extreme $\hat{\gamma}_i$ s are introduced, the abnormal returns fall. The 2010 results – for which the abnormal returns are measured over the extended post-polling period – are dwarfed by the 1992 ones but both the parametric and non-parametric tests predominantly suggest that these returns are significantly different from zero.

[Figure B1]

In contrast to the closely-fought elections in 1992 and 2010, the 1997 and 2005 election portfolios have abnormal returns that hover around 0, with *p*-values on both tests that are not significant at standard levels. For these there is no indication of significant abnormal returns related to the election. Although the returns for the 2001 election also hover around 0, many of the adjusted *t*-tests (ADJ-BMP) suggest that they are significantly different from zero. These are contradicted by the rank tests, which are nowhere close to being significant. Inspection of the data revealed that this result was accounted for by just five firms which had extreme abnormal returns on the announcement date for reasons not obviously connected to the election. These also account for the relatively low *p*-value on the regression tests results reported in Table B1.

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Table 1 Summary statistics

Panel A Donations: Firm level

	Mean	SD	Min	Q1	Median	Q3	Max
Indicator variables							
Conservative director-donor employer *(DonDirCon$_i$)*	0.143	0.351	0	0	0	0	1
Conservative company-donor *(DonCoCon$_i$)*	0.020	0.140	0	0	0	0	1
Labour director-donor employer *(DonDirLab$_i$)*	0.023	0.151	0	0	0	0	1
Labour company-donor *(DonCoLab$_i$)*	0.037	0.188	0	0	0	0	1
Amounts							
Conservative director-donations *(DonDir£Con$_i$)*	8,009	50,249	0	0	0	0	578,621
DonDir£Con$_i$, conditional on *DonDir£Con$_i \neq 0$*	55,877	123,437	1,500	2,500	7,000	25,959	578,621
Conservative company-donations *(DonCo£Con$_i$)*	742	10,365	0	0	0	0	178,000
DonCo£Con$_i$, conditional on *DonCo£Con$_i \neq 0$*	37,120	69,309	2,914	3,500	10,404	17,500	178,000
Labour director-donations *(DonDir£Lab$_i$)*	218	2,519	0	0	0	0	42,000
DonDir£Lab$_i$, conditional on *DonDir£Lab$_i \neq 0$*	9,329	14,734	500	2,000	3,800	10,000	42,000
Labour company-donations *(DonCo£Lab$_i$)*	520	5,169	0	0	0	0	82,648
DonCo£Lab$_i$, conditional on *DonCo£Lab$_i \neq 0$*	14,169	24,212	1,400	1,500	5,314	17,413	82,648

Panel B Summary of dependent variables (%)

	Mean	SD	Min	Q1	Median	Q3	Max
$\hat{\gamma}_i$	0.052	0.310	-1.194	-0.109	0.046	0.213	1.140
For robustness checks:							
$\hat{\gamma}_{i,Intrade}$	0.020	0.050	-0.135	-0.007	0.014	0.045	0.355
CAR$_i$(1,4)	0.118	3.119	-8.443	-1.679	-0.218	1.646	15.935
CAR$_i$(1,5)	0.865	3.684	-17.030	-1.065	0.864	2.703	17.549

Continued...

Panel C Political sensitivity and donation patterns by industry

	No. of companies	Mean $\hat{\gamma}_i$ (%)	Mean CAR (1,4) (%)	Mean CAR (1,5) (%)	Proportion donating to Conservative Party		Proportion donating to Labour Party		Mean unionisation rate
					Via directors	From company	Via directors	From company	
Group A	***63***	***0.263***	***0.758***	***1.786***	***0.175***	***0.032***	***0.000***	***0.000***	***0.199***
Basic materials	24	0.340	1.966	2.894	0.167	0.042	0.000	0.000	0.198
Healthcare	7	0.097	-1.184	0.493	0.143	0.000	0.000	0.000	0.184
Telecoms	5	0.205	0.421	2.692	0.200	0.000	0.000	0.000	0.174
Utilities	9	0.049	0.212	0.222	0.000	0.111	0.000	0.000	0.249
Oil and Gas	18	0.348	0.269	1.341	0.278	0.000	0.000	0.000	0.187
Group B	***237***	***-0.005***	***-0.052***	***0.620***	***0.135***	***0.017***	***0.030***	***0.046***	***0.185***
Industrials	57	0.083	0.636	0.923	0.105	0.000	0.000	0.018	0.215
Consumer goods	22	-0.016	-0.160	0.659	0.136	0.000	0.045	0.045	0.172
Consumer services	59	0.028	-0.554	0.296	0.085	0.034	0.017	0.085	0.214
Financials	82	-0.095	-0.173	0.551	0.220	0.024	0.061	0.049	0.153
Technology	17	0.036	0.110	1.007	0.000	0.000	0.000	0.000	0.154

Continued...

Panel D Company characteristics: mean by industry

	Leverage	LnMV	RoA	Tobin's q	No. of directors
Group A	***0.298****	***8.154*****	***8.272***	***3.844***	***9.381****
Basic materials	0.219	8.093	8.300	3.114	9.125
Healthcare	0.302	8.374	9.987	3.829	9.286
Telecoms	0.419	8.830	4.622	7.998	11.400
Utilities	0.616	8.273	7.654	3.125	9.000
Oil and Gas	0.208	7.903	8.891	4.029	9.389
Group B	***0.368***	***7.316***	***7.823***	***6.922***	***8.738***
Industrials	0.385	7.215	9.106	4.556	8.228
Consumer goods	0.371	7.910	6.887	2.822	9.364
Consumer services	0.501	7.290	10.073	19.024	9.169
Financials	0.300	7.287	5.154	1.816	8.768
Technology	0.179	7.127	9.800	2.796	8.000
Total no. of companies	300	300	300	300	300

Continued...

