

University of Oxford



**Essays in Political Finance
and Corporate Reputation**

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Jesus College

University of Oxford

A thesis submitted in requirement for the degree of

Doctor of Philosophy

Trinity Term 2017

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This dissertation consists of three essays which examine topics in finance, political science and corporate reputation.

The first essay investigates the movement of individuals between government positions and private sector employment in the United States. We study how such movements influence federal government contracting decisions and stock market returns. We show that the firms which will soon hire government officials receive valuable government contracts, beat consensus earnings forecasts, and outperform in the stock market. Managers of these firms can successfully forecast future firm earnings that come as a surprise to equity analysts. Our findings support a quid pro quo hypothesis, in that firms hire government officials in exchange for valuable government contracts.

In the second essay I analyse how the committee seniority system in the United States House of Representatives fosters shifts in federal government contracts towards districts of senior committee members. These shifts induce heterogeneity in firm-level investment and hiring activities, future profitability and long-run stock market returns. They also drive sizable investment spillovers through local supply chains and influence future election results. I show that an investment strategy that exploits the ramifications of committee seniority on local corporate activities generates abnormal stock market returns up to 7.03% per year.

Finally, in the last essay we undertake an analysis of the value that the stock market attaches to consumer reputation. Using an extensive database of brand imagery surveys, we capture consumers' perceptions of firms and their products in a small number of key factors and show that the stock market attaches considerable value to them. We also examine whether the stock market values consumer reputation correctly and record evidence that it does not always do so, particularly for firms with good value for money products, and during recessions and periods of weak investor sentiment. These results are confirmed by earnings forecast errors of equity analysts. The trading behaviour of investors suggests that it is retail investors who are particularly prone to misprice consumer reputation during such periods.

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ABSTRACT

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The first essay investigates the movement of individuals between government positions and private sector employment in the United States. We study how such movements influence federal government contracting decisions and stock market returns. We show that the firms which will soon hire government officials receive valuable government contracts, beat consensus earnings forecasts, and outperform in the stock market. Managers of these firms can successfully forecast future firm earnings that come as a surprise to equity analysts. Our findings support a quid pro quo hypothesis, in that firms hire government officials in exchange for valuable government contracts.

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INTRODUCTION

This dissertation presents empirical evidence to answer important questions in the areas of political finance and corporate reputation. In the first essay we discuss how the movement of individuals between government and corporate positions influences government procurement decisions and corporate performance. In the second essay I analyse how senior political representation in the United States House of Representatives shapes local corporate activity through geographic shifts in the allocation of government procurement contracts. Finally, in the last essay we evaluate how firm and product reputations influence the valuation and performance of corporations in the United States.

Revolving doors of Washington

In the first essay we provide a comprehensive analysis of the movement of individuals between senior government and corporate positions. We identify revolving-door movements in the United States, and analyse how they affect the performance of U.S. corporations. Such an investigation is timely given the current public unease with revolving-door movements in and out of Washington DC. Unfortunately, there is limited empirical evidence on how these movements impact corporate employers' performance and their business with the government. Convincing evidence would therefore enable us for a more objective and informed

assessment of policy prescriptions regarding this issue. In this chapter we seek to contribute to filling the evidence gap on the conflicts of interest generated by revolving-door movements by investigating their influence on the allocation of government resources and the performance of publicly-listed corporations in the United States.

We show that corporations that end up hiring government officials in the future receive sizable government contracts today, and they outperform other firms in the stock market. Abnormal returns and government contracts to future employers of revolvers peak in the years prior to revolvers leaving the government to join the firms, having steadily increased until then, and they then decline after the revolvers start their corporate jobs. Furthermore, during these conflicted periods, firm managers exhibit superior information on firm earnings. More specifically, they forecast higher firm earnings than analyst consensus, and they are correct in their forecasts.

Managers' ability to forecast unexpected (to the consensus) positive cash flows applies only to firms that receive government contracts and hire revolvers. Furthermore, this phenomenon emerges only during the government tenures of revolving-door employees. So, managers of firms that do not hire any revolving-door employees but receive government contracts, and managers of firms that hire revolving-door employees but do not receive any government contracts do not exhibit comparable optimism and precision in their forecasts.

Findings in this chapter are consistent with a view that some in government service may be favouring firms in order to gain future employment. This chapter therefore highlights a need to monitor, if not reform the institutional incentives surrounding revolving-door movements, so that public officials act in the public

interest. It also highlights the need for a deeper understanding of the formal and informal relationships between governments and corporations.

We seek to contribute to the literature on the economic and financial implications of revolving-door movements. What sets this essay apart, first and foremost, is its comprehensive nature. It covers all industries whereas other studies focus on particular ones, such as banking (Lucca, Serum, and Trebbi, 2014), credit rating agencies (Cornaggia, Cornaggia, and Xia, 2015; Kempf, 2015), insurance (Grace and Phillips, 2008), or lobbying (Blanes i Vidal, Draca, and Fons-Rosen, 2012). This chapter is also different from existing essays in that we cover multiple types of revolving-door movements. We investigate revolvers' career transitions from government to the private sector as well as transitions in the opposite direction. Moreover, we look at firm performance during revolvers' government tenure as well as during their private sector tenure. When we study revolvers' corporate performance implications, we look into both financial performance and operating performance – the latter in the form of government contract allocations. To the best of our knowledge, this is the first essay to study revolvers' impact on their corporate employers' long-run stock return performance.

This chapter also contributes to the identification of *hidden* corporate political connections. Researchers typically identify corporate political connections by using characteristics that are public information, such as political campaign donations, board seat connections, or stock holdings by politicians. Jayachandran (2006), and Cooper, Gulen, and Ovtchinnikov (2010) use, for example, political campaign donations; Fisman (2001), Johnson and Mitton (2003), Kuziemko and Werker (2006), Faccio (2006), Goldman, Rocholl, and So (2009, 2013), Fisman, Fisman, Galef, Khurana and Wang (2012), and Acemoglu, Johnson, Kermani, Kwak and

Mitton (2016) use board seat connections and political networks; Bunkanwanicha and Wiwattanakantang (2009) use connections with business owners; and Tahoun (2014) uses stock holdings by politicians as measures of political connections. In contrast to these papers, this essay uses *hidden* political connections in the form of revolving-door employees. Our measure for corporate political connections is therefore complementary to these: we track senior government employees' career changes, particularly their movement from government service to private sector. The general investor population would not be privy to the relationship between public officials and their future corporate employers while these officials are still in public office. Our results therefore indicate that hidden corporate political connections in the shape of *revolver linkages* do generate significant firm cash flows and shareholder value for corporations.

Senior political representation in the United States House of Representatives and local-firm performance

In the second essay I investigate how senior political representation in the United States House of Representatives systematically influences the government procurement contract allocation decisions, causes investment spillovers and impacts firm profitability and stock market returns. According to strategic delegation theory, voters elect political representatives that bring government spending into their home districts (Chari, Jones, and Marimon, 1997). Political representatives therefore work as district lobbyists and shift government investments towards their constituencies (Ferejohn, 1974). These shifts are particularly important from the perspective of financial economics, because they may impact firm-level investments across different geographies through direct (e.g.

through shifts in primary contracting) and indirect (e.g. through subcontracting decisions) economic channels. They may additionally influence the cross section of stock market returns through expected firm cash flow and uncertainty channels.

This essay seeks to contribute to an ongoing debate in financial economics on how government-level investment activity influences firm-level investment activity (Cohen, Coval, and Malloy, 2011; Synder and Welch, Forthcoming). It also provides a novel geographic exposure measure to government spending, and it analyzes the ways, through which government actions affect firm profitability and stock returns.

To analyse the spillover effects of government procurement, I use a seniority lottery in the United States House of Representatives. Democratic Caucus assigns seniority ranks to incoming House committee members based on chamber seniority. Incoming members to a given House committee with equal experience therefore cause seniority ties and clog the seniority ranking process. In these cases, Democratic Caucus breaks the ties with a seniority lottery (Kellerman and Shepsle, 2009). As a result, some legislators are randomly assigned higher ranked committee seats than their counterparts with equal chamber seniority. I use outcomes of this seniority lottery as exogenous shocks on government contract allocation to districts of lottery-winner legislators (lottery-winner districts) and lottery-loser legislators (lottery-loser districts). By so doing, I show that government procurement drives sizable investment spillovers on local firms.

In this essay I also show that firms in lottery-winner districts exhibit higher future profitability and lower future cash flow volatility relative to firms in lottery-loser districts. Stock market prices lottery announcements, and starting from the month after the lottery, firms in lottery-winner districts outperform firms in lottery-loser districts. The outperformance is strongly driven by firms in lottery-winner districts with high government contract allocation in the previous month.

This chapter's findings have three main implications. First, consistent with strategic delegation theories, senior politicians do shift government contracts to their home districts. In exchange, they receive higher votes. These results therefore imply a commitment mechanism between senior politicians and their electorates. This commitment mechanism is preserved, because parts of Federal Acquisition Regulations (FAR) allow senior legislators to follow in depth and influence federal procurement decisions¹. Providing stronger procurement privacy and curbing the influence of local politics on federal procurement decisions can therefore potentially help government contracts to be better allocated. Second, I show that government procurement has positive spillover effects on corporate investments, and these investments prove to be very profitable. Therefore, the influence of local politics on government contracts further shapes the geography of corporate

¹ Procurement officers must follow Federal Acquisition Regulations (FAR) while allocating government contracts. During these allocations, heads of government agencies give written notifications of proposed contracts to the Congress (Part 17, Subpart 10, Section 8). Members of Congress may request full documentation on bids, including information harmful to the competitiveness of the acquisition (Part 4, Subpart 40, Section 3). Members of Congress may also influence negotiation processes and have a significant effect on the action (Part 15, Subpart 40, Section 6 and Subsection 3). These are on top of the influence legislators may exert on procurement decisions, given the fact that procurement must still be authorized and appropriated (Authorization Act, Appropriation Act). See, <https://www.acquisition.gov/?q=browsefar>

investments and profitability. Third, the geographic distribution of government procurement strongly influences stock market returns, and therefore should be of interest to investors.

This essay contributes to a list of literatures. A number of studies including Cohen, Coval, and Malloy (2011) and Snyder and Welch (Forthcoming) provide mixed results on how government investments impact firm-level investments in the United States². This chapter contributes to this literature by investigating within-district investment spillover effects of government contracting. Seniority lottery provides me with exogenous shifts in government contracting towards districts of lottery-winner legislators. This novel identification strategy enables me to analyse the causal impact of government contracting on firm-level investment activity. Furthermore, in contrast to existing papers, this chapter also examines the channels through which government contracting affects firm profitability and long-run stock returns.

Academic research in financial economics show that a sample of corporations benefit from political lobbying, revolving-door movements of politicians, campaign donations and similar activities. Recent contributions on lobbying, for example, include Blanes i Vidal, Draca, and Fons-Rosen (2012), Akey (2015), and Acemoglu, Kermani, Kwak, and Mitton (2015). Other contributions on revolving doors and political networks include Faccio (2006), Goldman, Rocholl, and So

² Interested reader can refer to Cullen and Fishback (2006), Fishback and Kachanovskaya (2015), Serrato and Wingender (2011), Acconcia, Corsetti and Simonelli (2014), Nakamura and Steinsson (2014), and others for further findings on open economy multipliers.

(2009, 2013), Fisman (2001), Fisman, Fisman, Galef, and Khurana (2012), and Schoenherr (2016). In addition to these, Cooper, Gulen, and Ovtchinnikov (2010) and Tahoun (2014) analyse political campaign donations and stock holding decisions of political representatives. In contrast to all of these papers, I study the ramifications of district representation on stock market returns.

Theoretical and empirical research find that majoritarian systems as in the House of Representatives are grounded in local (district) interests (Milesi-Ferretti, Perotti, and Rostagno, 2002). There is ample evidence on how politicians influence government spending in order to increase votes³. Nonetheless, electoral district connection is surprisingly understudied as a political connection measure in finance. Roberts (1990), and Faccio and Parsley (2009) use sudden deaths of politicians as shocks to firms that are located in their districts. These essays find strong negative announcement returns after sudden deaths of politicians. In addition to analysing short term stock price effects of district representation, this essay also analyses its long term ramifications on corporate performance and stock market returns.

Finally, this essay is also related to the literature on the impact of government policies on asset prices⁴. In a recent paper, Belo, Gala and Li (2013) investigate implications of the presidential puzzle (Santa-Clara and Valkanov, 2003) on stock market returns, and they find that firms with high industry-level exposures to

³ Drazen (2001) provides a review of theoretical and empirical literature.

⁴ A list of theoretical work on this subject includes Pastor and Veronesi (2013), Gomes, Michaelides and Polkovnichenko (2010), and Croce, Kung, Nguyen, and Schmid (2012).

government spending experience positive returns during Democratic presidencies and negative returns during Republican presidencies. In contrast to their paper, this chapter analyses the ramifications of government spending across different regions in a given congressional year. Furthermore, the government spending exposure measure in this chapter is driven by geographic ties rather than industry ties. In another related paper, Kim, Pantzalis and Park (2012) study implications of political alignment with the U.S. president on stock market returns through a government policy uncertainty channel. In contrast to their paper, this chapter takes political seniority as an influence measure on government procurement decisions.

Consumer reputation

In the last essay we provide a comprehensive exploration of the link between a pivotal component of intangible assets, consumer reputation, and its market valuation. According to a number of studies, there has been a substantial change in the composition of corporate assets from tangibles to intangibles. The median market intangibility ratio of publicly traded firms in the United States rose from 20% in the 1960s to 60% in 2007, the proportion of market value of S&P 500 companies attributable to intangible assets increased from 10% to 84% between 1975 and 2015, and investment in intangible assets grew from 4% of U.S. GDP in 1977 to 10% in 2006⁵. Despite the pronounced growth in the scale of intangible assets and investments, we know very little about the determinants of their value

⁵ Ocean Tomo (2015) and Nakamura (2009).

and, in particular, about how the stock market values one of its most important components – consumer reputation. This chapter therefore aims to fill the evidence gap in the market valuation of consumer reputation.

Existing research in finance, economics, accounting, and marketing often uses advertising expenditures to proxy for firms' consumer reputation⁶. But advertising is neither necessary nor sufficient for consumer reputation⁷. It is merely an input and a very noisy measure of the output. Some of the most reputable firms, for example, created their consumer reputations without any advertising and some damaged their consumer reputations with them. Using advertisement expenses to proxy for consumer reputation therefore has serious drawbacks⁸ and may even be subject to incentive problems of disclosure⁹. For these reasons, we choose to measure firms' consumer reputations directly by using detailed quarterly consumer surveys¹⁰ that are carried out by BAV Consulting.

⁶ See, for example, Belo, Lin, and Vitorino (2014), McAlister, Srinivasan and Kim (2007), Han and Manry (2004), and Shah, Stark, and Akbar (2009).

⁷ Landes and Rosenfield (1994) show that the apparent life of advertising shrinks dramatically when firm-specific factors are held constant. It is also very difficult to separate firms that do not advertise from firms that do advertise but do not fully report their advertisement expenses. This causes a large part of the data to be dropped in most studies (see, for example, Belo, Lin, and Vitorino (2014)).

⁸ We show later on that advertising expenses to assets ratio is flat across different consumer reputation portfolios.

⁹ In the UK, for example, during most of Kallapur and Kwan (2004)'s sampling period, firms were allowed to recognize brand assets and potentially avoid London Stock Exchange shareholder approval rules for acquisitions. This meant that the recognition and revaluation of intangible assets could potentially have been correlated with share price movements linked with expectations of future acquisition activity rather than brand value.

¹⁰ Johansson, Dimofte, and Mazvancheryl (2012) horserace consumer survey based and accounting information based brand values on the same firms, and provide evidence on consumer-based brand measures being more price relevant compared to accounting data-based measures.

In comparison to existing studies¹¹, our consumer reputation measures have a longer horizon (from 2001Q1 to 2014Q4), are more diverse (they cover 440 large companies and 2600 products), are more geographically granular (allowing us to identify consumer reputation in different locations), are of higher frequency (in quarterly format), and include multiple dimensions of reputation (48 different emotional imagery attributes)¹². To the best of our knowledge, this essay has the richest dataset available in this literature in terms of the number of firms, products, available time period, frequency, geographic detail, and the number of consumer reputation attributes.

With this extensive data in hand, we show that firm and product reputations account for a substantial proportion of firms' intangible assets and market values. One possible explanation for these variations could be that consumer reputation is not so much an influence on expected cash flows, but more on assets' exposure to systematic risk. We examine whether there is evidence that consumer reputation is a risk factor but find no support for this. If instead consumer reputation is an influence on expected cash flows then the question this raises is whether the market values expectations appropriately.

We find strong evidence to suggest that this is not always the case. First, we show that reputable firms outperform disreputable firms in the stock market in the

¹¹ See, for example, Aaker and Jacobbsson (2001), Rego, Billett, and Morgan (2009), and Aaker and Jacobbsson (1994).

¹² Aaker (1997) underlines the fact that brands have distinct personality dimensions. To best of our knowledge, BAV has the most detailed dataset on various dimensions of brands.

long run. Second, we report that the impact of consumer reputation on the valuation of firms decreases substantially during recessions and weak investor sentiment periods, leading to these substantial future abnormal returns. Third, we examine equity analysts' earnings per share (EPS) forecasts and find that they significantly underpredict (overpredict) future EPS realizations for reputable (disreputable) firms during recessions. While consumer reputation is partly valued, it is not adequately captured by market or analysts' expectations, in particular during periods of weak investor sentiment and recessions.

Fourth, we examine the investment behaviour of different classes of investors over time in stocks of firms with varying reputations. We find that retail investors sell shares of reputable firms during weak investor sentiment periods and institutional investors purchase. Similarly, retail investors buy disreputable firms during weak investor sentiment periods and institutional investors sell them. In short, relatively uniformed investors forgo the high abnormal returns that institutional investors earn from undervalued high reputation firms and overvalued low reputation firms during periods of weak investor sentiment.

Finally, to identify an economic mechanism driving our results, we use firms' product recognition, product leadership and product value for money characteristics. We discover that there is a *flight to product quality and value*, particularly during economic downturns, and the market doesn't seem to price this flight. Reputable firms with the most recognized and preferred products are valued

less, particularly during downturns. Nonetheless, reputable firms with such products end up outperforming disreputable firms without such products by up to 15.86% per year, and this outperformance rises all the way up to 19.19% during recessions. In short, once we incorporate product worth and quality, the valuation gap between reputable and disreputable firms narrows, but the return spread between them widens, despite similar risk characteristics. Reputable firms with value for money products, in particular, are priced less during both expansions and recessions, yet they generate the strongest stock market performance and experience the largest earnings surprises. While doing so, they generate higher future profitability, and do not possess relatively higher risk or cash flow volatility.