Notes

1. Panel A summarises for the whole sample donations to the two main political parties.
$DonDirCon_i$ is an indicator which equals 1 if any director on company *i*'s board donated to the Conservative Party between June 2005 and April 2010.
$DonDir£Con_i$ is the total monetary value of company *i*'s director-donations to the Conservative Party between June 2005 and April 2010.
$DonCoCon_i$ and $DonCo£Con_i$ are the equivalent for donations directly made by company *i*.
$DonDirLab_i$, $DonDir£Lab_i$, $DonCoLab_i$ and $DonCo£Lab_i$ are equivalent measures for the Labour Party

2. Panel B summarises the dependent variables used.
$\hat{\gamma}_i$ is stock *i*'s opinion-poll based political sensitivity measure estimated from equation (3).
$\hat{\gamma}_{i,Intrade}$ is stock *i*'s Intrade-price based political sensitivity measure estimated from equation (3).
$CAR_i(1, 4)$ is the cumulative abnormal return on stock *i* from the day after the 2010 polling day to 12 May, 2010.
$CAR_i(1, 5)$ is the cumulative abnormal return on stock *i* from the day after the 2010 polling day to 13 May, 2010.

3. Panel C summarises political sensitivity at industry level, and shows the pattern of political donations and unionisation by industry, categorised into Group A industries, which donate only to the Conservative Party and Group B industries, which donate to both, or neither political parties. The variables summarised are $\hat{\gamma}_i$, $CAR_i(1, 4)$ and $CAR_i(1, 5)$, as in Panel B. Also shown is UN_i^j, the degree of unionisation in the firm *i*'s two digit industry, *j*. This is measured as the fraction of workers that report being union members in 2009 and is derived from the UK Labour Force Survey.

4. Panel D summarises company characteristics by industry. The asterisks against the Group A industry means in row 1 of the panel denote the statistical significance of *t*-tests of differences between Group A and Group B means. *** denotes significance at 1%; ** at 5%; and * at 10%. As in Panel C, Group A industries are those which donate only to the Conservative Party. Group B industries donate to both, or neither political parties.

Market value is measured at 1 March, 2010.
Leverage = book value of debt divided by total assets, as reported in the financial statements ended in 2010.
RoA = [Net Income before Preferred Dividends + ((Interest Expense on Debt-Interest Capitalized) × (1-Tax Rate))] / [Average of Last Year's and Current Year's Total Assets] × 100, as reported in the financial statements ended in 2010.
Tobin's q is market value divided by book value.
No. of dirs is the number of directors on the board as reported in the most recent financial statements preceding the election.

Table 2 Political sensitivity, director donations and unionisation rates

Panel A Donation measure: Director Conservative donor indicator only

	Probit	OLS	Quantile regressions		
			0.25	**0.50**	**0.75**
$DonDirCon_i$	-0.099	-0.043	-0.059	-0.061	0.008
	(0.262)	(0.385)	(0.022)**	(0.198)	(0.820)
UN_i^j	-0.214	0.115	0.043	-0.021	-0.154
	(0.494)	(0.505)	(0.776)	(0.895)	(0.539)
$LnMV_i$	0.013	-0.020	-0.008	-0.029	-0.032
	(0.633)	(0.157)	(0.487)	(0.017)**	(0.018)**
$Leverage_i$	-0.358	-0.204	-0.266	-0.222	-0.105
	(0.010)***	(0.002)***	(0.001)***	(0.002)***	(0.125)
Industry Dummies Group A:					
Basic materials	0.208	0.220	0.091	0.254	0.443
	(0.424)	(0.004)***	(0.407)	(0.000)***	(0.000)***
Telecoms	-0.050	0.144	0.067	0.160	0.231
	(0.888)	(0.095)*	(0.766)	(0.217)	(0.036)**
Utilities	-0.247	0.000	-0.005	0.014	-0.007
	(0.396)	(0.997)	(0.951)	(0.702)	(0.877)
Oil and gas	0.171	0.228	-0.021	0.281	0.408
	(0.528)	(0.006)***	(0.828)	(0.010)***	(0.026)**
Industry Dummies Group B:					
Industrials	-0.287	-0.025	-0.132	-0.072	0.095
	(0.234)	(0.581)	(0.123)	(0.087)*	(0.136)
Consumer goods	-0.338	-0.108	-0.191	-0.127	0.021
	(0.178)	(0.044)**	(0.034)**	(0.069)*	(0.726)
Consumer services	-0.269	-0.056	-0.208	-0.053	0.067
	(0.269)	(0.251)	(0.051)*	(0.318)	(0.261)
Financials	-0.493	-0.207	-0.288	-0.169	-0.109
	(0.029)**	(0.000)***	(0.001)***	(0.000)***	(0.019)**
Technology	-0.455	-0.114	-0.343	-0.144	0.086
	(0.061)*	(0.286)	(0.010)***	(0.222)	(0.576)
Pseudo Rsq/AdjRsq	0.139	0.204	0.150	0.128	0.191
N	300	300	300	300	300
Predicted $\hat{\gamma}_i$ (× 100):					
Mean			-0.100	0.046	0.213
Median			-0.118	0.015	0.194

Continued ...

Panel B Donation measure: Director Conservative donor, and high donor indicators

	Probit	OLS	Quantile regressions		
			0.25	**0.50**	**0.75**
$DonDirCon_i$	0.041	-0.033	-0.049	0.077	0.008
	(0.714)	(0.660)	(0.335)	(0.292)	(0.778)
$HiDonDirCon_i$	-0.301	-0.022	-0.060	-0.161	-0.107
	(0.052)*	(0.813)	(0.480)	(0.074)*	(0.352)
UN_i^j	-0.185	0.118	0.120	-0.021	-0.154
	(0.559)	(0.493)	(0.440)	(0.909)	(0.558)
$LnMV_i$	0.013	-0.020	-0.007	-0.034	-0.032
	(0.646)	(0.156)	(0.499)	(0.011)**	(0.027)*
$Leverage_i$	-0.382	-0.206	-0.247	-0.223	-0.105
	(0.005)***	(0.002)***	(0.003)***	(0.004)***	(0.076)*
Industry dummies?	Yes	Yes	Yes	Yes	Yes
Pseudo Rsq/AdjRsq	0.147	0.202	0.151	0.135	0.192
N	300	300	300	300	300
Predicted $\hat{\gamma}_i$ (× 100):					
Mean			-0.103	0.055	0.210
Median			-0.122	0.025	0.191

Notes

1. The table shows the results of estimating equation (5), $\Pr\left(\hat{\gamma}_i^{Pos} = 1\right) = \Phi(\boldsymbol{\theta X}_i)$ and equations (6a) and (6b), $\hat{\gamma}_i = \boldsymbol{\theta X}_i + u_i$ and $\hat{\gamma}_i = \boldsymbol{\theta_q X}_i + u_{qi}$ where $Quant_q\left(\hat{\gamma}_i \left| \boldsymbol{X}_i \right.\right) = \boldsymbol{\theta_q X}_i$. $\hat{\gamma}_i$ denotes the poll-based political sensitivity of stock *i*, $\hat{\gamma}_i^{Pos}$ takes the value 1 if $\hat{\gamma}_i$ is positive and $\boldsymbol{X}_i$ represents a set of explanatory variables.

2. Explanatory variables are:
$DonDirCon_i$, an indicator variable which equals 1 if any director on company *i*'s board donated to the Conservative Party between June 2005 and April 2010;
$HiDonDirCon_i$, (Panel B only), which equals 1 if the company is a particularly high director-donor to the Conservative Party (its donation lies above the median of donations, conditional on a donation being made);
UN_i^j, the degree of unionisation in firm *i*'s two digit industry, *j*;
$LnMV_i$, log market value as at 1 March, 2010;
$Leverage_i$, long-term debt divided by total assets; and
IND_i^k, an indicator variable which equals 1 if company *i* is in broad industry *k*. The base industry is 'Healthcare'.

Group A industries are those which donate only to the Conservative Party. Group B industries donate to both, or neither political parties.

3. All equations are estimated with Huber-White standard errors. The probit equation coefficients presented are marginal effects. *p*-values are given in parentheses. *** denotes significance at 1%; ** at 5%; and * at 10%.

Table 3 Political sensitivity $\hat{\gamma}_i$, director donations and unionisation rates; Groups A and B

	Specification (1)				Specification (2)			
	OLS	Quantile regressions			OLS	Quantile regressions		
		0.25	0.50	0.75		0.25	0.50	0.75
DonDirConA$_i$	0.201	0.055	0.279	0.212	0.200	0.048	0.275	0.203
	(0.029)**	(0.652)	(0.077)*	(0.018)**	(0.029)**	(0.772)	(0.008)***	(0.009)***
DonDirConB$_i$	-0.141	-0.100	-0.114	-0.127	-0.142	-0.106	-0.123	-0.110
	(0.022)**	(0.148)	(0.004)***	(0.128)	(0.022)**	(0.080)*	(0.009)***	(0.069)*
UN_i^j	0.285	0.353	0.090	-0.031				
	(0.078)*	(0.021)**	(0.446)	(0.913)				
UNA_i^j					-0.067	0.003	-0.385	1.005
					(0.900)	(0.992)	(0.733)	(0.303)
UNB_i^j					0.301	0.400	0.100	-0.061
					(0.074)*	(0.031)**	(0.334)	(0.833)
LnMV$_i$	-0.026	-0.017	-0.014	-0.044				
	(0.060)*	(0.116)	(0.211)	(0.025)**				
LnMVA$_i$					-0.029	-0.016	-0.028	-0.083
					(0.176)	(0.253)	(0.160)	(0.000)***
LnMVB$_i$					-0.024	-0.030	-0.009	-0.024
					(0.172)	(0.111)	(0.536)	(0.330)
Leverage$_i$	-0.172	-0.259	-0.234	-0.079				
	(0.011)**	(0.000)***	(0.000)***	(0.410)				
LeverageA$_i$					-0.188	-0.229	-0.363	-0.407
					(0.280)	(0.022)**	(0.116)	(0.000)***
LeverageB$_i$					-0.169	-0.241	-0.210	-0.040
					(0.024)**	(0.012)**	(0.002)***	(0.711)
GpA$_i$	0.220	0.208	0.170	0.243	0.336	0.191	0.490	0.626
	(0.000)***	(0.000)***	(0.008)***	(0.000)***	(0.205)	(0.377)	(0.152)	(0.035)**
Pseudo Rsq/AdjRsq	0.186	0.119	0.099	0.121	0.178	0.123	0.104	0.139
N	300	300	300	300	300	300	300	300
Test *DonDirConA*$_i$ = *DonDirConB*$_i$ (*p*-values)	0.002***	0.269	0.016**	0.006***	0.002***	0.383	0.001***	0.002***
Test $UNA_i^j = UNB_i^j$ (*p*-values)					0.512	0.218	0.669	0.295
Predicted $\hat{\gamma}_i$ (× 100):								
Mean		-0.089	0.039	0.210		-0.096	0.043	0.218
Median		-0.099	0.024	0.193		-0.105	0.020	0.185