In summary, we show that consumer reputation is a significant determinant of firm intangible assets and valuations, and the market at least partially prices it. But it does not do so fully and buying high reputation and selling low reputation firms yields abnormal returns, particularly for firms with value for money products and during recessions and weak investor sentiment periods. These results are confirmed by the errors made by equity analysts in their earnings forecasts, and the future profitability and cash flow volatility of firms, and retail investors are the ones who lose by selling during periods of mispricing.

These results are important in demonstrating a significant relation of consumer perceptions of firm attributes to the valuation of firms. Brands and company names may matter but underlying them are key attributes that influence their

valuations. It is possible to identify some characteristics of companies and products that have important influences on their market valuations but the stock market does not always correctly reflect them. There are particular periods when these misvaluations are most pronounced, namely during recessions and weak investor sentiment periods, and certain investors are especially prone to misvalue the attributes, namely retail investors. As intangibles grow in significance relative to tangible assets in total company valuation, the relevance of the valuation of consumer perceptions of companies and products will arguably intensify.

Structure

The main contributions of the thesis are in chapters: 2, 3, and 4. Each chapter is presented in the format of a discrete research paper. Therefore, each chapter has its own introduction with relevant literature outlined, followed by data, methodology, results and conclusion sections.

REVOLVING DOORS OF WASHINGTON

“When we would become friendly with an office member important to us and the chief of staff was a confident person, I would say or my staff would say to him or her at some point: ‘You know, when you’re done working on the Hill, we would very much like you to consider coming to work for us.’ The moment I said that to them or any of our staff said that to them, that was it. We owned them, and what does that mean? Every request from our office, every request of our clients, everything that we want – they are going to do. Not only that, they are going to think of things we can’t think of to do.” – Jack Abramoff quoted in 60 Minutes, CBS, November 6, 2011.

“Few men have virtue to withstand the highest bidder.” – George Washington

2.1 Introduction¹³

In a July 2007 campaign appearance in Manchester, N.H., then-presidential candidate Barack Obama said, “When I am president, I will make it absolutely clear that working in an Obama administration is not about serving your former employer, your future employer, or your bank account. It’s about serving your country, and that’s what comes first.” Mr. Obama also added that under his

¹³ This chapter is entirely based on the working paper “Is the revolving door of Washington a back door to government contracts and excess stock market returns?” co-authored with Jose Martinez and Han Ozsoylev.

administration federal employees would be prohibited from working at future corporate positions that aim to influence public policy decisions. That ban, he said, would close a “revolving door” between Washington and the corporate world¹⁴.

Mr. Obama’s campaign remarks reflect public unease with revolving door movements in Washington. A poster child example is Darleen Druyun, who oversaw the US Air Force weapons acquisitions program before joining Boeing. Ms. Druyun became particularly infamous in 2002 for striking a US\$22.2 billion tanker lease deal with Boeing. Many including Senator John McCain argued that the deal was due to special interests in Washington, representing a corporate bailout for Boeing of tremendous proportions and an immense waste of taxpayer dollars, as the lease price of the tankers exceeded even their outright purchase price.

At the time, Boeing’s stock price had plummeted after the September 11, 2001 attacks, and as many as 30,000 Boeing workers were facing potential layoffs. After the tanker deal was announced in 2002, Boeing stock price rose immensely, and Ms. Druyun eventually joined Boeing in 2003 as its Deputy General Manager for Missile Defense Systems. Subsequent disclosures and court cases revealed that Ms. Druyun violated federal bribery laws for accepting favours from Boeing in exchange for favourable treatments of their contracts (Branstetter, 2005). She also admitted in court that she influenced hiring decisions at the firm and leaked proprietary information during her government tenure¹⁵.

¹⁴ Excerpts are taken from Zeleny (2007). The new President-elect Donald Trump made similar promises on the campaign trail, pledging to “drain the swamp in Washington, D.C.” See, for example, Ho (2016).

¹⁵ During Ms. Druyun’s government tenure, Boeing hired her son-in-law and created a position for her daughter. She acknowledged in court that these hirings were upon her request. In 2004, she was

The Druyun – Boeing case illustrates why many on the street favour restrictions on revolving-door movements¹⁶. Others argue that unduly restrictive provisions on revolving-door movements may deter qualified and competent people from joining government service¹⁷. Unfortunately, there is only limited empirical evidence on how revolving doors impact corporate employers' performance and their business with the government. Evidence like this would allow for more objective and informed assessment of policy prescriptions regarding this issue. It would also contribute to the broader economic debate on effective regulatory design – a debate that goes back at least to Pigou (1938).

We contribute to filling the evidence gap on conflicts of interest generated by revolving-door movements by investigating their impact on corporate performance. We study three particular conflicts of interest: (i) *Conflicts prior to corporate employment*. Public officials may take advantage of their power while in office to favour a certain company or industry, with a view to ingratiating themselves and gaining future employment. (ii) *Conflicts during corporate employment*. Former public officials who have moved to the private sector may curry favour with their former government colleagues to encourage decisions that favour their new employers. Also, they may use confidential information to benefit their new private employers – such as during procurement procedures. (iii) *Conflicts after corporate employment*. Public officials may allow the agenda of their previous corporate

sentenced to jail for corruption. For more on Druyun – Boeing case, see Revolving Door Working Group (2005) report.

¹⁶ A Transparency International UK survey carried out in 2010 reveals that the revolving door between government and business comes a close second in the public's ranking of potentially corrupt activities. See Barrington, Macaulay, and Scott (2010).

¹⁷ See Maskell (2014) and discussions in the President's Commission on Federal Ethics Law Reform, "To Serve with Honor," Report and Recommendations to the President (1989).

employer to influence their government work¹⁸. To analyse how these conflicts of interest impact corporate performance, we investigate whether revolving-door employees, namely, revolvers generate shareholder value *prior to corporate employment, during corporate employment, or after corporate employment*.

We show that revolvers add substantial shareholder value to their future corporate employers *prior to corporate employment*. Firms that will eventually employ current public officials outperform other firms by a statistically significant 7.96% per year, on a value-weighted basis, during the two years before the officials join them. The outperformance, measured using the Fama-French-Carhart four-factor model, is at its strongest immediately before the hiring of the revolvers, and it vanishes after officials join the firms. Portfolios of firms with revolver connections do not exhibit abnormal stock market returns *during corporate employment, or after corporate employment*.

To shed some light on the outperformance of firms *prior to corporate employment*, we investigate the systematic relation between revolving-door movements and government contract allocations. We find that future employers of government officials receive sizable government contracts right before the government officials leave their government offices and join the firms. Similar to the pattern in abnormal returns, government contract allocations peak in the year before the revolver leaves the government to join the firm, having steadily increased until then, and then decline after revolvers start their corporate jobs. Using Fama-MacBeth regressions on monthly stock market returns, we find that government contracting while revolving-door employees are in their government jobs results in excess returns of 3.13% per year for the firms that will employ them.

¹⁸ See David-Barrett (2011) for a detailed discussion.

To tackle causality, we use presidential executive orders that restrict the revolving-door movements of presidential appointees. These binding and unwaived executive orders ban former government employees from lobbying federal officials on procurement issues. During our sample period (1990-2012), two presidential executive orders introduced such restrictions¹⁹. In a difference (between firms that hire presidential appointees and non-appointees) in differences (between restrictive years and non-restrictive years) framework, we show that restrictions on future lobbying activities significantly diminish abnormal returns and government contracts to future corporate employers of revolvers.

Motivated by the confidential relationship between Boeing and Darleen Druyun, we investigate whether revolvers' future bosses exhibit superior information on future firm earnings. We analyse earnings forecasts and earnings surprises in a difference (between management and consensus forecasts) in differences (in event time) framework. We find that management forecasts during revolvers' last year in government are 2.18% ($t = 1.98$) more optimistic than consensus forecasts. Nonetheless, management forecasts exhibit a statistically insignificant earnings surprise of 4.88% ($t = 1.51$). Meanwhile, consensus forecasts exhibit a statistically significant earnings surprise of 7.05% ($t = 2.00$).

Similar to the patterns in abnormal returns and government contracts, management optimism and consensus surprises peak in the year before the revolver leaves the government to join the firm, having steadily increased until then, and they vanish right after the revolver starts the corporate job. It is notable that management and consensus surprises follow parallel trends until the last two years

¹⁹ These are executive order, 12834, issued by President Clinton at the beginning of his presidency, and executive order, 13490, issued by President Obama at the beginning of his presidency.

of revolvers' government tenure. These results are in line with the notion that managers are expecting higher earnings during revolvers' last year of government tenure — and they are indeed correct.

In a falsification test we identify firms that hired revolvers but did not receive any government contracts. Interestingly, management and consensus forecasts for this subsample are very much alike, and neither of them yields earnings surprises. In a separate falsification test, we also investigate firms that received government contracts but did not hire any revolvers. Once again, we find no difference in management and consensus forecasts along with management and consensus earnings surprises. Taken together, our results lend empirical support to the hypothesis that there is a quid pro quo relationship between some public officials and corporations. The relationship manifests itself in unexpected stock market returns and sizable government contract allocations, along with manager optimism and accuracy in forecasting future firm earnings.

Our work contributes to the literature on the economic and financial implications of revolving-door movements. What sets our paper apart, however, is its comprehensive nature. Our paper covers all industries whereas other studies focus on particular ones, such as banking (Lucca, Serum, and Trebbi, 2014); credit rating agencies (Cornaggia, Cornaggia, and Xia, 2015; Kempf, 2015); insurance (Grace and Phillips, 2008); or lobbying (Blanes i Vidal, Draca, and Fons-Rosen, 2012). Our work is also different in that we cover multiple aspects of revolving door movements. We investigate revolvers' career transitions from government to the private sector as well as transitions in the opposite direction. Furthermore, we look at corporate performance during revolvers' government tenure as well as during their private sector tenure. When we study revolvers' corporate performance

implications, we look into both financial performance and operating performance – the latter in the form of government contract allocations. To the best of our knowledge, we are the first to study revolvers’ impact on their corporate employers’ long-run stock return performance. We also provide evidence that firm managers seem to exhibit superior information on firm earnings when they are soon to hire revolvers from the government.

This paper also contributes to the identification of *hidden* corporate political connections. Researchers typically identify corporate political connections by using characteristics that are public information, such as political campaign donations, board seat connections, or stock holdings by politicians²⁰. Our measure for corporate political connections is complementary to these: we track public officials’ career movements, particularly their movement from government service to private jobs. The general investor population would not be privy to the relationship between public officials and their future corporate employers while these officials are still in public office. Our results indicate that hidden corporate political connections in the form of *revolver linkages* generate shareholder value for corporations.

²⁰ See, e.g., Jayachandran (2006), and Cooper, Gulen, and Ovtchinnikov (2010) for political campaign donations; Fisman (2001), Johnson and Mitton (2003), Kuziemko and Werker (2006), Faccio (2006), Goldman, Rocholl, and So (2009, 2013), Fisman, Fisman, Galef, Khurana and Wang (2012), and Acemoglu, Johnson, Kermani, Kwak and Mitton (2016) for board seat connections and other political networks; Bunkanwanicha and Wiwattanakantang (2009) for business owners; and Tahoun (2014) for stock holdings by politicians. Interested reader may also refer to Gormley (1979), Cohen (1986), Spiller (1990), and Dal Bo (2006) for regulatory capture and revolving-door employees.

2.2 Data

Our data on *revolvers*, i.e., individuals who move from government positions to private sector jobs or vice versa, come from the Revolving Door Database maintained by the Center for Responsive Politics (CRP)²¹. This database includes information on former and current US government employees who also held or currently hold positions in the private sector where they can be reasonably expected to influence public policy decisions. This type of private sector employment includes traditional lobbyists, executives, general counsels, and consultants who specialize in public affairs, or who advise their corporate employers on regulatory or political law. CRP has a long list of criteria to determine whether a person belongs in the Revolving Door Database –the list is available on its website www.opensecrets.org/revolving/methodology.php. CRP uses proprietary and publicly available sources to update the data set constantly.

CRP's Revolving Door Database allows us to track revolvers' employment on a yearly basis. For each observation of a revolver-job pair, we have the name of the employer, the beginning year of the job, the ending year of the job, and the employment type (i.e., whether the employer is a government agency, a congressional committee, a US Representative, a US Senator, a lobbying firm, a public firm, a PAC, and so on). A typical entry would be as follows: Mr. Brown was employed by ABC Inc. as Vice President of Government Affairs between 1993 and 1997. The database provides 29,188 observations of revolver-job pairs²².

²¹ This draft includes results from using CRP data that we extracted in January 2014. This CRP sample allows us to analyze 23 years through the end of 2012.

²² This number corresponds to the latest update of the database as of December 2013.

We use the data to identify where and in which positions revolvers worked in a given year. We concentrate on the revolvers who started working in corporate jobs right after their government tenure and the revolvers who started working in government jobs right after their corporate tenure. In both cases, we consider only the revolvers who started working in their next job within a year after they left their former job. Regarding corporate jobs, we consider only employers that are publicly listed firms traded in the United States.

We restrict the analysis to the period from 1990 through 2012. This is because the number of publicly listed firms in the database that employ revolvers of the kind described above is limited before 1990. The time-series average of the number of these firms is 9 between 1980 and 1990, with only one publicly listed firm hiring revolvers in some of those years, compared to the time-series average after 1990 of 75.

We match the data with financial and accounting data from the Center for Research on Security Prices (CRSP) and Compustat. We determine the names of publicly listed firms that appear in the CRP sample, manually search for these firm names on CRSP to find their PERMNO numbers, and use the latter to extract data from CRSP and CRSP/Compustat Merged Database. We exclude from the analysis firms with missing return data and firms with previous year market capitalization of less than US\$10 million (measured on the last day of the year). We also exclude observations associated with share codes other than ordinary common shares (i.e., we keep only the firms with CRSP share codes of 10 and 11).

[Table 2.1 about here]

We present summary statistics of the sample in Table 2.1. Panel A details the number of revolvers employed and the number of new revolvers hired each year together with the number of public firms that employ these revolvers and the number of firms that hire new revolvers. For example, in year 2001, there were 61 public firms employing 78 revolvers in total, and 28 of those revolvers were newly hired in that year. During the period of our study, an average of 75 revolvers worked in publicly traded firms each year, and 53 publicly listed firms employed at least one revolver. Panel B lists the mean, median, minimum, and maximum market capitalization of public firms that employ revolvers in a given year. Panel C reports the same information for public firms that do not employ any revolver in a given year. Data on market capitalization are obtained from CRSP and reflect capitalization of firms as of the end of each calendar year. As the table shows, firms that employ revolvers are on average larger than those that do not.

Table 2.1 lists the top 25 corporate hirers of revolvers as well as the industries these hiring firms belong to. The industries are defined using 2-digit SIC codes. Top hirers of revolvers are Lockheed Martin Corp, Raytheon, and Citigroup – they employ 37 revolvers in total during the sample period. The most common revolver hiring industries are Electric, Gas, and Sanitary Services, Communications, and Business Services; each hiring approximately 8% of all revolvers in our sample.

[Table 2.2 about here]

The great majority of the revolvers in our sample held senior-level positions both in the government and the private sector. Table 2.2 provides information about these positions. Panel A lists revolvers' job positions within the executive branch, the number of such positions, and their corresponding frequencies. Panels

B and C report similar data and statistics for revolvers' job positions within the legislative branch and publicly traded firms, respectively²³.

[Table 2.3 about here]

In our analysis we also use data on government contracts allocated to firms. We obtain this data from the Bloomberg Government (BGOV) database. BGOV provides data on government contracts that firms receive along with a description of the government agencies that awarded these contracts. BGOV collects its contract data from the Federal Procurement Data System-Next Generation (FPDS-NG). The FPDS-NG, administered by the US General Services Administration, is the central repository of information on procurement contracts awarded by the US government. If contracts are awarded to subsidiaries of large corporations, BGOV identifies the parent corporation and assigns contracts accordingly. Specifically, for each government contract, BGOV provides the codes for the contract-allocating government agency (a high code and a low code, where the high code provides a wider categorization of the government agency); the Bloomberg ticker of the firm that received the contract; the total dollar amount of the contract; and the date the contract was allocated²⁴. We use the high codes to identify government agencies. Bloomberg provides a linking table between Bloomberg tickers and CUSIP numbers; this enables us to identify the firms by PERMNO after linking CUSIPs and PERMNOs.

²³ Note that the number of job positions within the executive branch and the legislative branch do not add up to the number of positions on the corporate side. This is because some revolvers held multiple positions in the government before switching to the corporate side.

²⁴ For instance, the Food and Drug Administration has 7524 as its low code and 52 as its high code. Its low code is unique but it shares the same high code with all the other government agencies under the Department of Health and Human Services.

We match the BGOV data with the revolver data using PERMNOs. We manually match the high codes of the government agencies in the BGOV dataset to the employers of revolvers during their government tenure. If the employer is a government agency, such as an agency under the Department of Commerce or the Department itself, a high code is readily available for the agency and the match is made. If the employer is a congressional committee, however, we make a judgment about which contract-allocating government agency would be most influenced by the decisions of the committee. For instance, if the employer is the US Senate Armed Services Committee, we match it to the high code of the Department of Defense. If the revolver is employed by a Representative or a Senator, we do not make a match so we do not include the revolver and the data cross-referenced to him or her in the matched sample²⁵. After matching the samples, we compute the total dollar amount of government contracts allocated to each firm for every year. If no contracts are allocated, we set the value to zero. We concentrate on firms that have hired at least one revolver during the sample period.

During our sample period, the top three contract-allocating agencies (by dollar value of contracts awarded) are the Department of Defense, the General Services Administration, and the Department of Transportation. In this period, 1,221 different publicly traded firms (by PERMNO) obtained at least one government contract (out of a total of 12,044 distinct publicly traded firms). Of those, 111 employed at least one revolver during our sample period, while 42 firms that hired revolvers and matched our selection criteria either did not receive any government contracts or received contracts from agencies we could not identify. Firms that

²⁵ This is unless the Representative or the Senator is Chair Person or Ranking Member of a congressional committee, in which case we follow the matching procedure described for congressional committees.

employed revolvers obtained government contracts on average worth US\$126 million per year, whereas the average value of government contracts received by firms that did not hire any revolvers was under US\$2 million per year.