Continued...

1. The table shows the results of estimating equations (6a) and (6b), $\hat{\gamma}_i = \boldsymbol{\theta X}_i + u_i$ and $\hat{\gamma}_i = \boldsymbol{\theta_q X}_i + u_{qi}$ where $Quant_q\left(\hat{\gamma}_i \middle| \boldsymbol{X}_i\right) = \boldsymbol{\theta_q X}_i . \hat{\gamma}_i$ denotes the poll-based political sensitivity of stock *i* and $\boldsymbol{X}_i$ represents a set of explanatory variables.

2. Explanatory variables are:
GpA_i, an indicator variable which equals 1 if company *i* is in Group A, industries which donate only to the Conservative Party;
$DonDirConA_i$, an indicator variable which equals 1 if company *i* is in Group A and any director on company *i*'s board donated to the Conservative Party between June 2005 and April 2010; and $DonDirConB_i$, an equivalent variable for companies in Group B industries, those which donate to both, or neither political parties;
UN_i^j, the degree of unionisation in firm *i*'s two digit industry, *j*;
$LnMV_i$, log market value as at 1 March, 2010; and
$Leverage_i$, book value of debt divided by total assets.
In specification (2) the last three variables are interacted with the dummy variables for Groups A and B respectively, indicated in each case by a suffix A or B.
3. *p*-values of F-tests are given towards the bottom of each set of regression results.
4. All equations are estimated with Huber-White standard errors. *p*-values are given in parentheses. *** denotes significance at 1%; ** at 5%; and * at 10%

Table 4 Robustness tests: whole sample

	Poll-based $\hat{\gamma}_i$ and CAR (1, 4)		**Poll-based $\hat{\gamma}_i$ and CAR (1, 5)**		**Poll-based $\hat{\gamma}_i$ and Intrade $\hat{\gamma}_i$**	
	Same Quintile	**Same/Adjacent Quintiles**	**Same Quintile**	**Same/Adjacent Quintiles**	**Same Quintile**	**Same/Adjacent Quintiles**
$DonDirCon_i$	-0.049	0.024	0.168	0.077	-0.068	-0.097
	(0.681)	(0.748)	(0.039)**	(0.103)	(0.420)	(0.119)
UN_i^j	0.028	0.110	0.589	0.145	0.197	0.165
	(0.927)	(0.551)	(0.039)**	(0.434)	(0.639)	(0.487)
$LnMV_i$	0.029	0.015	0.010	0.007	-0.034	-0.025
	(0.314)	(0.442)	(0.660)	(0.702)	(0.141)	(0.124)
$Leverage_i$	-0.262	-0.183	-0.077	-0.105	-0.361	-0.295
	(0.168)	(0.024)**	(0.431)	(0.108)	(0.001)***	(0.001)***
Industry dummies?	Yes	Yes	Yes	Yes	Yes	Yes
AdjRsq	0.220	0.173	0.342	0.234	0.325	0.200
N	85	179	86	190	121	217

Notes

1. The table shows results of replicating the OLS regressions reported in Panel A of Table 2, including in the estimation only those observations which appear in the same quintile, or no more than one quintile apart, in each of the two political sensitivity measures indicated in the panel title. See notes to Table 2 for variable definitions.
2. *CAR*(1, 4) is the cumulative abnormal return on stock *i* from the day after the 2010 polling day to 12 May, 2010.
CAR(1, 5) is the cumulative abnormal return on stock *i* from the day after the 2010 polling day to 13 May, 2010.
Intrade $\hat{\gamma}$ is stock *i*'s Intrade-price based political sensitivity measure estimated from equation (3).
3. *p*-values are given in parentheses. *** denotes significance at 1%; ** at 5%; and * at 10%.