Finally, we also make use of financial analysts and firm management earnings forecasts. Analysts' earnings forecasts come from the Thomson Reuters IBES Estimates dataset, and management earnings forecasts come from the Thomson Reuters IBES Guidance dataset²⁶.

2.3 Revolving door movements and abnormal returns

In this section we explore the relation between revolving door movements and long-run stock returns. In particular, we investigate whether revolvers add shareholder value to their corporate employers *prior to corporate employment*, *during corporate employment*, and *after corporate employment*. We also analyse how revolvers' influence on corporate performance is affected by executive orders that restrict revolving-door movements.

2.3.1 Abnormal returns in conflicted, pre-conflicted, and post-transition periods

If conflicts of interest affect the behaviour of government officials and make them more likely to favour certain companies, we should expect these distortions to be reflected in firms' stock price performance. We investigate this hypothesis by

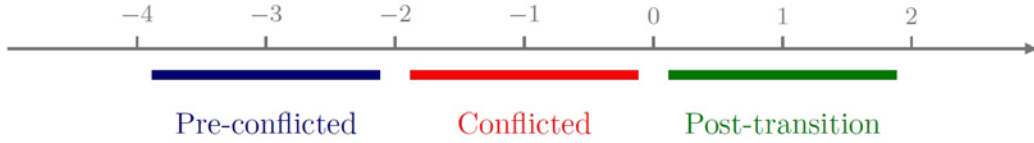
²⁶ Guidance information is collected from earning press releases, interim releases, earnings calls, conference presentations, M&A calls, and analyst meetings in which the company representatives (CEO, CFO, or COO) speak about financial expectations and data are provided in both text and tables.

estimating the abnormal returns obtained by firms that hire revolvers during the period immediately before revolvers' transitions to firms, which, following Cornaggia, Cornaggia and Xia (2015), we call the *Conflicted Period*. We also examine abnormal returns during the *Pre-conflicted Period* and the *Post-transition Period*, which are the periods before the start of revolvers' government tenures and after the start of revolvers' corporate tenures.

The line below depicts *Pre-conflicted Period*, *Conflicted Period*, and *Post-transition Period* for a revolver whose government and firm tenures are both two years.

Figure 2.1 Timeline for revolving door employment

This figure reports shows pre-conflicted, conflicted, and post-transition periods, which are the periods before the start of revolvers' government tenures, during corporate tenures, and after the start of revolvers' corporate tenures.



We start by building value-weighted portfolios of revolver-hiring firms in the two-year period before they hire revolvers (i.e., while those revolvers are still working for the government), and compare them to value-weighted portfolios of other firms in the same period. The weight is based on each firm's market value of equity at the end of the previous calendar year.

We estimate abnormal returns for these portfolios in three different ways. First, unconditionally, by running the following factor-model regressions with the monthly returns of these portfolios:

$$r_{p,t} = \alpha_p + \beta_p' f_t + \varepsilon_{p,t} \quad (2.1)$$

where $r_{p,t}$ is the portfolio excess return (over the risk-free return), f_t is a vector of excess returns on benchmark factors, and α_p is the abnormal performance measure of interest.

We use three established factor models: the Capital Asset Pricing Model (CAPM, see Sharpe, 1964 and Jensen, 1968); the Fama-French three factor model (see Fama and French, 1993); and the Fama-French-Carhart four factor model (see Carhart, 1997). To compute CAPM alphas we use the excess market return as the only factor. For Fama-French alphas we use market, size, and book-to-market factors. For the four-factor model, we use the three Fama-French factors plus momentum. We obtain these four factors from Kenneth French's website.

As returns are known to vary with business cycle fluctuations, we also identify abnormal returns by assuming a model of conditional expected returns that allows for time-variation in the risk factor loadings. To that end, we follow Ferson and Harvey (1999) closely and assume a linear functional form for the vector of time-varying betas:

$$\beta_p(z_t) = b_{p0} + b_{p1}'z_t, \quad (2.2)$$

where z_t is the vector of conditioning variables known at time t . Following Petkova and Zhang (2005) and Belo, Gala and Li (2013), we use the dividend-price ratio, the default premium, the term spread, and the risk-free rate as our conditioning variables²⁷. These variables are known to have predictive power over business cycles. We test for abnormal returns by estimating the regression:

²⁷ The dividend-price ratio measures dividends paid to the market portfolio over the price of market portfolio. The default premium is Moody's seasoned Baa corporate bond yield minus Moody's seasoned Aaa corporate bond yield. The term spread is the difference between 10-year and 1-year Treasury constant-maturity rates. We obtain default premium and the term spread data from the St. Louis Fed's webpage. The dividend-price ratio and the risk-free rate are computed using CRSP data.

$$\begin{aligned}
r_{p,t} &= \alpha_p + (\beta_p' z_{t-1})' f_t + \varepsilon_{p,t} \\
&= \alpha_p + b_{p0}' f_t + (b_{p1}' z_{t-1})' f_t + \varepsilon_{p,t}, \quad (2.3)
\end{aligned}$$

where f_t is the vector of excess returns on the four Fama-French-Carhart factors.

Finally, we also compute the average returns of each portfolio in excess of the returns of a portfolio of characteristics-based benchmarks as in Daniel, Grinblatt, Titman, and Wermers (1997) and Wermers (2003). This procedure matches each firm in our portfolio of interest to a portfolio of firms with similar size, book-to-market ratio, and momentum²⁸.

[Table 2.4 about here]

Panel A of Table 2.4 displays the results of this exercise. All results are obtained using monthly returns, but expressed in percent per year. The value-weighted portfolio of revolver-hiring firms delivered average returns of 16.17% per year in the two years prior to the hiring. These returns are much higher than average returns of 9.14% per year for all other firms in our sample during the same 1990-2012 period. The annualized difference between the two, 7.03%, is statistically significant, and it remains so once risk-adjusted using both unconditional and conditional asset pricing models. For instance, using four-factor alphas, the difference between the two portfolios is a highly statistically significant 7.96% per year. Similar results obtain if we risk-adjust returns using characteristics-based benchmarks as in Daniel, Grinblatt, Titman, and Wermers (1997). In this case, the difference between firms that are going to be joined by revolvers currently working for the government and other firms equals a

²⁸ The benchmarks are available from: www.smith.umd.edu/faculty/rwermers/ftpsite/Dgtw/coverpage.htm.

statistically significant 5.50% per year. In this analysis we consider only revolvers who join a firm within one year at most after the end of their government job.

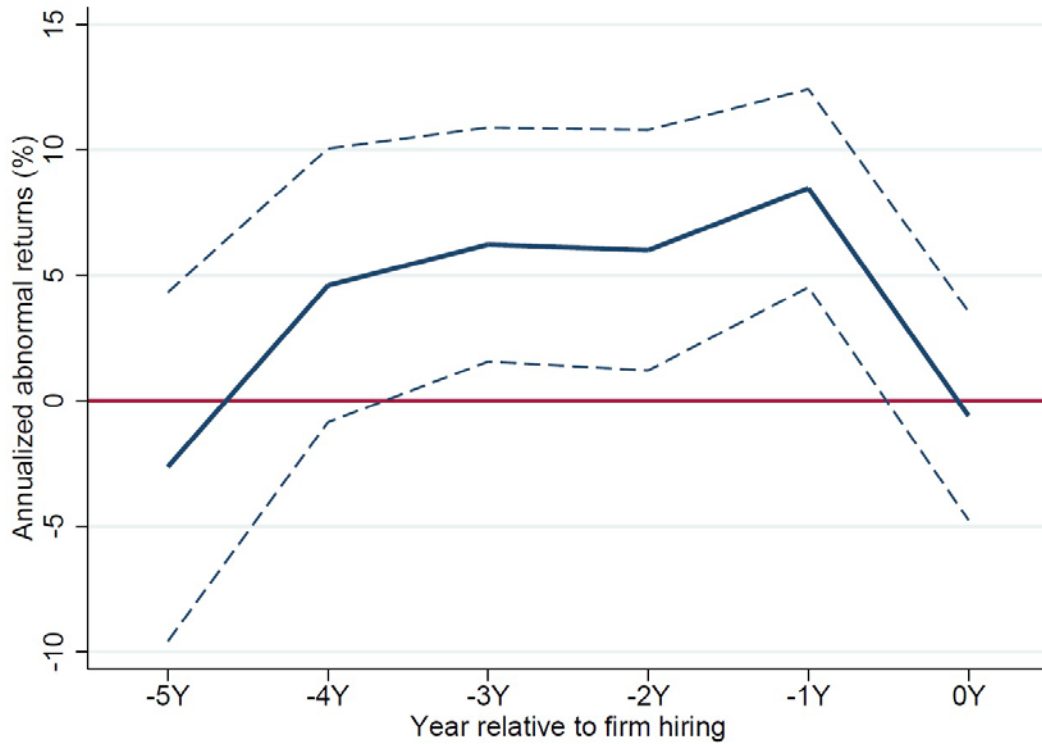
Results are stronger in the years immediately before the hiring, and weaken significantly as we move farther away from that date, as one would expect if results were the consequence of revolvers, consciously or unconsciously, helping their future employers before making their move. Four or five years before the hiring, the performance of the revolver-hiring firms is indistinguishable from that of other firms in our sample, as demonstrated in Figure 2.2²⁹.

Figure 2.2 Abnormal returns around the hiring date of revolvers

This figure shows the performance of portfolios of US firms formed in event time relative to the year of hiring of a new revolver. The solid lines shows the value-weighted difference in annualized abnormal returns (four-factor alphas) between a portfolio of firms with revolvers in the government and a portfolio of firms with no revolvers in the government. The x-axis denotes the time at which these portfolios are formed, and the holding period is always one year. Returns at -1Y, for example, denote the abnormal firm performance during revolvers' last year in government before joining the firm. Returns at -2Y denote the abnormal firm performance two years before the revolver was hired by the firm (and while still working for the government). The dotted lines show 90% confidence interval. The sample period is 1990-2012.

(Figure 2.2 is on the following page)

²⁹ It is likely that the firms want to keep their revolvers in the government as long as possible, or that they want to keep their cash flow channels active as long as possible. On the other hand, firms would not want to signal to their revolvers that they are not committed to hiring them. This is important not only for the active cash flow channels (i.e., revolvers might find outside options) but also for future revolver links (i.e., it would be hard to reestablish trust once it is lost). We believe that the heterogeneity in the time series longevity of abnormal returns across firms may reflect different bargaining issues for different firms, revolvers, and government-contracting environments coupled with election outcomes.



To expand on the evidence presented in Figure 2.2, we also look into the performance of the same firms during a *Pre-conflicted Period*, which corresponds to the two-year period immediately prior to revolvers' government service. The pre-conflicted period difference between the abnormal returns obtained by firms that hire revolvers and firms that do not, shown in Panel B of Table 2.4, is statistically insignificant.

If differences in abnormal returns between firms that hire revolvers and those that do not are a consequence of the revolving door effect, the distortions we observe should disappear once the conflicted revolvers leave public office to join the firms. We therefore next investigate what happens to firms' abnormal returns in the *Post-transition Period*. Since we have information only about the year revolvers join firms, in most specifications we proceed as if the revolvers had been working for the firm for the entire year in which they joined. For example, if a

revolver leaves a government job in year 2000 and starts working at a firm in that same year, we count the entire year 2000 as part of firm employment, and year 1999 as the last year of government employment. The revolver's tenure at the firm would then be from year 2000 until the last full year he or she works for the firm (the year he or she leaves the firm is not included in this period). If a revolver leaves a government job in year 2000 and starts working at a firm in year 2001, on the other hand, we count year 2001 as the first year of firm tenure, and year 2000 as the last year of government employment.

Panel C of Table 2.4 shows returns, excess returns over characteristics-based benchmarks, and alphas of portfolios of US firms that employ revolvers, do not employ revolvers, and their difference. Results in this table indicate that in the 23-year period of our study firms that employed revolvers did not deliver higher returns than firms that did not employ revolvers. Similar results obtain when we exclude the first year of employment from the portfolio. All of this suggests that the significant revolving door effect in the conflicted period suddenly disappears once the revolver leaves a government office.

2.3.2 Abnormal returns relative to a group of closely matched firms

Taken together, the results so far are consistent with the hypothesis that some revolvers could actually be helping a future employer while working for the government. Employment at the firm could then be described, at least in part, as compensation for the benefits they have provided while in public office.

A natural concern with this conclusion is that the outperformance of firms hiring revolvers in the period preceding the hiring could be as much the result of revolvers seeking and obtaining employment in firms that have done well (and to

some extent unexpectedly well) in the recent past as they could be the result of revolvers actually helping their future employers. Firms that have done well in the recent past could simply have more resources and therefore be able to hire more aggressively than firms that do not do well. If that indeed is the case, revolvers (and other employees) will be more likely to end up working for such firms than for a less successful competitor. This could explain why firms that hire revolvers (and employees in general) exhibit positive abnormal returns in the pre-hiring period.

We tackle this problem by matching the firms that employ revolvers to a control group of firms selected to match the numbers of employees and the change in the number of employees at the moment of hiring, as well as other characteristics (book/market and size quintiles and industry group) of the firms employing revolvers³⁰. If firms that hire revolvers do better than this control group, this would indicate that the returns obtained by firms employing revolvers are even higher than the returns obtained by firms that are growing their workforce to a similar extent (and therefore by firms that are *a priori* equally likely to hire revolvers as the firms that *actually* hire them, under the alternative hypothesis that revolvers are identical to any other employees), thus refuting the alternative story.

[Table 2.5 about here]

We match firms using a propensity score matching estimator (see, e.g., Heckman, Ichimura, and Todd, 1997 and 1998). The matching method finds control firms, at most ten firms per each treated firm, that are the closest match in terms of the propensity score for each firm hiring a revolver. We match firms at the point of hiring, and, to avoid bad matches, we require the control's propensity

³⁰ Our results are also robust to matching with respect to other firm characteristics such as firm profitability.

score to be within a 1% radius (calliper) of the propensity score of the treated firm. We also drop firms with significant (10% or more) seasonal or part-time employees from both treatment and control groups³¹. With these control firms we build portfolios whose returns and one-, three-, and four-factor alphas we compare to the returns and alphas obtained by the portfolio of firms that hire revolvers. To compute the control group portfolio returns, the process is as follows. First, for each treated firm we value-weight the returns of each of the chosen control firms by their December (prior to the match) market capitalization. For instance, for a revolver-hiring firm matched to five control firms, we create a control return index from the value-weighted returns of these five control firms using these firms' market capitalization for weighting. Then, we use these individual treated firms' control returns to build equal- and value-weighted control group portfolio returns. In this second stage we use the revolver-hiring firms' weights when computing value-weighted control group portfolio returns.

As we did in Table 2.4, we concentrate on the two-year period prior to revolvers joining the firm. We report the results in Table 2.5. Figures in this table reflect the difference in returns and alphas between the treated and the control portfolios. The first panel shows results for firms matched using number of employees and change in the number of employees only and we additionally control for size, book to market, and momentum effects as part of our risk-adjustment models. The difference in returns between the treated and control portfolios is a statistically significant 6.52%, and the difference in four-factor alphas is an also significant 7.78%.

³¹ These requirements mean that we are unable to match a few firms in our sample (particularly some large firms). This is unlikely to have a major impact in our results, however, as when we reproduce the analysis for the subsample of firms for which we are able to find close matches the results we obtain are reasonably close to those reported for the full sample.

Similar results obtain if we also match to firms in the same industry defined using two-digit SIC codes, or if we match according to size and book-to-market quintiles, in addition to number of employees and change in the number of employees³². This is something we would not expect to happen if the relation between revolver appointments and firms' abnormal returns were simply a consequence of firms' hiring more people (and revolvers among them).

Consistent with this finding, in untabulated results we also find that returns to firms that hire revolvers who worked for the government a number of years prior to their hiring by the firm are lower than those obtained by firms that hire revolvers right after they leave government employment.

2.3.3 Abnormal returns and executive orders

During our sample period (1990-2012), two presidential executive orders introduced restrictions on revolving door movements. The first is executive order 12834, issued by President Clinton at the beginning of his presidency (January 20, 1993). This executive order required up to five-year cooling off periods for presidential and vice-presidential appointees that restricted their private employment opportunities after leaving government posts. The order was revoked by Clinton at the end of his presidency (December 28, 2000), and similar restrictions were not reinstated during the subsequent Bush Administration. When President Obama assumed office, he issued executive order 13490 (January 21, 2009), which was similar in nature to the Clinton executive order.

³² Given the nature of our test, it is not possible to match firms on the basis of momentum (prior performance). If we did that, we would be looking for firms that did as well as or as badly as the firms that hire revolvers in the 12-month period previous to the hiring, basically negating what we want to measure (albeit for only 12 months).

Neither the Clinton nor the Obama executive order prohibits a former public official from working in a private firm merely because the firm had done business with or had been regulated by the official's agency. Rather, they prohibit subsequent representational or advocacy activities; that is, former officials may not make "any communication or ... appearance" to, or before, the government agency where they worked "with the intent to influence" former colleagues about government policy or decisions³³.

The Clinton and Obama executive orders limited the appeal of senior public officials as job candidates at private firms that do business with the federal government³⁴. We use this characteristic of the orders to further tackle causality between revolving door movements and abnormal returns.

To understand the logic, assume there are potentially two types of revolvers in the world: revolvers whose decisions while in public office are not distorted by the incentives corporations could offer them, and revolvers whose decisions can be distorted, e.g., they can be tempted to provide favours, hoping to cash in on these actions later on. If regulations made quid pro quo revolving-door movements more difficult, we would not expect the first type of employee to change his or her behaviour whether or not they were subject to regulatory restrictions. Yet regulations that make it more difficult to secure future employment in favoured firms would disincentivize the second type of employee from providing favourable

³³ See Maskell (2014), a Congressional Research Service report, for a detailed and comprehensive summary of laws and regulations for post-government employment of federal personnel.

³⁴ Presidential waivers of these executive orders are difficult to obtain. In 2014, for example, there were 1157 government employees subject to executive order 13490, and only one appointee received a limited waiver of the restrictions (Capricia P. Marshall, former Chief of Protocol of the United States). In 2013, there were 873 government employees subject to executive order 13490, and nobody received a waiver of the executive order. The pattern was similar for 2012 and 2011. For more information on this, see Annual Reports on Executive Order 13490 at <http://www.oge.gov/Open-Government/Presidential-Appointee—Nominee-Records/>.

treatment in exchange for possible future employment (or from seeking public office to start with).