Table 5 Robustness tests: Groups A and B

	Poll-based $\hat{\gamma}_i$ and CARs		**Poll-based $\hat{\gamma}_i$ and Intrade $\hat{\gamma}_i$**
	CAR (1, 4)	**CAR (1, 5)**	
DonDirConA$_i$	0.216	0.211	0.191
	(0.055)*	(0.047)**	(0.180)
DonDirConB$_i$	-0.068	0.030	-0.181
	(0.496)	(0.565)	(0.010)***
LnMVA$_i$	-0.034	-0.031	-0.019
	(0.281)	(0.374)	(0.488)
LnMVB$_i$	0.034	0.021	-0.035
	(0.080)*	(0.220)	(0.072)*
LeverageA$_i$	-0.046	-0.145	-0.159
	(0.838)	(0.479)	(0.462)
LeverageB$_i$	-0.219	-0.122	-0.270
	(0.016)**	(0.122)	(0.003)***
GpA$_i$	0.652	0.633	0.036
	(0.075)*	(0.089)*	(0.913)
AdjRsq	0.156	0.177	0.167
N	179	190	217
Test *DonDirConA*$_i$ = *DonDirConB*$_i$ (*p*-values)	0.060*	0.125	0.020**

Notes

1. The table shows results of replicating the OLS regressions reported in specification (2) of Table 3, including only observations which are no more than one quintile apart in each of the two political sensitivity measures indicated in the panel title. See notes to Table 3 for variable definitions.
2. *CAR*(1, 4) is the cumulative abnormal return on stock *i* from the day after the 2010 polling day to 12 May, 2010.
CAR(1, 5) is the cumulative abnormal return on stock *i* from the day after the 2010 polling day to 13 May, 2010.
Intrade $\hat{\gamma}$ is stock *i*'s Intrade-price based political sensitivity measure estimated from equation (3).
3. *p*-values are given in parentheses. *** denotes significance at 1%; ** at 5%; and * at 10%.

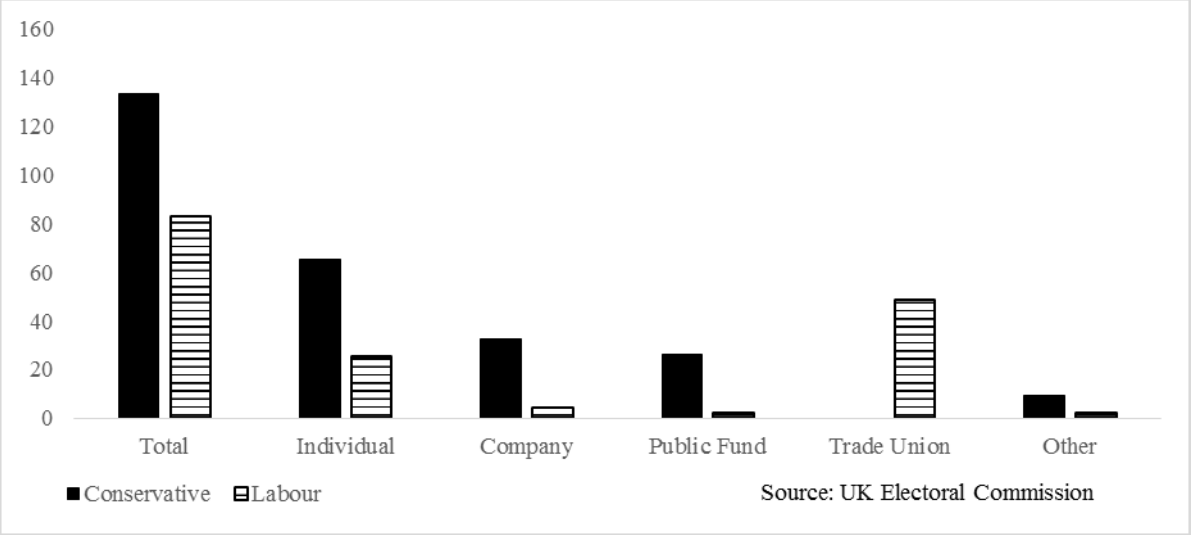
Table 6 Table 6 Robustness tests with CARs as dependent variables: Groups A and B

	CARs and Poll-based $\hat{\gamma}_i$		CARs and Intrade-based $\hat{\gamma}_i$	
Dependent variable:	**CAR (1, 4)**	**CAR (1, 5)**	**CAR (1, 4)**	**CAR (1, 5)**
DonDirConA$_i$	1.158	1.574	1.867	2.606
	(0.504)	(0.344)	(0.388)	(0.292)
DonDirConB$_i$	0.144	0.562	0.747	1.005
	(0.836)	(0.402)	(0.266)	(0.202)
LnMVA$_i$	-1.205	-0.874	-1.135	-1.017
	(0.002)***	(0.066)	(0.016)**	(0.039)**
LnMVB$_i$	0.340	0.413	0.288	0.157
	(0.087)	(0.122)	(0.152)	(0.519)
LeverageA$_i$	-0.425	1.154	1.815	-0.331
	(0.828)	(0.708)	(0.522)	(0.879)
LeverageB$_i$	-1.564	-1.839	-1.222	-1.713
	(0.037)**	(0.050)**	(0.077)*	(0.127)
GpA$_i$	14.120	11.922	11.964	10.463
	(0.000)***	(0.009)***	(0.006)***	(0.031)**
AdjRsq	0.157	0.129	0.095	0.079
N	179	190	176	166
Test *DonDirConA*$_i$ = *DonDirConB*$_i$ (*p*-values)	0.588	0.572	0.621	0.572

Notes

1. The table shows results of replicating the OLS regression equation (6a) reported in specification (2) of Table 3, including only observations which are no more than one quintile apart in each of the political sensitivity measures indicated in the column headings, and with CARs as dependent variables. The regression equation is $CAR_i = \boldsymbol{\theta X}_i + u_i$. CAR_i denotes the cumulative abnormal return of stock *i* (see note 2) and $\boldsymbol{X}_i$ represents a set of explanatory variables. See notes to Table 3 for variable definitions.
2. *CAR*(1, 4) is the cumulative abnormal return on stock *i* from the day after the 2010 polling day to 12 May, 2010.
CAR(1, 5) is the cumulative abnormal return on stock *i* from the day after the 2010 polling day to 13 May, 2010.
Poll-based $\hat{\gamma}_i$ is stock *i*'s opinion-poll based political sensitivity measure estimated from equation (3).
Intrade-based $\hat{\gamma}$ is stock *i*'s Intrade-price based political sensitivity measure estimated from equation (3).
3. *p*-values are given in parentheses. *** denotes significance at 1%; ** at 5%; and * at 10%.

Figure 1 Sources of political finance 2005 to 2010

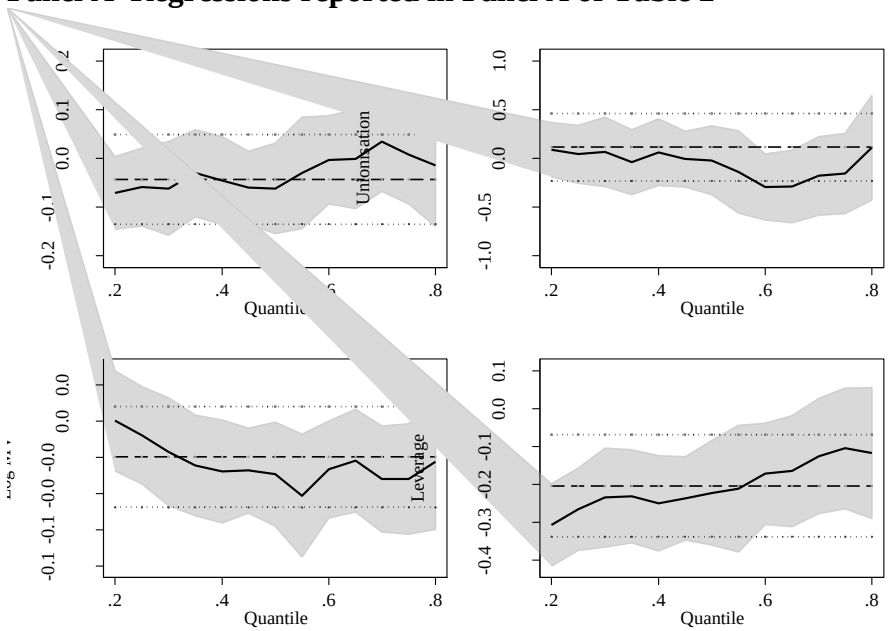


Notes

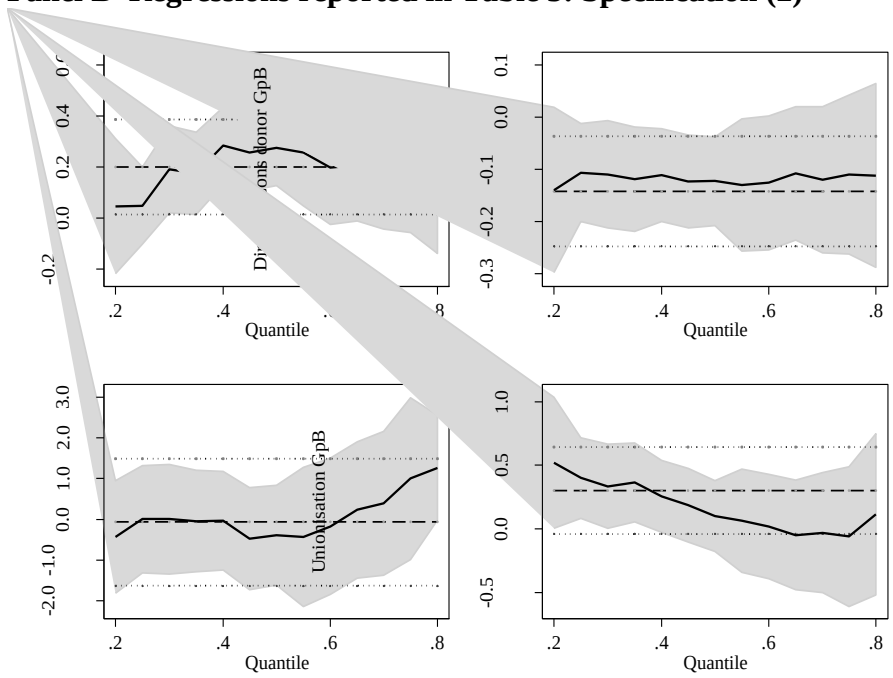
1. The figure summarizes the sources of political finance for the main two political parties. The *y*-axis denotes the monetary value of all donations between June 2005 and March 2010 in £millions.

Figure 2 Coefficients of quantile regressions

Panel A Regressions reported in Panel A of Table 2



Panel B Regressions reported in Table 3: Specification (2)



Group A industry coefficients **Group B industry coefficients**

Notes

1. The Figure shows coefficients of selected independent variables across the distribution of conditional gamma quantiles, derived by estimating the quantile regression in equation (6b), $\hat{\gamma}_i = \boldsymbol{\theta_q X}_i + u_{qi}$ where $Quant_q\left(\hat{\gamma}_i \middle| \boldsymbol{X}_i\right) = \boldsymbol{\theta_q X}_i$. $\hat{\gamma}_i$ denotes the poll-based political sensitivity of stock *i* and $\boldsymbol{X}_i$ represents a set of explanatory variables. In each panel the long dashed line is the OLS estimated coefficient, with the 95% confidence interval shown as short dashes. The grey area is the 95% confidence interval around the quantile regression coefficient.
2. Explanatory variables are as described in the notes to Tables 2 and 3 respectively, which present the results for the 0.25, 0.5 and 0.75 quantiles.