Under the null hypothesis that all revolvers are of the first type, the introduction of regulatory restrictions on revolving door movements would not change the allocation pattern of government contracts. In particular, the correlation between favours granted (and therefore abnormal returns) and future employment obtained would be the same with or without restrictions. Restrictions would have an impact, however, under the alternative, as there would be fewer revolvers who provide favours in the hope of future employment during periods when they fell under restrictions. As a result, we would expect less of a correlation between abnormal returns and employment obtained in this latter case.

We investigate how abnormal returns associated with the hiring of presidential and vice-presidential appointees compare with those associated with the hiring of other revolvers during the Clinton and Obama presidencies. As in Belo, Gala, and Li (2013), we measure abnormal returns as realized returns in excess of conditional expected returns with time-varying betas for Fama-French-Carhart risk factors. In particular, we define abnormal return of firm i in month t to be

$$AR_{i,t} = r_{i,t} - (\beta_i' z_{t-1})' f_t$$

where $r_{i,t}$ is the realized return, and $\beta_i' z_{t-1}$ and f_t are as they are specified for Equations (2)-(3). Our estimating equation is

$$AR_{i,t} = a + b \text{Restrictive}_t + \varepsilon_{i,t}$$

where Restrictive_t is a dummy variable coded as one if month t falls within the Clinton and Obama presidential terms, and zero otherwise. We estimate this equation for two groups of firm-month observations. *Treatment firms in month t* are

the firms that hired a presidential or vice-presidential appointee within the subsequent two years. *Control firms in month t* are firms that hired revolvers who were not presidential or vice-presidential appointees within the subsequent two years.

[Table 2.6 about here]

As shown in Table 2.6, during the non-restrictive years firms that hire a presidential or vice-presidential appointee in the subsequent two-year period obtain higher abnormal returns than firms that hire revolvers who are not presidential or vice-presidential appointees, although the difference is not statistically significant. During Clinton and Obama presidencies, however, the tendency is reversed, and firms hiring presidential and vice-presidential appointees affected do more poorly in abnormal return terms than those that hire revolvers who were not presidential or vice-presidential appointees. The executive order therefore has a significantly negative effect on abnormal returns once we look at the difference in differences.

Overall, these results suggest that firms' strong performance immediately before the hiring of revolvers may be not a cause but rather a consequence of the firms' relationships with revolvers.

Finally, we also make use of financial analysts and firm management earnings forecasts. Analysts' earnings forecasts come from the Thomson Reuters IBES Estimates dataset, and management earnings forecasts come from the Thomson Reuters IBES Guidance dataset³⁵.

³⁵ Guidance information is collected from earning press releases, interim releases, earnings calls, conference presentations, M&A calls, and analyst meetings in which the company representatives (CEO, CFO, or COO) speak about financial expectations and data are provided in both text and tables.

2.4 Revolving-door movements and government contracts

Motivated by the Druyun and Boeing case, we next analyse whether government contract allocation systematically provides corporate job opportunities to government employees and cash flows to their future employers. To that end, we examine whether firms that employ revolvers gain more valuable federal government contracts when those revolvers work in contract-allocating government agencies or have influence over them because of to their public office.

2.4.1 Government contracts during the conflicted period

We start by measuring how government contract allocations to firms change as a function of firm-revolver linkages during conflicted periods. The estimating equation is:

$$Contract_{i,t} = \alpha + \beta Revolver_{i,t} + \gamma X_{i,t} + I_i + Y_t + \varepsilon_{i,t} \quad (2.4)$$

where i indexes firms; t indexes years; $Contract_{i,t}$ is the US\$ amount (in millions) of contracts allocated to firm i by the federal government in year t ; $Revolver_{i,t}$ is a dummy variable coded as one if a revolver has influence over a contract-allocating government agency in year t and if this person is later employed by firm i within two years from t , and zero otherwise; $X_{i,t}$ are firm control variables; I_i are industry fixed effects; and Y_t are year fixed effects³⁶. We define a revolver as having influence over a government agency in year t if the revolver works in the agency in year t , or serves as a resource for a congressional committee that has oversight over that agency in year t . Following Goldman, Rocholl, and So (2013) and Tahoun (2014), we use as firm control variables: $ROA_{i,t}$ (the return on

³⁶ We find similar results when we investigate agency-level contracts, in which we also control for agency (revolver), and year and firm fixed effects.

assets for firm i in year t); $CAPEX2ASSETS_{i,t}$ (the ratio of capital expenditure to sales for firm i in year t); $COGS2SALES_{i,t}$ (the ratio of cost of goods sold to sales for firm i in year t); $BM_{i,t}$ (the book-to-market ratio for firm i at the end of year t); $SIZE_{i,t}$ (the market capitalization for firm i at the end of year t); and $HHI_{i,t}$ (the Herfindahl concentration index based on the total sales of all firms with the same two-digit SIC code).

As government contract allocations are bounded below by zero, we estimate Equation (2.4) using Tobit³⁷. Columns (1) and (2) of Table 2.7 report the Tobit coefficient estimates. These estimates reveal a significantly positive association between government contracts allocated to firms and the firm-revolver linkages over the years. For instance, the Tobit coefficient estimate on the revolver link dummy without firm controls (Column 1) equals US\$467.52 million ($t=3.38$) and with firm controls (Column 2) equals US\$335.88 million ($t=2.56$).

[Table 2.7 about here]

We next analyse the dynamic pattern in government contract allocations during the years prior to and after the hiring date of the revolver by the publicly traded firm. The estimation we carry out to assess this pattern is:

$$Contract_{i,t} = \alpha + \sum_{n=-5}^5 \beta_n (nY)_{i,t} + \gamma X_{i,t} + I_i + Y_t + \varepsilon_{i,t} \quad (2.5)$$

where for $n \in \{-5, -4, \dots, 4, 5\}$, $(nY)_{i,t}$ is a dummy variable coded as one if the year t corresponds to n years before or after a revolver joins firm i , and zero otherwise.

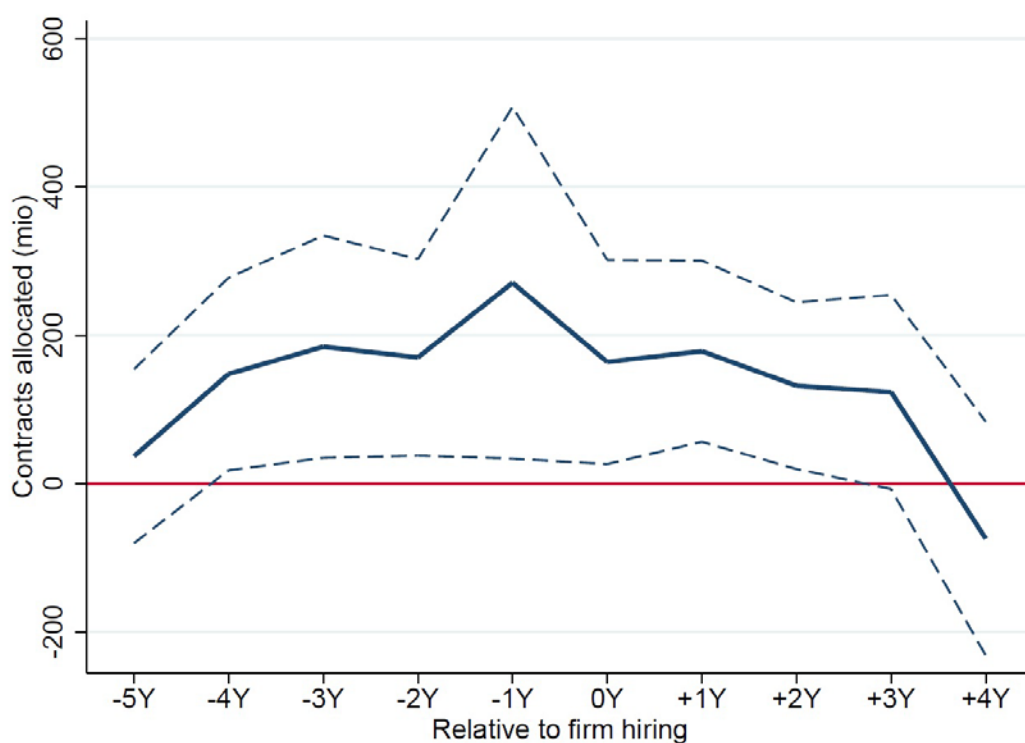
Figure 2.3 shows the Tobit coefficient estimates for the indicator variables, $(nY)_{i,t}$ in Equation (2.5). Similar to the pattern for the abnormal returns

³⁷ Qualitatively similar results obtain using OLS regressions.

experienced by employers, the coefficients increase as we move closer to revolvers' hiring dates. After the hiring, coefficient values decline over time.

Figure 2.3 Government contract allocations around the hiring date of revolvers

This figure shows the Tobit regression coefficients associated with a set of indicator variables defined according to whether or not the firm hired a revolver from the contract granting agency in the neighbourhood of the contract granting date. The coefficient is obtained from a regression of the dollar value of government contracts (in millions of US dollars) allocated to publicly traded firms by different government agencies on the indicator variables and the same set of controls used in Table 7. The y-axis shows the value of the coefficients, and the x-axis shows the year of the indicator variable relative to the hiring date of the revolver by the firm. The dotted lines show 90% confidence interval. The sample period is 1990-2012.



Finally, we also look into the impact of executive orders restricting revolving door movements on government contract allocations. Since these restrictions affected only presidential or vice-presidential appointees, but not all revolvers, the diff-in-diff framework for estimation is:

$$\begin{aligned}
Contract_{i,t} = & \alpha + \beta_1 Executive\ connection_{i,t} \\
& + \beta_2 Non - executive\ connection_{i,t} + \beta_3 Restrictive_t \\
& + \beta_4 Executive\ connection_{i,t} * Restrictive_t \\
& + \beta_5 Executive\ connection_{i,t} * Restrictive_t + \gamma X_{i,t} + I_i + Y_t \\
& + \varepsilon_{i,t} \quad (2.6)
\end{aligned}$$

where *Executive connection*_{*i,t*} equals one if firm *i* hired a presidential or vice-presidential appointee from the government within the subsequent two years, and zero otherwise; *Non – executive connection*_{*i,t*} equals one if firm *i* hired only those who are not presidential or vice-presidential appointees from the government within the subsequent two years, and zero otherwise; *Restrictive*_{*t*} is a dummy variable coded as one if year *t* is among the years when there were restrictions on revolving door movements, and zero otherwise; and the other variables are defined as in Equation (2.4).

Columns (3) and (4) of Table 2.7 indicate that the relation between revolver-employing firms and government contracts is stronger when the revolver in question is a presidential or vice-presidential appointee. For instance, in specification (4) the Tobit coefficient estimate on the executive revolver link dummy equals US\$663.60 million (t=2.15), while the coefficient estimate on the non-executive revolver link dummy equals only US\$243.86 million (t=2.71). More important, note in column (6) that the coefficient estimate for the interaction term between *Executive connection*_{*i,t*} and *Restrictive*_{*t*} is statistically significant and negative, while the coefficient estimate for the interaction term between *Non – executive connection*_{*i,t*} and *Restrictive*_{*t*} is statistically insignificant. In other words, Clinton and Obama presidential terms have a statistically significant

negative impact on government contract allocations to firms that hire presidential or vice-presidential appointees affected by their executive orders, but the same presidential terms have no statistically significant impact on government contract allocations to firms that hire non-presidential or vice-presidential appointee revolvers. This is in line with our earlier findings on abnormal returns, and it is supportive of the hypothesis that some revolvers do favour firms in return for future employment and that Clinton and Obama executive orders curbed such quid pro quo deals for presidential and vice-presidential appointees.

2.4.2 Abnormal returns and executive orders

Our analysis so far provides evidence of a positive association between firms' receipt of government contracts and their subsequent hiring of revolvers. We examine now whether this positive association manifests itself in the cross-section of firms' stock returns. To that end, we run two-stage regressions. In the first stage, we use earlier controls and regress monthly government contracts on the revolver connection dummy. In the second stage, we regress monthly stock returns on the explained variation from the first stage. In the second stage we use standard Fama and MacBeth (1973) regressions of the form:

$$r_{i,t+1} = a + bX_{i,t} + c'\gamma_{i,t} + \varepsilon_{i,t+1} \quad (2.7)$$

where $r_{i,t+1}$ is the excess return of firm i in month $t+1$, $X_{i,t}$ is the variable of interest in month t , and $\gamma_{i,t}$ is the vector of firm control variables, namely beta, log of market capitalization, log of book-to-market ratio, and momentum (prior cumulated twelve-month returns).

[Table 2.8 about here]

We present the results in Table 2.8. First-stage regression results in Panel A confirm earlier findings. Having a revolver connection increases yearly government contract allocation to a given firm by US\$412.61 million ($t=3.08$).

The second-stage regression results are presented in Panel B. In Column (1) of Panel B, the variable of interest is the firm having a “revolver connection.” A firm is defined to have a revolver connection in month t if a revolver has influence over a contract-allocating government agency in that month, and if he or she is later employed by the firm within two years from t . We find that having a revolver connection has significant predictive power over the cross-section of excess returns. This is consistent with our portfolio-level analysis reported in Table 2.4.

In Column (2) of Panel B, the variable of interest is the total US\$ value (in millions) of government contracts allocated to the firm in a given month. Only the unexpected portion of government contract allocations should generate excess return for a given firm if the expected portion is correctly priced by the market. We find that the total value of government contract allocations does not have predictive power for the cross-section of excess returns, which implies that most of the government contract allocations are expected and correctly priced by the market.

Next we attempt to identify the unexpected portion of government contract allocations attributable to firm-revolver linkages. The market is unlikely to know whether a public official will join a certain firm in the near future and whether the prospect of joining that firm will result in distortions to government contract allocations favouring that firm. Therefore contract allocations attributable to firm revolver linkages should generate excess returns.

To test this hypothesis we carry out a two-stage Tobit estimation (regressing contract allocations on revolver connections in the first stage) that yields the instrumented value of contract allocations. We use the predicted values of this first-stage regression in Equation (2.7) for the second-stage regression, which is reported in Column (3) of Table 2.8. We find that predicted value (accounting for knowledge of the revolver connection) of government contract allocations to the firm, is positively associated with the cross-section of firm excess returns. Using the first-stage results, we find that government contract allocation due to revolver connections yields an annualized excess return of 3.13% ($\$412.61 \times \text{coef} \times 12$).

2.5 Earnings forecasts of managers and equity analysts during conflicted periods

Our results so far are in line with a quid pro quo relationship in which firms provide jobs to government employees in exchange for valuable government contracts. Abnormal returns and government contract allocations are higher in years immediately before the hiring, and they significantly weaken as we move farther away from that date. Furthermore, both abnormal returns and government contracts disappear once strong and binding executive orders are in force. Given the confidential nature of any quid pro quo relationship, if any, we next analyse whether firm managers systematically exhibit superior information on firm earnings during conflicted periods in which the firms receive valuable government contracts. We analyse, in particular, whether management earnings forecasts are more optimistic and also more precise than consensus forecasts. Once again we concentrate on up to five years before the start of revolvers' firm tenures.

The estimating equations are:

$$Y_{i,t} = \alpha + \beta_{-5}(-5Y)_{i,t} + \beta_{-4}(-4Y)_{i,t} + \beta_{-3}(-3Y)_{i,t} + \beta_{-2}(-2Y)_{i,t} \\ + \beta_{-1}(-1Y)_{i,t} + \beta_0(0Y)_{i,t} + \gamma X_{i,t-1} + \varepsilon_{i,t} \quad (2.8)$$

where $Y_{i,t}$ denotes consensus surprise, management surprise, and their difference. For $n \in \{-5, -4, \dots, -1, 0\}$, $(nY)_{i,t}$ is a dummy variable coded as one if the year t corresponds to n years from when a revolver joins firm i , and zero otherwise.

Consensus surprise is the actual earnings per share (EPS) of firm i for the fiscal year ending in year t minus the mean Institutional Brokers' Estimate System (IBES) analyst forecast (consensus forecast), deflated by the consensus forecast³⁸. The IBES consensus forecast is taken eight months prior to the end of the forecast period (and therefore four months after the previous fiscal year-end)³⁹.

Guidance surprise is the actual EPS of firm i for the fiscal year ending in year t minus the IBES Guidance forecast (i.e., management forecast), deflated also by the consensus forecast. It compares the portion of consensus surprise that could be corrected by management guidance. We take the IBES Guidance forecast provided on the closest date within 30 days of the IBES consensus forecast used in consensus surprise. The difference between consensus surprise and management surprise reflects the difference between guidance and consensus forecasts, deflated by consensus forecasts, which amounts to management optimism relative to the consensus forecast. $\gamma X_{i,t-1}$ is the vector of firm control variables, and as in Edmans

³⁸ Our results are robust to deflating all forecast errors by lagged stock prices.

³⁹ This specification ensures that analysts know prior earnings when making their forecasts, as annual reports are mostly filed within three months after the fiscal year-end.

(2011), it includes the log of book-to-market ratio, and the market value of equity as of the end of year $t-1$.

Our methodology is similar to that in Cornaggia, Cornaggia, and Xia (2015), who analyse ratings issued by revolving-door analysts who move from credit rating agencies to the firms that they used to rate. Cornaggia et al. compare ratings of transitioning and non-transitioning analysts. We compare consensus and management forecasts, and we take advantage of the fact that we also observe the true firm earnings. This enables us to understand which party was right or wrong in its forecasts.

Figure 2.4 Management and consensus surprises in event time

This figure shows the coefficient estimates from Columns 1 and 2 of Table 2.9. The y-axis shows the value of the coefficients, and the x-axis shows the year of the indicator variable relative to the hiring date of the revolver by the firm. The dotted lines show 90% confidence interval. The sample period is 2001-2012.

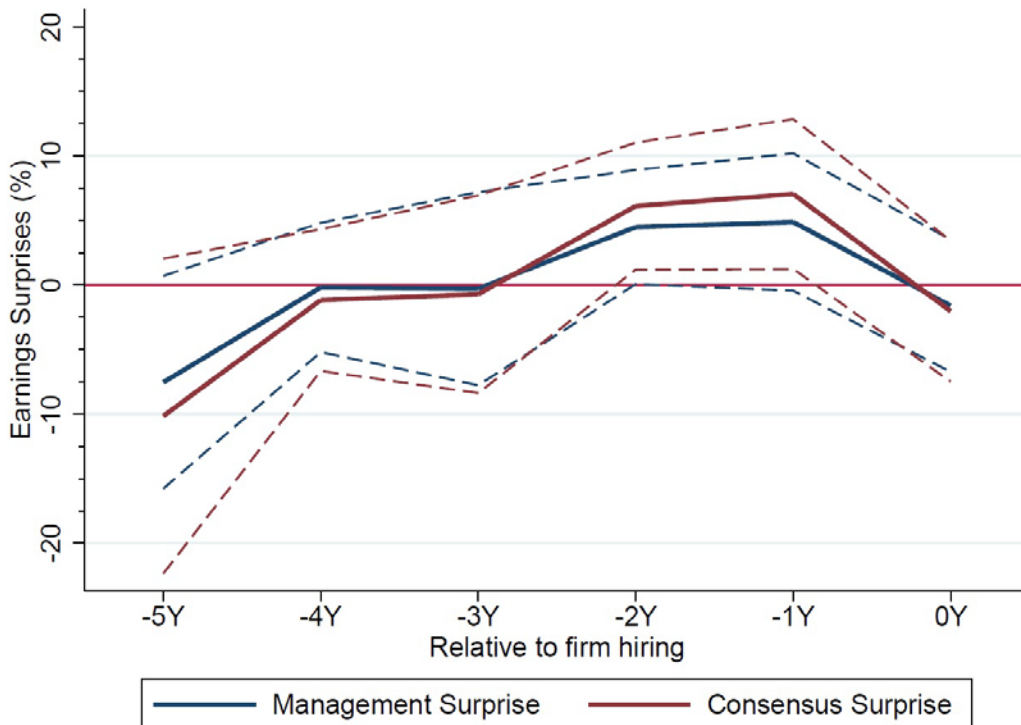
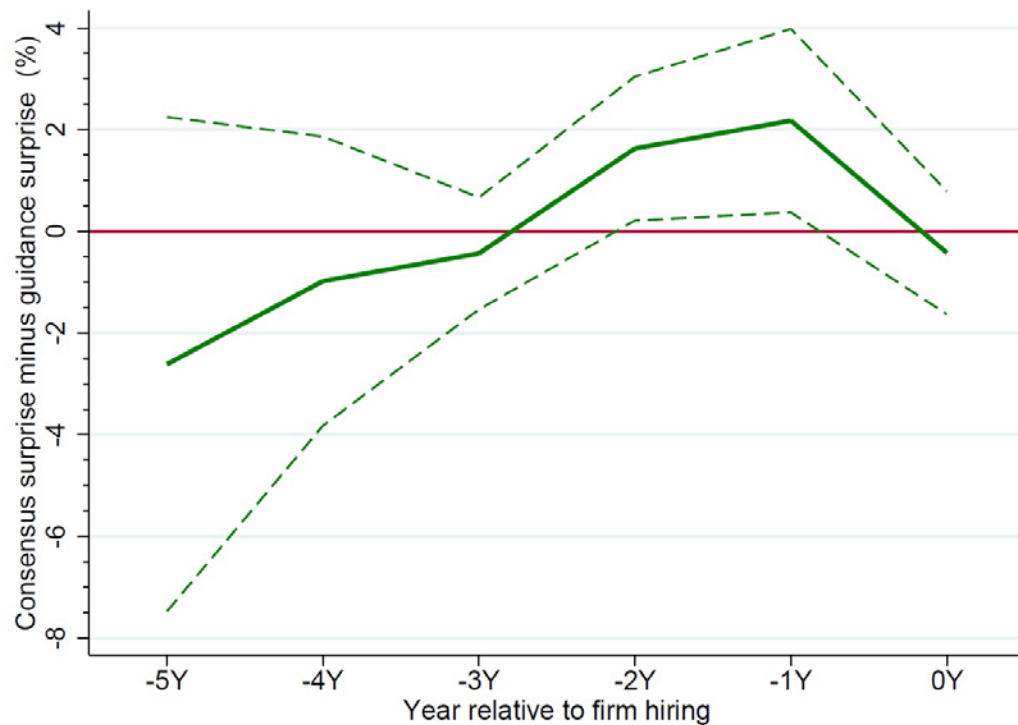


Figure 2.5 Management optimism in event time

This figure shows the coefficient estimates from Column 3, Panel A of Table 2.9. The y-axis shows the value of the coefficients, and the x-axis shows the year of the indicator variable relative to the

hiring date of the revolver by the firm. The dotted lines show 90% confidence interval. The sample period is 2001-2012.



[Table 2.9 about here]

Our results are presented in Table 2.9. Results in Panel A and Figure 2.4 reveal that consensus and management forecasts generate no earnings surprises before conflicted periods (Columns 1 and 2). Trends in consensus and management surprises are parallel from years -5 to -3, and the difference between consensus and management forecasts (management optimism) is statistically insignificant (Column 3). In conflicted periods, however, consensus forecasts generate large earnings surprises (6.12% in year -2 and 7.05% in year -1), compared to economically smaller and statistically insignificant management surprises, particularly in year -1 (4.88%). The difference between consensus and management surprises is also large and statistically significant (1.63% in year -2 and 2.18% in year -1). In the post-transition period, consensus and management forecasts once again generate no earnings surprises, and their difference fades away. Therefore,

management forecasts are more optimistic and more precise than consensus forecasts only during conflicted periods.

The trend in management optimism is strikingly similar to the trends in abnormal returns and government contracts. Management is more optimistic in the years immediately before the hiring, and optimism significantly weakens as we move farther away from that date.

The findings in this regard support the hypothesis that management forecasts are more precise in predicting the upcoming cash flows from government contracts, which the external consensus forecasts cannot take into account. An alternative explanation of this result could be that managers honestly forecast superior future earnings without the support of revolvers, while equity analysts do not. After the unexpected (to outsiders) good performance of their firm, managers hire revolvers to lobby the government in order to gain more government contracts and sustain their superior performance. Under this scenario, the managers honestly foresee the future, or they become optimistic for unobservable reasons, and they are right just by chance, and they want to hire lobbyists to sustain the firm performance by lobbying.

To examine the alternative, we provide two falsification tests, in which we separately analyse the firms that hire revolvers but do not receive any government contracts and the firms that receive government contracts but do not hire any revolvers. These tests will help us understand whether firms' unexpected earnings are related to government contracts or whether they are driven by other phenomena.

In Panel B of Table 2.9 we show the results of running the same regression looking only at firms that hire revolvers but do not receive any government contracts. For this subset of firms, we find that consensus and management forecasts generate no earnings surprises before conflicted periods, during conflicted periods, or in post-transition periods. The difference between consensus and management forecasts is economically small and statistically insignificant at all times.

In Panel C of Table 2.9 we show the results of running the same regressions looking only at firms that receive government contracts but do not hire any revolvers. For this subset of firms, we once again find that consensus and management forecasts generate no earnings surprises before conflicted periods, during conflicted periods, or in post-transition periods. Similar to the results in Panel B, the difference between consensus and management forecasts is economically small and statistically insignificant at all times.

Results in Panels B and C are in line with the quid pro quo hypothesis but not in line with the manager optimism hypothesis. If the managers are simply optimistic in their earnings forecasts, without the help of revolvers and the government contracts cash flow channels, the Panel B results should be similar to our results in Panel A — but we do not find any consensus surprises and management optimism in Panel B.

On the other hand, if only the managers of firms that receive government contracts are naturally more optimistic and successful in forecasting future earnings, we should see more bullish and more precise forecasts also in Panel C. Nonetheless, we find that the managers of firms that receive government contracts but do not hire any revolvers do not make any superior earnings forecasts.

Therefore, higher management optimism and greater accuracy apply only for firms that receive government contracts and hire revolvers, and these characteristics emerge only in conflicted periods.

2.6 Conclusion

We have provided a comprehensive analysis of the relation between revolving-door movements and corporate financial and operating performance. We show that firms that hire government officials outperform other firms by a statistically significant 5.50% to 8.57% per year, in the two-year period immediately preceding the hiring. In these conflicted periods, future employers also receive sizable government contracts. Using two-stage regressions, we estimate that government contract allocation when revolvers are involved drives annual excess returns up to 3.13%.

Abnormal returns and government contracts to future employers of revolvers peak in the year prior to a revolver leaving the government to join the firm, having steadily increased until then, and they then decline after the revolver starts the corporate job. We also show that both abnormal returns and government contracts are diminished in restrictive periods, when former government employees cannot lobby federal officials on procurement issues.

Finally, we exploit differences between consensus analyst and management earnings forecasts to better identify the superior information exhibited by firm managers during conflicted periods. We find that management forecasts are more optimistic and more precise than consensus forecasts. In line with the quid pro quo

hypothesis, this result applies only to firms that receive government contracts and hire revolvers, and it emerges only during conflicted periods.

Our findings are consistent with a view that some in government service could be favouring firms in order to gain future employment with them. “The aim of every political Constitution, is or ought to be, first to obtain for rulers men who possess most wisdom to discern, and most virtue to pursue, the common good of society; and in the next place, to take the most effectual precautions for keeping them virtuous whilst they continue to hold their public trust,” wrote James Madison (1788) in *The Federalist Papers* (No. 57). This study highlights the need to monitor, if not reform the institutional incentives surrounding revolving-door movements, so that public officials act in the public interest. It also highlights the need for a deeper understanding of the formal and informal relationships between governments and firms.

There are natural extensions of our study. We focus on the impact of revolving-door movements on returns and government contract allocations, but overlook the potential impact on legislation and government policy and regulation. A comprehensive picture of the problem would require a better understanding of the potential deterrent effect that overly restrictive provisions on revolving-door movements will have upon seeking and retaining talent for government service. Furthermore, adopting limitations on revolving-door movements may insulate public officials from private sector concerns to a degree not desirable for public policy reasons. We leave these extensions and considerations for future work.

Table 2.1 Descriptive statistics

This table presents year by year summary statistics for the sample of revolvers and firms in our study. Panel A shows, for each year between 1990 and 2012, the number of revolvers employed by public firms, the number of newly hired revolvers, the number of public firms that employ at least one revolver, and the number of public firms that hire a new revolver. Panels B and C of the table present the mean, median, minimum, and maximum market capitalizations of public firms that employ revolvers and that do not in each year, respectively.

Panel A. Revolving door movements

Year	Number of revolvers employed	Number of new revolvers hired	Number of firms that employ a revolver	Number of firms that hire a new revolver
1990	15	2	14	2
1991	18	4	17	4
1992	19	3	18	3
1993	19	4	18	4
1994	21	4	20	4
1995	27	4	24	4
1996	32	10	27	10
1997	41	9	34	8
1998	49	15	41	15
1999	59	15	50	13
2000	60	11	49	11
2001	78	28	61	24
2002	76	14	59	14
2003	82	18	58	14
2004	90	14	62	14
2005	103	23	65	21
2006	114	21	75	20
2007	124	29	79	28
2008	125	17	82	17
2009	133	32	88	30
2010	127	19	84	17
2011	159	44	99	36
2012	167	26	105	24

Panel B. Market values of firms with revolvers (million US\$)

Year	Mean	Median	Minimum	Maximum
1990	7,898	3,923	777	26,387
1991	9,865	6,030	78	27,713
1992	13,093	5,743	157	69,294
1993	15,174	10,055	101	48,773
1994	12,139	7,868	65	49,415
1995	16,739	10,523	90	75,335
1996	18,660	11,359	42	92,027
1997	24,880	12,180	52	109,639
1998	30,199	13,025	16	162,224
1999	42,376	8,199	25	602,433
2000	40,670	12,062	45	290,216
2001	36,274	9,729	105	357,949
2002	30,407	9,630	93	276,631
2003	43,477	18,028	238	311,066
2004	45,072	19,072	472	385,883
2005	50,185	25,462	466	370,344
2006	52,755	23,476	193	446,944
2007	57,663	27,305	358	511,887
2008	36,080	14,769	329	406,067
2009	43,468	22,721	385	322,668
2010	51,712	26,404	306	368,712
2011	51,336	23,649	99	406,272
2012	52,486	20,018	443	499,696

Panel C. Market values of firms without revolvers (million US\$)

Year	Mean	Median	Minimum	Maximum
1990	793	88	0	64,529
1991	1,131	159	0	75,653
1992	1,103	163	0	75,884
1993	1,006	140	1	89,452
1994	884	114	0	87,193
1995	1,191	159	1	120,260
1996	1,329	165	0	162,790
1997	1,601	176	0	240,136
1998	1,966	151	0	342,558
1999	2,467	183	2	507,217
2000	2,414	146	0	475,003
2001	2,256	233	1	398,105
2002	1,858	197	1	242,270
2003	2,548	369	5	271,002
2004	2,747	394	4	330,693
2005	2,798	400	3	198,839
2006	3,010	458	1	239,758
2007	2,944	381	1	228,016
2008	1,757	211	0	184,576
2009	2,475	380	2	190,983
2010	2,876	471	1	297,089
2011	2,613	423	1	211,894
2012	3,110	517	1	216,438

Table 2.2 Top hiring firms and industries

Panel A lists the publicly listed firms that employ the highest number of revolvers during the sample period, 1990-2012. Panel B lists the industries that revolvers most frequently find jobs in during the same sample period. The industries are classified according to two-digit SIC codes, and the frequency of revolver employment is measured in terms of percentage of firm-year observations.

Panel A. Top hiring firms

Rank	Top hiring firms	# of revolvers employed
1	Lockheed Corp	15
2	Raytheon Co	11
3	Primerica Corp New	11
4	Boeing Co	10
5	Southwestern Bell Corp	9
6	General Electric Co	8
7	Northrop Grumman Corp	7
8	Google Inc	7
9	Verizon Communications Inc	6
10	Microsoft Corp	5
11	Ford Motor Co Del	5
12	Wal-Mart Stores Inc	5
13	Boston Scientific Corp	5
14	Allied Corp	4
15	General Dynamics Corp	4
16	United Technologies Corp	4
17	Disney Walt Co	4
18	Duke Energy Corp	4
19	Monsanto Co New	4
20	Wellpoint Inc	4
21	Pepsico Inc	3
22	Westinghouse Electric Corp	3
23	Abbott Laboratories	3
24	Pfizer Inc	3
25	Middle South Utilities Inc	3

Panel B. Top hiring industries

Rank	Top hiring industries	Frequency
1	Electric, Gas, and Sanitary Services	8.42%
2	Communications	8.06%
3	Business Services	7.69%
4	Transportation Equipment	6.96%
5	Chemicals and Allied Products	6.59%
6	Electronic and Other Electrical Equipment and Components except Computer Equipment	5.49%
7	Measuring, Analyzing, and Controlling Instruments	4.76%
	Photographic, Medical and Optical Goods, Watches and Clocks	
8	Depository Institutions	4.76%
9	Industrial And Commercial Machinery and Computer Equipment	4.03%
10	Security And Commodity Brokers, Dealers, Exchanges, and Services	4.03%

Table 2.3 Revolvers' job positions

Panel A lists revolvers' job positions within the executive branch, the number of such positions, and their corresponding frequencies. Panel B provides the same information for legislative branch revolvers. Panel C lists revolvers' job positions within the publicly traded firms, together with the number of such positions and their corresponding frequencies. The sample period is 1990- 2012.

Panel A. Executive branch revolver positions

Rank	Executive branch revolver positions	Number	Frequency
E0	Cabinet-ranking positions	8	3.9%
E1	Presidential appointees at departmental agencies and regulatory agencies	47	23.2%
E2	Other high-level senior officials at departmental agencies and regulatory agencies	24	11.8%
E3	Mid-level senior officials at departmental agencies and regulatory agencies	73	36.0%
E4	Remaining officials at departmental agencies and regulatory agencies	16	7.9%
W1	Executive Office (White House) senior staff	33	16.3%
W2	Remaining staff at Executive Office (White House)	2	1.0%
Total		203	100%

Panel B. Legislative branch revolver positions

Rank	Executive branch revolver positions	Number	Frequency
L0	Members of Congress	14	4.2%
L1	Senior staff working for Congressional Leadership	14	4.2%
L2	Senior staff working for Congressional Committees	70	20.9%
L3	Senior staff working for Members of Congress	141	42.1%
L4	Other Congressional staff	96	28.7%
Total		335	100%

Panel C. Legislative branch revolver positions

Rank	Executive branch revolver positions	Number	Frequency
C0	Executive in charge of public, external affairs, or communications	21	4.1%
C1	Executive in charge of government, legislative, regulatory affairs, or public policy	259	50.7%
C2	Board members, partners and other senior executives	96	18.8%
C3	Lobbyist (working for a publicly listed firm)	118	23.1%
C4	Other positions	17	3.3%
Total		551	100%

Table 2.4 Revolving-door movements and abnormal returns

Panel A of this table shows the performance of portfolios of US firms during the two year-period prior to revolvers joining these companies, while revolvers were still working for the government (the *Conflicted Period*). It also shows the performance of firms not employing revolvers, and the difference between these two groups of firms. Performance is measured using raw returns, one-, three-, and four-factor alphas, four-factor alphas with time-varying betas, and returns in excess of characteristics-based benchmarks. Panel B shows the performance of the same group of firms during the *Pre-Conflicted Period*, which corresponds to the two-year period immediately prior to revolvers' government service. Panel C shows the performance of portfolios of US firms employing revolvers, not employing revolvers, and their difference, during the *Post-Transition period*, i.e., during revolvers' tenure in the firms after leaving the government. Returns and alphas are expressed in percent per year. Statistics are computed on monthly returns and annualized by multiplying returns and alphas by 12. The results are shown for value-weighted portfolios where the weights correspond to firms' equity market values at the end of the previous year. t-statistics based on standard errors, robust to conditional heteroscedasticity and serial correlation of up to two lags as in Newey and West (1987), are reported in parentheses. Sample period is 1990-2012. ***, **, * denote statistical significance at 1%, 5%, and 10% levels, respectively.