APPENDICES' TABLES AND FIGURES

Table A1. Brief description of the five elections

	1992	1997	2001	2005	2010
Date election called	11 March 1992	17 March 1997	8 May 2001 (Note 1)	5 April 2005	6 April 2010
Polling date	9 April 1992	1 May 1997	7 June 2001	5 May 2005	6 May 2010
Incumbent party	Conservative	Conservative	Labour	Labour	Labour
Winning party	Conservative	Labour	Labour	Labour	Hung (Conservatives became majority party in coalition)
% lead of winning party over rival	10	38	38	24	7
Prediction when election called	Labour to win with small majority	Labour landslide win	Labour landslide win	Labour to win with reduced majority	Conservatives to win most seats, possibly not enough for outright majority

Notes
1. Polling date widely expected to be 3 May 2001, to coincide with local elections, but on 3 April Prime Minister Blair announced a postponement due to country-wide travel restrictions imposed to prevent the spread of foot and mouth disease.

Table A2. Timeline for the 2010 election

Thursday 6 May 2010, 22:00 BST	Polls close and coalition negotiations begin.
Monday 10 May, 17:00 BST	Gordon Brown publicly recognises that he is an obstacle to the formation of a Labour/Liberal Democrat coalition government. Announces that he will step down as Labour Party leader by September 2010, in the hope that this will make the coalition viable.
Tuesday 11 May, 19:20 BST	Gordon Brown resigns as Prime Minister, following which David Cameron invited to form a government.
Early hours of Wednesday 12 May	Coalition deal between Conservatives and Liberal Democrats confirmed. Initial agreement published. Negotiations begin about Cabinet posts.
Wednesday 12 May, 14:22 BST	David Cameron and Nick Clegg give first joint press conference.
Wednesday 12 May, various times	Government posts announced throughout the day, continuing after markets closed.

Sources:
http://news.bbc.co.uk/1/hi/uk_politics/election_2010/8677552.stm
http://www.telegraph.co.uk/news/election-2010/7558554/General-Election-2010-live.html

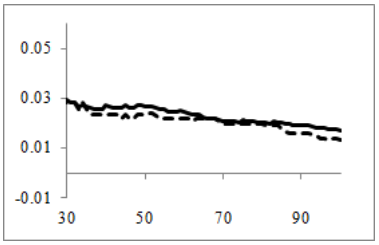
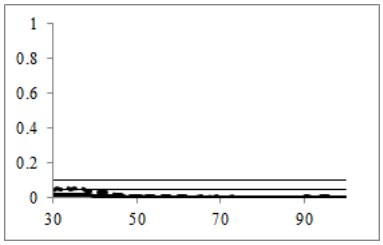
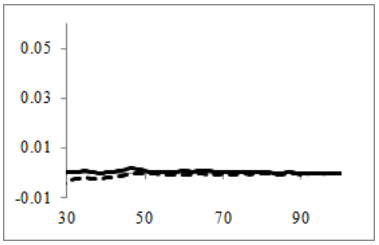
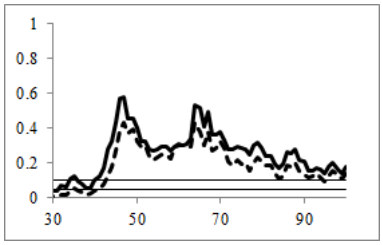
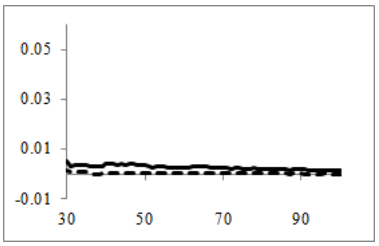
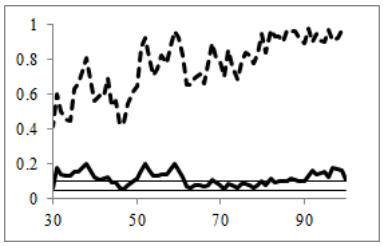
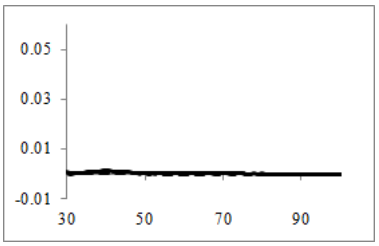
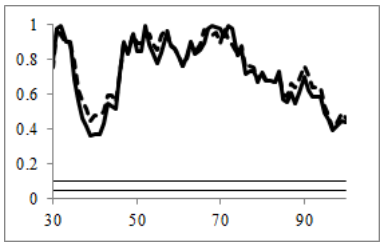
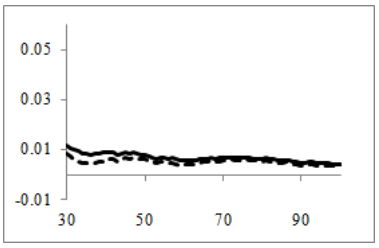
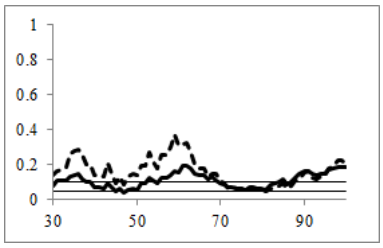
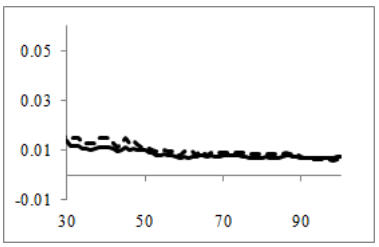
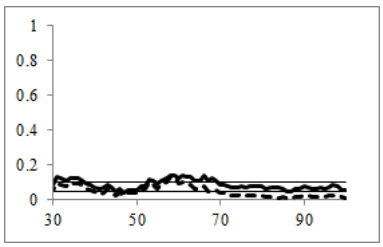
Table B1. Relationship between abnormal returns and $\hat{\gamma}_i$ s