Panel A. Conflicted Period

	Raw returns	1-factor alpha	3-factor alpha	4-factor alpha	4-factor alpha (with time-varying betas)	Excess return over characteristics-based benchmarks
Firms without revolvers	16.17*** (4.37)	6.72*** (3.27)	6.93*** (3.57)	7.77*** (3.78)	8.39*** (3.30)	5.29*** (3.54)
Firms without revolvers	9.14** (2.58)	-0.65 (-1.50)	-0.75 (-1.58)	-0.19 (-0.39)	-0.19 (-0.37)	-0.21 (-0.75)
Difference	7.03*** (3.26)	7.38*** (3.41)	7.68*** (3.68)	7.96*** (3.55)	8.57*** (3.06)	5.50*** (3.41)

Panel B. Pre-conflicted Period

	Raw returns	1-factor alpha	3-factor alpha	4-factor alpha	4-factor alpha (with time-varying betas)	Excess return over characteristics-based benchmarks
Firms without revolvers	9.03** (2.54)	-0.19 (-0.11)	0.79 (0.49)	2.05 (1.21)	2.31 (1.26)	-0.40 (-0.27)
Firms without revolvers	9.51** (2.52)	-0.37 (-0.78)	-0.52 (-1.03)	0.07 (0.14)	0.11 (0.24)	0.03 (0.11)
Difference	-0.48 (-0.26)	0.18 (0.10)	1.31 (0.78)	1.98 (1.06)	2.19 (1.16)	-0.44 (-0.28)

Panel C. Post-transition Period

	Raw returns	1-factor alpha	3-factor alpha	4-factor alpha	4-factor alpha (with time-varying betas)	Excess return over characteristics-based benchmarks
Firms without revolvers	8.65*** (2.60)	-0.69 (-0.53)	-0.18 (-0.15)	0.10 (0.08)	0.78 (0.64)	-0.42 (-0.30)
Firms without revolvers	9.68*** (2.69)	-0.21 (-0.42)	-0.39 (-0.72)	0.34 (0.64)	0.17 (0.32)	0.09 (0.33)
Difference	-1.03 (-0.67)	-0.48 (-0.33)	0.21 (0.15)	-0.24 (-0.16)	0.61 (0.51)	-0.51 (-0.34)

Table 2.5 Matching estimators

This table shows the difference in performance between a portfolio of US firms during the two-year period prior to revolvers joining the firms and a portfolio of firms that do not employ revolvers, selected to match their general hiring patterns. The analysis uses the number of employees and the change in number of employees at the moment of hiring to match the treatment firms to the nearest neighbours. Some specifications also use size and book-to-market quintiles (Daniel et al., 1997) and industry as additional matching criteria. Industry is defined using two-digit SIC codes. Matching is done according to propensity score to the nearest ten neighbours and using a calliper of 1%. Performance is measured using raw returns, one-, three-, and four-factor alphas, four-factor alphas with time-varying betas, and returns in excess of characteristics-based benchmarks. Returns and alphas are expressed in percent per year. Statistics are computed on monthly returns and annualized by multiplying returns and alphas by twelve. The table shows the results for value-weighted portfolios. t-statistics based on standard errors, robust to conditional heteroscedasticity and serial correlation of up to two lags as in Newey and West (1987), are reported in parentheses. Sample period is 1990-2012. ***, **, * denote statistical significance at 1%, 5%, and 10% levels, respectively.

	Difference in Average returns	Difference in 1-factor alpha	Difference in 3-factor alpha	Difference in 4-factor alpha	Difference in 4-factor alpha (with time-varying betas)
Firms matched using number of employees and change in number of employees	6.52*** (2.76)	6.87*** (2.90)	7.35*** (3.19)	7.78*** (3.06)	7.52*** (3.01)
Firms matched using number of employees, change in number of employees, and industry	9.64** (2.24)	8.27* (1.88)	10.25** (2.26)	9.60** (2.06)	9.29** (1.98)
Firms matched using number of employees, change in number of employees, and size and book-to- market quintiles	5.88* (1.89)	5.63* (1.80)	6.08* (1.87)	6.22* (1.72)	6.44* (1.93)

Table 2.6 Abnormal returns and executive orders

This table reports the results of regressions of monthly abnormal returns on a dummy variable indicating whether a month is within the Clinton and Obama presidential terms. Abnormal returns are measured as realized returns in excess of conditional expected returns with time-varying betas for Fama-French-Carhart risk factors. Separate regressions are estimated for two groups of firms. In any given month, *Treatment firms* are firms that hired a presidential or vice-presidential appointee within the subsequent two years. *Control firms*, in that month, are firms that hired revolvers who were not presidential or vice-presidential appointees within the subsequent two years. Newey-West corrected t-statistics are reported in parentheses. Sample period is 1990-2012. ***, **, * denote statistical significance at 1%, 5%, and 10% levels, respectively.

	Treatment firms - Abnormal returns	Control firms - Abnormal returns	Difference Abnormal returns
Clinton & Obama presidential terms	-10.39* (-1.75)	7.07** (2.10)	-17.46** (-2.41)
Constant	10.36** (2.45)	2.82 (1.03)	7.54 (1.19)
Observations	275	275	275
R-squared	0.010	0.010	0.019

Table 2.7 Revolvers and government contracts

This table reports the results of Tobit panel regressions of the value of government contracts (in millions of US dollars) allocated to publicly traded firms on a series of indicator variables, instruments and controls. The first indicator variable (revolver connection) equals one if the firm hired a revolver from the government within the subsequent two years, and zero otherwise. The second indicator variable (executive revolver connection) equals one if the firm hired a presidential or vice-presidential appointee from the government within the subsequent two years, and zero otherwise. The third indicator variable (non-executive connection) equals one if the firm hired *only* those who are not presidential or vice-presidential appointees from the government within the subsequent two years, and zero otherwise. Instruments include an indicator variable (restrictive years) that equals one in years in which executive orders that restrict revolver door movements are in place and zero otherwise, and interaction terms between this variable and the executive and non-executive revolver connection indicator variables mentioned above. Controls include the company's market capitalization, the ratio of the book value and market value of equity, the Herfindahl index, which is based on total sales in the two-digit SIC industry of the company, the ratio of capital expenditure to sales, the ratio of cost of goods sold to sales, and the return on assets. Regressions also include industry and year fixed effects. Each column represents a separate regression. T-statistics based on standard errors clustered at the firm level are included in parentheses. Observations are at the firm-year level. Sample period is 1990-2012. The sample includes all firms that hired at least one revolver and received at least one government contract during the sample period. ***, **, * denote statistical significance at 1%, 5%, and 10% levels, respectively.

(Table 2.7 is on the following page)

	(1)	(2)	(3)	(4)	(5)	(6)
Firm has a revolver connection	467.52*** (3.38)	335.88** (2.56)				
Firm has an executive revolver connection			814.40*** (2.63)	663.60** (2.15)	1,086.16** (2.54)	955.85** (2.15)
Firm has a non-executive revolver connection			381.50*** (3.69)	243.86*** (2.71)	438.69*** (3.55)	295.56*** (2.65)
Firm has an executive revolver connection * Restrictive years					-814.20** (-2.07)	-845.75** (-1.96)
Firm has a non-executive revolver connection * Restrictive years					-121.55 (-0.96)	-109.80 (-0.71)
Restrictive years					587.41*** (3.34)	527.49*** (2.93)
Firm control variables [ROA, CAPEX2SALES, COGS2SALES, BM, SIZE, HHI]	N	Y	N	Y	N	Y
Industry and year fixed effects	Y	Y	Y	Y	Y	Y
Intercept	-587.80** (-2.07)	-2,189.67*** (-3.02)	-590.38** (-2.08)	-2,184.35*** (-3.01)	-580.47** (-2.02)	-2,161.78*** (-2.98)
R squared	0.018	0.024	0.018	0.024	0.018	0.024
Observations	17,768	15,558	17,768	15,558	17,768	15,558

Table 2.8 Linking abnormal returns and government contracts

Panel A reports the result of a first-stage Tobit regression of monthly government contracts on a revolver connection indicator variable (defined as in Table 2.7), and industry and year fixed effects. Standard errors are clustered at the firm level. Panel B reports the results of Fama and MacBeth cross-sectional regressions of monthly excess stock returns on different variables of interest and lagged firm characteristics. Variables of interest include: revolver connection, monthly government contracts allocated to the firm, and (first-stage) predicted value of government contracts allocated to the firm. “Beta” is the firm-level current market beta computed from daily returns within the month, “size” is the natural log of firm’s market capitalization, “book-to-market” is the natural log of firm book-to-market ratio, and “momentum” is firm momentum (prior cumulated 12-month returns). The table reports the average loadings for each cross-sectional regression and the corresponding Newey and West corrected t-value (in parentheses). Sample period is 1997- 2012. ***, **, * denote statistical significance at 1%, 5%, and 10% levels, respectively.

Panel A. First stage regression - monthly government contracts (mio)

	(1)
Firm has a revolver connection	412.61*** (3.08)
Industry, year dummies	Y
Intercept	-1,172.39*** (-3.09)
Observations	916,194
R-squared	0.0319

(Panel B of Table 2.8 is on the following page)

Panel B. Second stage regressions - monthly stock returns (yearly %)

	(1)	(2)	(3)
Firm has a revolver connection	10.50*** (3.84)		
Monthly government contracts allocated to the firm		19.49 (1.54)	
Predicted value of monthly government contracts allocated to the firm			0.01** (2.07)
Beta	2.08 (1.43)	2.07 (1.42)	2.07 (1.42)
Size	-1.37 (-1.35)	-1.31 (-1.30)	-1.33 (-1.32)
Book-to-market	4.21*** (2.68)	4.21*** (2.67)	4.23*** (2.69)
Momentum	2.89 (0.84)	2.87 (0.83)	2.84 (0.82)
Intercept	14.56 (1.47)	14.31 (1.45)	25.32** (2.24)
Observations	737,811	737,811	737,811
R-squared	0.045	0.045	0.046
Number of groups	273	273	273

Table 2.9 Consensus and management surprises in event time

This table reports results from regressions of consensus surprise, management surprise, and their difference. Consensus surprise is the actual earnings per share (EPS) of firm i for the fiscal year ending in year t minus the mean Institutional Brokers' Estimate System (IBES) analyst forecast (consensus forecast), deflated by consensus forecast. The IBES consensus forecast is taken eight months prior to the end of the forecast period. Guidance surprise is the actual EPS of firm i for the fiscal year ending in year t minus the IBES guidance forecast (i.e., management forecast), deflated also by consensus forecast. It compares the portion of consensus surprise that could be corrected by management guidance. We take the IBES guidance forecast provided on the closest date within 30 days to the IBES consensus forecast used in consensus surprise. The difference between consensus surprise and management surprise reflects the difference between guidance and consensus forecasts, deflated by consensus forecasts, which amounts to management optimism relative to consensus forecast. Indicator variables are dummy variables that are coded as one for each of the previous five years before a revolver joins firm i . Control variables include the log of book-to-market ratio, and the market value of equity as of the end of year $t-1$. Panel A runs regressions on the entire sample, Panel B runs regressions only on firms that hire revolvers but do not receive any government contracts, and Panel C runs regressions on firms that receive government contracts but do not hire any revolvers. Coefficients are multiplied by 100, and t -statistics are in parentheses. Sample period is 2001-2012. ***, **, * denote statistical significance at 1%, 5%, and 10% levels, respectively.

Panel A. Firms that hire revolvers

	Consensus surprise	Management surprise	Surprise difference
	(1)	(2)	(3)
5 years before firm hiring	-10.15 (-1.37)	-7.54 (-1.51)	-2.62 (-0.89)
4 years before firm hiring	-1.16 (-0.35)	-0.19 (-0.06)	-0.98 (-0.57)
3 years before firm hiring	-0.71 (-0.15)	-0.28 (-0.06)	-0.43 (-0.65)
2 years before firm hiring	6.12** (2.05)	4.49* (1.67)	1.63* (1.89)
1 year before firm hiring	7.05** (2.00)	4.88 (1.51)	2.18** (1.98)
1st year at the firm	-2.03 (-0.61)	-1.61 (-0.52)	-0.42 (-0.57)
Firm control variables [SIZE, BM]	Y	Y	Y
Intercept	-0.31 (-1.46)	-0.28 (-1.36)	-0.03 (-0.53)
Observations	3,897	3,897	3,897
R-squared	0.006	0.007	0.001

Panel B. Firms that hire revolvers but don't receive any government contracts

	Consensus surprise	Management surprise	Surprise difference
	(1)	(2)	(3)
5 years before firm hiring	-0.49 (-0.06)	-0.95 (-0.11)	0.46 (0.98)
4 years before firm hiring	-2.01 (-0.39)	-2.62 (-0.48)	0.61 (0.49)
3 years before firm hiring	6.10 (0.84)	6.52 (0.85)	-0.41 (-0.28)
2 years before firm hiring	1.04 (0.28)	1.17 (0.34)	-0.12 (-0.12)
1 year before firm hiring	0.85 (0.20)	0.65 (0.15)	0.20 (0.31)
1st year at the firm	-2.88 (-0.78)	-1.64 (-0.49)	-1.24 (-1.13)
Firm control variables [SIZE, BM]	Y	Y	Y
Intercept	-0.32 (-1.54)	-0.29 (-1.42)	-0.03 (-0.59)
Observations	3,897	3,897	3,897
R-squared	0.006	0.007	0.000

Panel C. Firms that receive government contracts but don't hire any revolvers

	Consensus surprise	Management surprise	Surprise difference
	(1)	(2)	(3)
5 years before firm hiring	-5.92 (-0.87)	-6.23 (-1.02)	0.31 (0.22)
4 years before firm hiring	-0.03 (-0.00)	4.44 (0.75)	-4.47 (-0.89)
3 years before firm hiring	0.09 (0.03)	-1.65 (-0.54)	1.74 (1.46)
2 years before firm hiring	-0.72 (-0.21)	-1.21 (-0.36)	0.49 (0.78)
1 year before firm hiring	-9.08 (-0.73)	-9.73 (-0.84)	0.65 (0.47)
1st year at the firm	6.63 (1.00)	7.09 (1.09)	-0.46 (-0.29)
Firm control variables [SIZE, BM]	Y	Y	Y
Intercept	-0.31 (-1.58)	-0.28 (-1.46)	-0.03 (-0.58)
Observations	3,897	3,897	3,897
R-squared	0.007	0.008	0.001

SENIOR POLITICAL REPRESENTATION

‘All politics is local.’ -Thomas Phillip O'Neill Jr., Former Speaker of the U.S. House of Representatives

3.1 Introduction⁴⁰

I investigate the effects of senior political representation through a government contract allocation channel on firm-level investments and stock market returns. According to strategic delegation theory, voters elect political representatives that bring government spending into their home districts (Chari, Jones, and Marimon, 1997). Political representatives therefore work as district lobbyists and shift government investments towards their constituencies (Ferejohn, 1974). These geographic shifts may impact firm-level investments through direct (e.g. through shifts in primary contracting) and indirect (e.g. through subcontracting decisions) economic links. These shifts may additionally influence the cross section of stock market returns through expected firm cash flow and uncertainty channels.

⁴⁰ This chapter is entirely based on the working paper “The impact of senior political representation on government contracting, firm-level investments and stock returns”

This paper studies how senior politicians systematically affect the government contract allocation process, cause investment spillovers in their districts and influence stock market returns. It primarily contributes to an ongoing debate in financial economics on how government-level investment activity influences corporate investment activity (Cohen, Coval, and Malloy, 2011; Synder and Welch, Forthcoming). It additionally provides a novel geographic exposure measure to government procurement, and analyzes the channels, through which it affects firm profitability and stock market returns.

For my identification methodology, I use a seniority lottery in committees of U.S. House of Representatives. Democratic Caucus assigns seniority ranks to incoming House committee members based on chamber seniority. Incoming members to a given House committee with equal experience therefore cause seniority ties and clog the seniority ranking process. In these cases, Democratic Caucus breaks the ties with a seniority lottery (Kellerman and Shepsle, 2009). As a result, some legislators are randomly assigned higher ranked committee seats than their counterparts with equal chamber seniority. Outcomes of this seniority lottery cause exogenous shocks on government contract allocation to districts of lottery-winner legislators (lottery-winner districts) and lottery-loser legislators (lottery-loser districts). I identify shifts in government contract allocation by looking at difference (between government procurement to lottery-winner and lottery-loser districts) in differences (in the event time). In so doing, I find that

the value of government contracts allocated to lottery-winner districts exceeds the value of government contracts allocated to lottery-loser districts by an economically and statistically significant 41%.

Geographic shifts in government contract allocation have profound spillover effects on firm-level investment activity. Given firm-level and district-level endogeneity, however, the econometric analysis of how government contract allocation affects firm-level activity would yield spurious results in the absence of a reliable identification strategy. Government spending decisions may, for example, heavily depend on district-level economic growth, unemployment or industry characteristics. Therefore, to tackle endogeneity and pin down a causal relationship, I use the seniority lottery as a source of exogenous variation in district-level government contracting. By doing so, I find that one percent increase in government procurement increases firm-level investments by 2.85%. This result is robust to controlling for firm-level characteristics, firm fixed effects and yearly trends in firm-level investments.

Outcomes of the seniority lottery also affect firm-level profitability and stock-market returns. First, firms in lottery-winner districts exhibit 2% higher future profitability and 2% lower future cash flow volatility relative to firms in lottery-loser districts. Second, there is a 3-day cumulative abnormal return (CAR) difference of 1.4% between firms in lottery-winner and lottery-loser districts. Third, starting from the month after the lottery, firms in lottery-winner districts

outperform firms in lottery-loser districts by an economically and statistically significant 5.13% per year. Fourth, I analyse the influence of government contract allocation on this outperformance and discover that it is strongly driven by firms in lottery-winner districts with high government contract allocation in the previous month. I find, for example, a return spread of 7.03% per year between firms in lottery-winner districts with high government contract allocation and firms in lottery-loser districts with low government contract allocation. Fifth, I delve deeper and investigate the CARs of contracted firms from lottery-winner districts before and after the contract allocation date. Before the contract allocation date and after the seniority lottery, contracted firm returns grow as the contract dates approach. Stock market reacts positively to the allocation of government contracts. After contract allocation, there is a strong drift in contracted firm returns, and this drift disappears after a year. Sixth, to shed light on this drift, I investigate upcoming government contracts and discover that contracted firms in lottery-winner districts receive additional government contracts in the following year.

In a placebo test I apply lottery outcomes to previous congressional years, during which neither lottery-winner nor lottery-loser legislators are yet at the House. My results overall are robust to this placebo test. In a different placebo test, I identify lottery-winner and lottery-loser legislators that used to serve other districts before being elected in their current districts. When I compare the

previous districts of lottery-winner and lottery-loser legislators, I find no difference in terms of government contract allocation. This result is not in line with the hypothesis that political representatives shift contracts to their districts due to information advantage.

My findings have three main implications. First, consistent with strategic delegation theories, senior politicians drive government contracts to their home districts. In exchange, they receive higher votes. These results therefore confirm that a commitment mechanism exists between senior politicians and their voters. This commitment mechanism is preserved, because parts of Federal Acquisition Regulations (FAR) allow senior legislators to follow in depth and influence federal procurement decisions⁴¹. Providing stronger procurement privacy and curbing the influence of local politics on federal procurement decisions can therefore potentially help government contracts to be better allocated. Second, government procurement has profound spillover effects on corporate investments, and these investments prove to be very profitable. Therefore, the influence of local politics on government contracts also shapes the geography of corporate investment activity and profitability. Third, the geographic distribution

⁴¹ Procurement officers must follow Federal Acquisition Regulations (FAR) while allocating government contracts. During these allocations, heads of government agencies give written notifications of proposed contracts to the Congress (Part 17, Subpart 10, Section 8). Members of Congress may request full documentation on bids, including information harmful to the competitiveness of the acquisition (Part 4, Subpart 40, Section 3). Members of Congress may also influence negotiation processes and have a significant effect on the action (Part 15, Subpart 40, Section 6 and Subsection 3). These are on top of the influence legislators may exert on procurement decisions, given the fact that procurement must still be authorized and appropriated (Authorization Act, Appropriation Act). See, <https://www.acquisition.gov/?q=browsefar>

of government procurement strongly influences stock market returns, and therefore should interest the investors.

This article is organized as follows. Section 2 summarizes the related literature. Section 3 describes the data that I use in my empirical analysis and explains my identification methodology. Section 4 presents my results on government contracts and firm-level investments. Section 5 covers stock market performance analysis. Section 6 looks into firm profitability and earnings surprises. Section 7 concludes. I provide detailed information on construction of my controls in the Appendix, which also includes further findings on district-level subcontracting.

3.2 Related Literature

This paper contributes to three strands of research: the impact of public-sector economic activity on private-sector investments, the impact of political connections on corporate performance, and finally the relationship between government policies and asset prices.

A number of studies including Cohen, Coval, and Malloy (2011) and Snyder and Welch (Forthcoming) provide mixed results on how government investments impact firm-level investments in the U.S.⁴². I contribute to this literature by investigating within-district investment spillover effects of government

⁴² Interested reader can refer to Cullen and Fishback (2006), Fishback and Kachanovskaya (2015), Serrato and Wingender (2011), Acconcia, Corsetti and Simonelli (2014), Nakamura and Steinsson (2014), and others for further findings on open economy multipliers.

contracting. Seniority lottery provides me with exogenous shifts in government contracting towards districts of lottery-winner legislators. This novel identification strategy enables me to analyse the causal impact of government contracting on firm-level investment activity. Furthermore, in contrast to existing papers, I also examine the channels through which government contracting affects firm profitability and long-run stock market returns.

Academic research in financial economics show that a sample of political representatives and corporations benefit from activities such as political lobbying, revolving door movements of politicians, and campaign donations⁴³. In contrast to these papers, I study the ramifications of district representation on stock market returns⁴⁴. Electoral district connection is surprisingly understudied as a political connection measure. Roberts (1990), and Faccio and Parsley (2009) use sudden deaths of politicians as shocks to firms that are located in their districts. They find strong negative announcement returns after these sudden deaths. In addition to analysing the short term stock price effects of district representation, I also analyse its long term effects. In doing so, I provide government contract allocation as a cash flow channel.

⁴³ Recent contributions on lobbying include Blanes i Vidal, Draca, and Fons-Rosen (2012), Akey (2015), and Acemoglu, Kermani, Kwak, and Mitton (2015). Additional contributions on revolving doors and political networks include Faccio (2006), Goldman, Rocholl, and So (2009, 2013), Fisman (2001), Fisman, Fisman, Galef, and Khurana (2012), and Schoenherr (2016). Furthermore, see, Cooper, Gulen, and Ovtchinnikov (2010) and Tahoun (2014) on political campaign donations and stock holding decisions of political representatives.

⁴⁴ Theoretical and empirical research find that majoritarian systems as in U.S. House of Representatives are particularly grounded in local (district) interests (Milesi-Ferretti, Perotti, and Rostagno, 2002). There is also ample evidence on how politicians influence government spending in order to increase votes. See, for example, Drazen (2001) for a review of theoretical and empirical literature.

This paper is also related to the literature on the impact of government policies on asset prices⁴⁵. In a recent paper, Belo, Gala and Li (2013) investigate implications of the presidential puzzle (Santa-Clara and Valkanov, 2003) on stock market returns, and they find that firms with high industry-level exposures to government spending experience positive returns during Democratic presidencies and negative returns during Republican presidencies. In contrast to this paper, I analyse the ramifications of government spending across different regions in a given congressional year. Furthermore, my government spending exposure measure is driven by geographic ties rather than industry ties. In another related paper, Kim, Pantzalis and Park (2012) study implications of political alignment with the U.S. president on stock market returns through a government policy uncertainty channel. In contrast to this paper, I define an influence measure using seniority lottery outcomes.

3.3 Data and Methodology

3.3.1 Institutional background and seniority lottery in House committees

Although the U.S. Constitution lists detailed qualifications for House representatives in Article 1, it is rather silent about their roles and duties⁴⁶. In the absence of such rigid formalities, many of the responsibilities that political

⁴⁵ A list of theoretical work on this subject includes Pastor and Veronesi (2013), Gomes, Michaelides and Polkovnichenko (2010), and Croce, Kung, Nguyen, and Schmid (2012).

⁴⁶ House of Representatives rules only require political representatives to be present and vote on each question placed before their chamber. These duties are currently listed under House Rule III, Section 1 of *Rules of the House of Representatives for 114th Congress* and this document can be found at <http://clerk.house.gov/legislative/house-rules.pdf>.

representatives have assumed over time evolved from the expectations of electoral districts along with personal motives (Petersen, 2012). According to a survey done by Administrative Review Commission⁴⁷ political representatives list drafting and introduction of legislation, helping electoral districts solve problems and representing the interests of their districts as their main duties. A public survey done by the same commission reveals that voters primarily expect from House representatives to represent the district according to the wishes of the majority (by working on improving the economy, lowering prices and creating more jobs in addition to other ways), to solve problems in the district, and to keep contact with the people in the district by regular visits. There is therefore an understanding by both the representatives and voters that representatives must “help” and “protect” their constituencies. The degree to which the political representatives satisfy these expectations determine their success in future elections and therefore how high they can climb up the ladder of politics⁴⁸.

Academic research on congressional committee system use committee seniority as an indicator of relative power (Polsby, Gallagher, and Rundquist, 1969; Crook and Hibbing, 1985; and Cox and McCubbins, 1991). Committee seniority provides advantages in obtaining subcommittee and committee chairmanships in addition to soft power on the legislative and executive

⁴⁷ For this survey please refer to *Final Report of the Commission on Administrative Review*, 2 vols., H. Doc. 95-272, 95th Congress, 1st Session (Washington: GPO, 1977).

⁴⁸ According to 2013 and 2016 surveys by Gallup, U.S. Congress has only 16% approval rate as a whole. However, 60% of U.S. voters approve their political representative individually, and the reelection rate in 2012 was 91%. This is supportive of the notion that the commitment mechanism between voters and representatives is working in real life.

branches, which all help political representatives “help” their constituencies. Political science literature provides ample evidence on how senior representatives shift government spending to their home districts (Engstrom and Vanberg, 2010; Lee, 2003; McKelvey and Riezman, 1992; Hibbing, 1991; and Ferejohn, 1974).

In this paper, I follow Kellerman and Shepsle (2009) and use a seniority lottery system, by which the Democratic Caucus breaks committee seniority ties and assigns committee seniority ranks to its legislators in the House of Representatives. Seniority ranking of Democratic Party legislators is done using the same rule for all committees in the House of Representatives. First, re-elected representatives that return to *Committee X* retain their rank at *Committee X*, moving up in rank only if there are higher ranked members that do not return *Committee X*. Second are the incoming committee members with and without chamber seniority in the House. These members are given committee ranks according to their chamber seniorities.

As comprehensive as these rules are, they still fail to rank incoming representatives with equal chamber seniority. Under these circumstances, Democratic Committee on Committees breaks seniority ties by a randomization process that allocates committee seniority using a lottery. This lottery is the key to my identification strategy, as every time a tie-breaking seniority lottery decision is made, an experiment is conducted on the electoral districts of legislators that are randomly ranked. This enables me to rule out any federal-,

district-, or firm-level endogeneity when I investigate the implications of government contracts on firm-level investment behaviour and stock market returns.

3.3.2 Data collection

My data come from multiple resources. I obtain data on committee assignments and legislator seniority from Congressional Committee Assignments Dataset maintained by Charles Stewart⁴⁹. To identify seniority randomization groups, I download committee assignments since 2001⁵⁰. As in Kellerman and Shepsle (2009), I identify legislators who (1) received new assignments to a committee on the same day, (2) had equivalent chamber seniority, and (3) were assigned consecutive seniority ranks in the committee. After determining the randomization groups, I identify the representatives that win the seniority lottery. I follow Kellerman and Shepsle (2009) and define “winning the lottery” as being assigned a more senior ranking than the median legislator ranking in the randomization group⁵¹.

⁴⁹ This is a widely-used dataset in political science. For more information on the data and on that articles that use this data, please refer to: <http://web.mit.edu/17.251/www/data/page.html>

⁵⁰ I start with year 2001, because my government contracting data is sparse in the 1990s and before. Nonetheless, since the Senate and the House of Representatives were both under Republican control during most of the 1990s and before, the impact of the seniority lottery was potentially less apparent. That being said, I also separately analyze the implications of Democratic majority years after 2001 in the Robustness section.

⁵¹ If, for example, 3 representatives enter a seniority lottery in *Committee X*, and receive ranks of 4, 5 and 6, then the winner of this lottery would be the representative who is ranked as 4th and the loser would be the representative who is ranked as 5th and 6th. My main results are robust to changing this specification, and in the robustness section I also compare the biggest winners and losers (i.e. 4th and 6th).

To find the impact of the seniority lottery on firms that are headquartered in legislators' electoral districts⁵², I match the above data with firm-specific data. To match firms with legislators' electoral districts, I use zip-codes of firm headquarters from COMPUSTAT dataset and map them to electoral districts using Census Bureau relationship files⁵³. After matching the above lottery data with firm location data, I investigate the impact of the lottery on the firms in winner and loser congressional districts. I define a congressional district to be a winner (loser) district if it won (lost) at least one lottery and didn't lose (win) any.

To investigate the stock market performance implications of seniority lottery, I obtain data on stock market returns from CRSP⁵⁴. I also download data on firm characteristics from COMPUSTAT and data on analysts' earnings forecasts from Thomson Reuter's I/B/E/S dataset. I additionally look at government contract allocation to each congressional district. My government contract allocation data comes from Bloomberg's BGOV Dataset, which goes back to the beginning of 107th congress. BGOV collects its contract data from the Federal Procurement Data System - Next Generation (FPDS-NG). The FPDS-NG, administered by the US General Services Administration, is the central repository of information on procurement contracts awarded by U.S. government. If contracts are awarded to

⁵² In doing so, I follow Coval and Moskowitz (1999, 2001), Loughran and Schultz (2005), Pirinsky and Wang (2006), Hong, Kubik, and Stein (2008), Korniotis and Kumar (2013) and others to use corporate headquarters location to proxy for firm location.

⁵³ Census Bureau provides linking tables for 109th, 110th, and 113th congress. I update my linking table after 109th congress, and for before 109th congress I use the linking table for 109th congress. Tables can be found at: <https://www.census.gov/geo/maps-data/data/>

⁵⁴ I exclude in my calculations firms with missing end of year market values, and I use ordinary common shares in NYSE, AMEX and NASDAQ.

subsidiaries of large corporations, BGOV identifies the parent corporation and assigns contracts accordingly.

Finally, I use congressional district level data on population, per capita income, income growth and unemployment from American Community Survey (ACS) data files from Census Bureau⁵⁵, and I also obtain election results data for each legislator in my dataset using Election Results dataset of Federal Election Commission⁵⁶. I provide detailed explanations of my data collection process along with variable definitions in Appendix, Section A.

To identify the impact of legislators on the performance of firms in their district, I use lotteries from top ten most powerful committees⁵⁷. To identify top ten most powerful committees, I follow Edwards and Stewart (2006), and Cohen, Coval, and Malloy (2011), and I use in my main specification lotteries from the following House committees: Ways and Means, Appropriations, Energy and Commerce, Rules, International Relations, Armed Services, Intelligence, Judiciary, Homeland Security, and Transportation and Infrastructure.

Lotteries for the above House committees are carried out in the beginning of each congress, i.e. in early January⁵⁸, and given their prestige most legislators commit to staying in their committees independent of the seniority lottery

⁵⁵ This data can be downloaded from <https://www.census.gov/programs-surveys/acs/data/data-via-ftp.html>.

⁵⁶ This data can be downloaded from <http://www.fec.gov/pubrec/electionresults.shtml>.

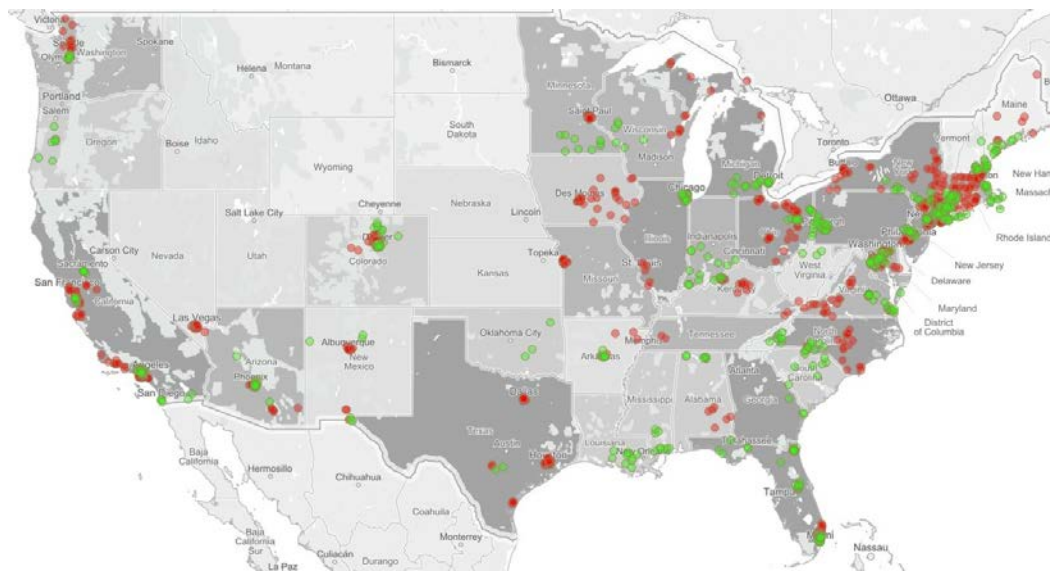
⁵⁷ I also present results from using all committees in the robustness section.

⁵⁸ The median seniority rank assignment day across all lotteries is 9th of January, which gives enough time to the stock market until the end of the month to include any potential ramifications into the stock prices.

outcomes. This translates into 77% of the districts staying as lottery-winner and lottery-loser districts, and 79% of the firms staying in lottery-winner and lottery-loser portfolios in the following years after lottery. Therefore, lottery outcomes have long-lasting implications. Figure 1 reports the electoral districts in the U.S. that are affected by seniority lottery outcomes in 2009. In total, 242 districts are affected by seniority lotteries since 2001.

Figure 3.1 Winners and losers of the seniority lottery in 2009

This figure reports lottery-winner and lottery-loser districts from year 2009. ZIP codes in lottery-winner districts are shown in green circles, and ZIP codes in lottery-loser districts are shown in red circles. Darker grey reflects higher population.



3.3.3 Summary statistics

This subsection presents summary statistics of the data used in the empirical analyses of this paper. Panel A of Table 3.1 reports how much of the government contracting activity and the stock market capitalization in the U.S. is attributable to lottery-winner and lottery-loser districts. It shows that lottery-winner districts

receive significantly more government contracts than lottery-loser districts even though they command a smaller share of stock market capitalization in the U.S. More specifically, firms in lottery-loser districts account for 14.04% of U.S. stock market capitalization and firms in lottery-winner districts account for 8.55%. Nonetheless, government contracts allocated to firms in lottery-winner districts correspond to a disproportionate 16.36% of government contracts allocated to all publicly traded corporations, whereas government contracts allocated firms in lottery-loser districts correspond to only 5.09%⁵⁹.

[Table 3.1 about here]

Parallel to the observations above, I also find that government contracting corresponds to a much larger proportion of firm sales in lottery-winner districts. In lottery-winner districts, government contracts make up 20.13% of firm sales, whereas in lottery-loser districts they only amount to a tiny 3.96% and for the remaining firms they amount to 10.13%. Overall, these numbers summarize the strong influence of senior political representation on the geographic distribution of government contracts⁶⁰.

Panel B presents summary statistics on pre-lottery firm characteristics, and Panel C presents district-level characteristics. Pre-lottery characteristics of firms

⁵⁹ Once I also include government procurement to private and foreign firms, I find that publicly-listed firms in lottery-winner districts and lottery-loser districts receive 5.14% and 1.43% of the entire pie, which represents an economy of \$369B per year since 2001.

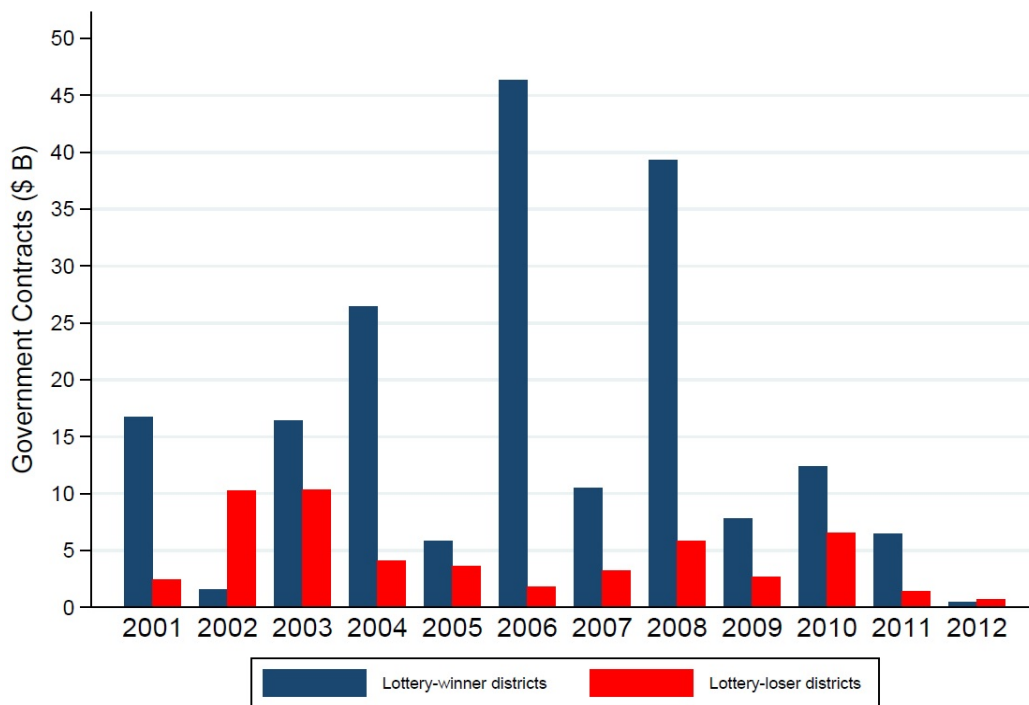
⁶⁰ Once I exclude legislators with median seniority ranks from my randomization groups, the market capitalizations of lottery-winner and lottery-loser portfolios become very similar. In this setting the lottery-winner portfolio continues to get more government contracts. Including medians as lottery-losers provides me with a harder test. My results, however, are robust to excluding them.

in lottery-winner and lottery-loser districts are close to each other and to those of the remaining firms. Investment characteristics of firms in lottery-winner districts, firms in lottery-loser districts, and the remaining firms, in particular, are very similar. Similar findings hold on district-level per capita income, income growth, population and unemployment.