1992			4.052
			(0.000)***
1997			4.024
			(0.599)
2001			2.271
			(0.111)
2005			0.498
			(0.488)
2010	(12 May)	Polls	1.561
			(0.061)*
		Intrade	12.295
			(0.021)**
	(13 May)	Polls	2.125
			(0.012)**
		Intrade	10.859
			(0.052)*

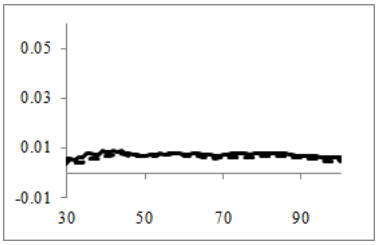
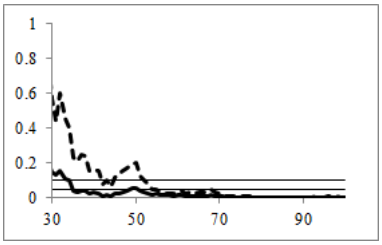
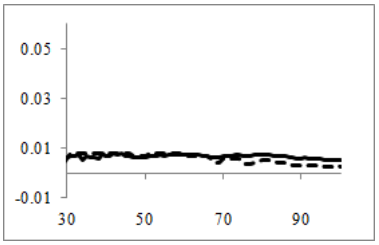
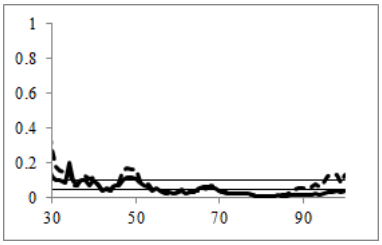
Notes

1. The table presents the coefficient on $\hat{\gamma}_i$ in equation (B1), $AR_{i,T} = a + b\hat{\gamma}_i + e_i$ where $\hat{\gamma}_i$ is stock *i*'s political sensitivity measure estimated from equation (3). $AR_{i,T}$ is calculated as in equation (4). When *T* relates to more than one day (for the 2010 election), $AR_{i,T}$ denotes a cumulative abnormal return. Results are presented for $\hat{\gamma}_i$ s calculated using changes in opinion polls; for the 2010 election they are also presented for $\hat{\gamma}_i$ s calculated using changes in Intrade share prices.
2. For all elections other than 2010, the announcement-day abnormal return is measured on the day after polling day. 2010 returns are cumulated from the day after polling day to 12 May and 13 May, as described in the text.
3. *p*-values in parentheses. *** denotes significance at 1%; ** at 5%; and * at 10%.

Figure B1 Portfolio abnormal returns on results announcement day

Year of election	Mean and median abnormal returns Unbroken line = mean return; dashed line = median return	ADJ-BMP and GRANK-T statistics (*p*-values) Unbroken heavy line = ADJ_BMP statistic *p*-value; dashed line = GRANK-T statistic *p*-value; unbroken faint lines are $p = 0.05$ and 0.1
1992		
1997		
2001		
2005		
2010: Portfolios formed using $\hat{\gamma}_i$ estimates based on opinion polls CARs to 12 May, 2010		
CARs to 13 May, 2010		

Continued...

Year of election	Mean and median abnormal returns Unbroken line = mean return; dashed line = median return	ADJ-BMP and GRANK-T statistics (*p*-values) Unbroken heavy line = ADJ_BMP statistic *p*-value; dashed line = GRANK-T statistic *p*-value; unbroken faint lines are $p = 0.05$ and 0.1
2010: portfolios formed using $\hat{\gamma}_i$ estimates based on Intrade prices CARs to 12 May, 2010		
CARs to 13 May, 2010		

Notes

1. The Figure summarises the (cumulative) announcement-day abnormal returns of portfolios formed by going long on high-$\hat{\gamma}_i$ stocks and short on low-$\hat{\gamma}_i$ stocks, as described in the text. Portfolio sizes are shown on the *x*-axes and abnormal returns on the *y*-axes.
2. For all elections other than 2010, the abnormal return is measured on the day after polling day. 2010 returns are cumulated from the day after polling day to 12 May and to 13 May. Results are presented for $\hat{\gamma}_i$ s calculated using changes in opinion polls; for the 2010 election they are also presented for $\hat{\gamma}_i$ s calculated using changes in Intrade share prices.