Figure 3.2 Government contract allocation to winner and loser districts

This figure reports total government contract allocation to lottery-winner (shown in blue) and lottery-loser districts (shown in red) in a given year.

(Figure 3.2 is on the following page)



In order to understand the impact of senior political representation on government contracting and stock market returns, I first study whether districts that are represented by more senior legislators are systematically allocated more

government contracts. To that end, I start with analysing government contract allocation to lottery-winner and lottery-loser districts. Figure 3.2 presents yearly differences in total government contract allocation to lottery-winner and lottery-loser districts during my sampling period. Government contract allocation to lottery-winner districts exceeds government contract allocation to lottery-loser districts almost every year. As shown in Figure 3.3, lottery-winner districts, as a whole, have been allocated \$140B more government contracts than lottery-loser districts since 2001.

Figure 3.3 Cumulated difference between winner and loser contracts

This figure reports the cumulated difference in procurement allocation between government contracts to lottery-winner and lottery-loser districts.



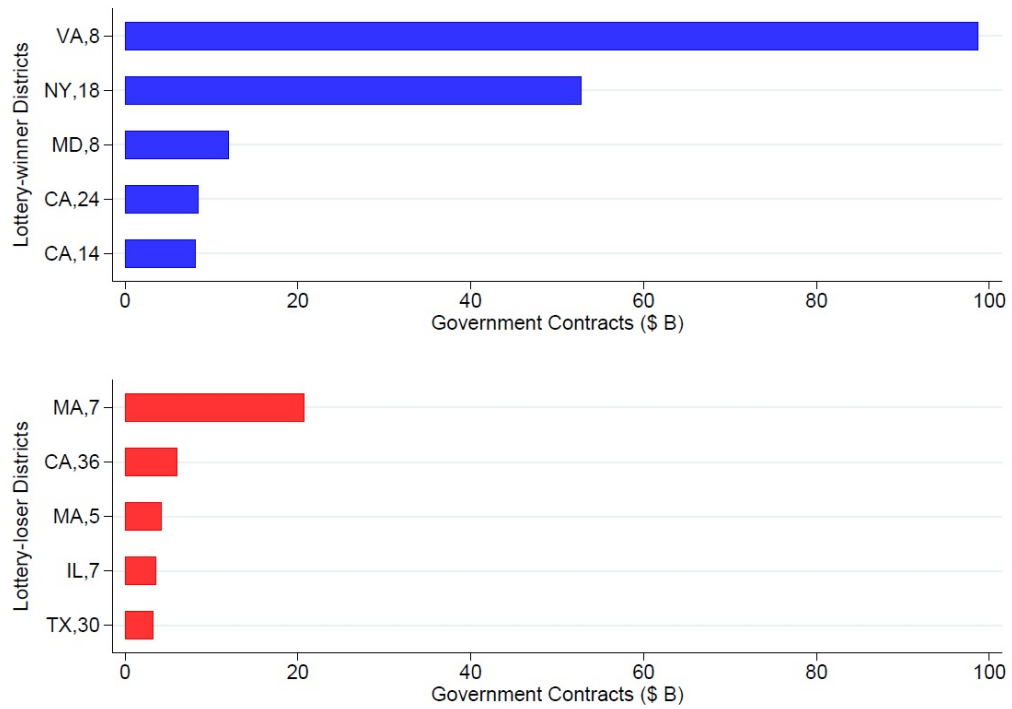
Figure 3.4 shows lottery-winner and lottery-loser districts with the highest aggregated value of government contracts since 2001. District 8 of Virginia, a lottery-winner district and one of the most Democratic districts in the south of the U.S., received \$98.6B worth of government contracts since 2001. In line with the predictions of strategic delegation theory, James Patrick Moran Jr., a former Democratic member of U.S. House of Representatives from Virginia's district 8, secured an average percentage vote of 63.2% and won every single congressional election since 2001⁶¹. Virginia's district 8 is followed by another strong Democratic district, district 18 of New York, which received \$52.8B worth of government contracts⁶². In comparison, the most contracted lottery-loser district is Massachusetts, district 7 with \$20.7B of government contracts.

Figure 3.4 District-level government contract allocation

This figure lists districts that were allocated the most government contracts. The first plot reports only lottery-winner districts and the second plot reports only lottery-loser districts.

⁶¹ This number is from elections between 2000 and 2012. James Patrick Moran Jr. retired in 2014, and Donald Sternoff Beyer, another Democratic candidate won in Virginia district 8 in 2014 elections.

⁶² In my regressions, I exclude two major contracts to these districts, because they are outliers. My results on government contracts and stock market returns are robust including or excluding these districts completely.

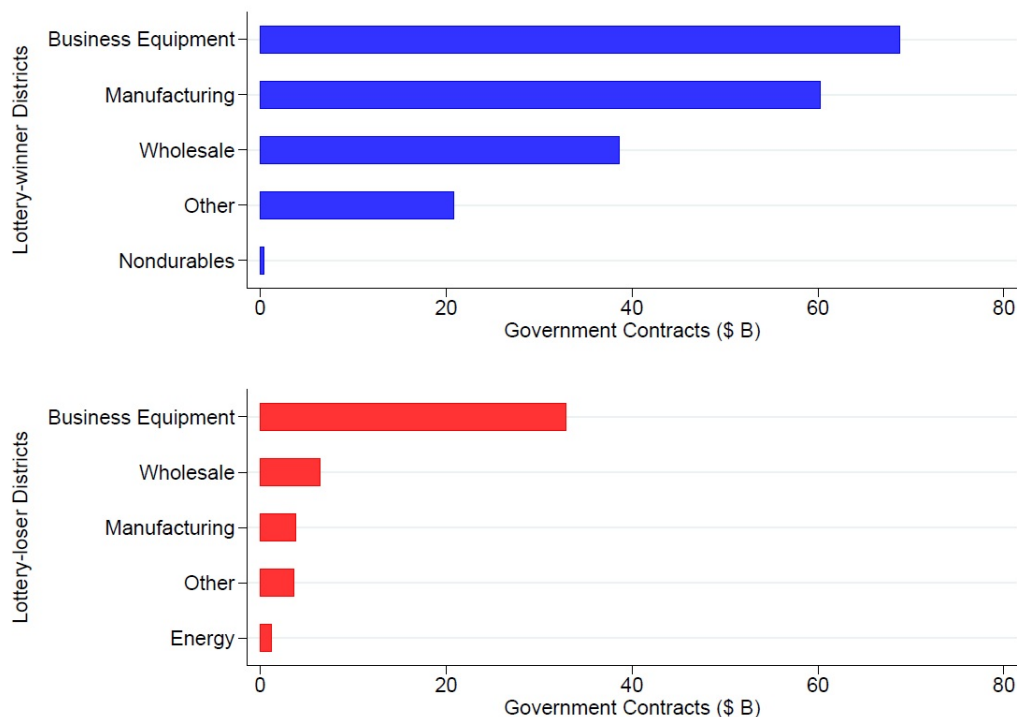


I also investigate industry-level ramifications of the seniority lottery. Figure 3.5 reveals that “business equipment” (i.e. computers, software, electronic equipment etc.), “manufacturing” (i.e. machinery, trucks, planes etc.), and “wholesale” (i.e. shops, retail etc.) industries receive the most valuable government contracts in lottery-winner and lottery-loser districts. These industries, however, receive significantly more government contracts in lottery-winner districts than they do in lottery-loser districts. “Business equipment” industry group, for example, received \$68.7B in lottery-winner districts and \$32.9B in lottery-loser districts since 2001, and the “manufacturing” industry group received \$60.2B in lottery-winner districts and \$6.5B in lottery-loser districts. These findings are in line with the notion that the seniority lottery shifts

government contracts across regions, but it has minor influence on industry choice.

Figure 3.5 Industry-level government contract allocation

This figure reports industries that were allocated the most government contracts. Industries are defined using Fama-French 12 industry definitions. The first plot reports lottery-winner districts and the second plot reports lottery-loser districts.



Overall, the evidence in this section is supportive of the influence of senior political representation on government contract allocation. Seniority lottery-winner districts are systematically allocated more valuable government contracts and voters seem to reward those representatives that are able to bring government spending into their districts⁶³. Although political seniority seems to influence the geographic distribution of government contracts, it has minor influence on industry choice.

⁶³ A detailed analysis of how political seniority and district-level government contracting affect election outcomes is presented in the Appendix Section D.

3.4 Government contracts and firm investment

In this section I establish the systematic impact of senior political representation on the allocation of federal government contracts. I start with a baseline difference-in-differences test, in which I compare government contracts to lottery-winner and lottery-loser districts before and after the lottery. After identifying shifts in government contract allocation towards lottery-winner districts, I instrument government contracts with lottery outcomes. This instrument provides me with exogenous variation in government investments and enables me to explain the causal effects of government procurement on firm-level investment activity.

3.4.1 Difference-in-differences test

In this subsection I identify geographic shifts in government contract allocation after seniority lotteries. I run a difference-in-differences model, in which the first difference is between lottery-winner and lottery-loser districts, and the second difference is in the event time. The first difference therefore reflects time invariant differences between lottery-winner and lottery-loser districts in terms of government procurement, and the second difference allows me to capture the changes in government procurement after seniority lotteries. If senior representation influences the distribution of government contracts, we should see an increase in government procurement to districts of lottery-winner legislators after the lottery.

$$Contract_{i,t} = \alpha_0 + \alpha_1 Lottery\ winner_i + \alpha_2 Post - lottery_{i,t} + \alpha_3 Lottery\ winner_i * Post - lottery_{i,t} + Y_t + \varepsilon_{i,t}, \quad (3.1)$$

where $Contract_{i,t}$ denotes the log of total government contracts allocated to congressional district i in year t , and $Lottery\ winner_i$ is a dummy that denotes whether congressional district i is a lottery winner or a lottery loser.⁶⁴ For a given district i , $Post - lottery_{i,t}$ is equal to one after the lottery outcome and zero before. Y_t denotes year dummies.

[Table 3.2 about here]

I present the results in Table 3.2, Panel A. I find that winning the lottery causes an economically and statistically significant increase of 75% in district-level government contract allocation. As a result, lottery-winner districts get 41% more government contracts subsequent to the lottery. This is in line with the notion that government contracts shift to districts of senior representatives. Given the exogenous nature of seniority lottery and its influence on government procurement, I use it as an instrument for district-level government contracts.

3.4.2 Government contract allocation to lottery-winner and lottery-loser districts

In this section I run first stage panel regressions on government contract allocation *after the seniority lottery*. To that end, I analyse whether government contract allocation to the lottery-winner districts differed from that of the lottery-

⁶⁴ If a district becomes both lottery-winner and lottery-loser over time, I choose the first lottery and drop the second.

loser districts even after controlling for district-level characteristics, district fixed effects and yearly trends in government contracting. I follow the methodology of Cohen et al. (2011) and run Tobit regressions on the below model:

$$Contract_{i,t} = \alpha_0 + \alpha_1 Lottery\ winner_{i,t} + \alpha_2 X_{i,t-1} + \gamma_i + \eta_t + \varepsilon_{i,t}, (3.2)$$

where $Contract_{i,t}$ denotes the log of total government contracts allocated to congressional district i in year t , $Lottery\ winner_{i,t}$ denotes whether congressional district i is a lottery-winner district in year t , and $X_{i,t-1}$ contains controls including congressional district level log per capita income over the past six years, along with lagged values of congressional-district level per capita income growth, log of congressional district population and unemployment rate in congressional district i . Lastly, γ_i and η_t denote congressional district and year dummies.

I present the results in Table 3.2, Panel B. Column 1 shows that the value of total government contracts allocated to lottery-winner districts exceeds the value of total government contracts allocated to lottery-loser districts by an economically and statistically significant 41%. This result is robust to controlling for district and year fixed effects. Once I also control for district-level characteristics, I find that lottery-winner districts are allocated 33% more government contracts than lottery-loser districts.

Column 3 of Table 3.2 presents results from a placebo test, in which I apply lottery outcomes to two previous congresses (i.e. four previous years), during

which the legislators are not yet at the House. In this test, I do not find a significant relationship between placebo lottery outcomes and district-level total government contracts⁶⁵. The placebo lottery yields a statistically insignificant coefficient of -0.23%. This finding is supportive of the notion that there was not a significant difference prior to the seniority lottery between lottery-winner and lottery-loser districts in terms of total government contract allocation.

Overall, results in this section are in line with earlier observations from summary statistics. Outcomes of the seniority lottery cause significant geographic shifts in government contract allocation even after controlling for district characteristics, district fixed effects and year fixed effects, and these transfers are non-existent prior to the lottery. I continue by analysing how these shifts affect firm-level economic activity in the following subsection.

3.4.3 Firm investments and seniority lottery as an instrument

Government contracts under the aegis of senior political representation can cause local spillover effects through subcontracting (Kamien and Li, 1990), economic links (Cohen and Frazzini, 2008; Menzly and Ozbas, 2010), demonstration effects (Wang and Blomstrom, 1991) and movement of labour (Meyer, 2004). Given firm- and district-level endogeneity, however, the econometric analysis of how government contracting affects firm-level activity

⁶⁵ If a district enters the lottery multiple times, I choose the first lottery and drop the following ones for the placebo lottery. I therefore eliminate the possibility of having placebo periods with lottery-winner or lottery-loser legislators. So, placebo period for these cases correspond to the placebo period of the first lottery.

would yield spurious results in the absence of a reliable instrument. Therefore, to tackle endogeneity and pin down a causal relationship, I instrument district-level government contracts with seniority lottery outcomes. Similar to Cohen et al. (2011), I create my instrument by taking the variation in district-level total government contracts that is explained by random lottery outcomes. Results from the first stage regression are already presented in Column 1 of Table 3.2, Panel B. Following the same methodology, I also create a placebo instrument using the placebo lottery outcomes, and first stage regression results of my placebo instrument are presented in Column 3 of Table 3.2, Panel B. I call my instrument *Contracts IV_{i,t}* and my placebo instrument *Placebo contracts IV_{i,t}*.

To analyse the ramifications of the seniority lottery and subsequent geographic shifts in government contract allocation on firm-level economic activity, I run second stage panel regressions on the below model:

$$Y_{i,t} = \beta_0 + \beta_1 Z_{i,t} + \beta_2 X_{i,t-1} + \gamma_i + \eta_t + \varepsilon_{i,t}, \quad (3.3)$$

where $Y_{i,t}$ is firm-level capital expenditures deflated by book value of assets⁶⁶.

$Z_{i,t}$ is either the *Contract_{i,t}* dummy that is equal to one if firm i's congressional district is a seniority lottery winner in year t, or it's one of *Contract_{i,t}*⁶⁷,

Contracts IV_{i,t} or *Placebo contracts IV_{i,t}*. $X_{i,t-1}$ contains lagged firm-

⁶⁶ In untabulated results, I also run regressions of firm-level employment, and I find significant spillover effects of government procurement on it.

⁶⁷ My results are robust to using total district-level contracts rather than using logged total district-level contracts.

specific controls including Tobin's Q, cash flows to assets and leverage. γ_i and η_t are firm and year dummies.

[Table 3.3 about here]

My main results are presented in Panel A of Table 3.3. Panel B presents placebo period results, and Panel C presents results from only using firms that are not directly allocated any government contracts. As shown in Column 1 of Panel A, firms in lottery-winner districts invest in significantly higher capital expenditures than firms in lottery-loser districts do. The difference in capital expenditure to assets ratios between these two groups of firms is an economically and statistically significant 0.93%. Column 2 of Panel A presents results from regressing firm-level investments on $Contracts\ IV_{i,t}$, namely the district-level total government contracts, instrumented by lottery outcomes. I find that 1% increase in government procurement to a given district increases investments of firms from that district by 6.80%. To illustrate the endogeneity between government spending and private-sector economic activity and the problems this can cause for identification, I also run firm-level investments on $Contract_{i,t}$. As presented in Column 3 of Panel A, I find no relationship between district-level government contracting and firm-level investment behaviour due to endogeneity.

Panel B of Table 3.3 presents results from my placebo test. Column 1 confirms that the investment behaviour of firms in lottery-winner districts were indifferent from the investment behaviour of firms in lottery-loser districts prior

to the lottery. Column 2 shows that the variation in government contracting explained by placebo lottery results (i.e. *Placebo contracts* $IV_{i,t}$) have no influence on capital expenditures, and Column 3 again finds no relationship between endogenous government contracting (i.e. *Contract* $_{i,t}$) and firm-level investments during placebo periods.

Results so far are in line with district-level government contract allocation driving local investment spillovers. However, investments of firms that receive government contracts may mechanically drive the investment spillover results. I therefore separately analyse the investment behaviour of firms that do not receive any government contracts. Panel C of Table 3.3 presents these results. Similar to my results in Panel A, I find a 1.18% difference in capital expenditures of firms in lottery-winner and lottery-loser districts. As shown in Column 2 of Panel C, I find that one percent increase in district-level total government contracts causes a 2.85% increase in capex-to-assets ratio. Once again, I find no relationship between district-level endogenous government contracting and firm-level investment behaviour.

To summarize, seniority lottery causes significant shifts also in firm-level investment activity. Government contracting has considerable spillover effects even on firms that do not receive any government contracts. These results are robust to controlling for firm characteristics, firm fixed effects, year fixed effects,

and a placebo test. Due to endogeneity, I was not able to establish these results in the absence of my instrument.

3.5 Returns after the seniority lottery

Findings in earlier sections confirm that political representation systematically influences government contract allocation process and causes substantial spillover effects on corporate investments. Economic exposures to these outcomes could also drive heterogeneity in stock market returns through various channels. Firms in lottery-winner and lottery-loser districts could, for example, experience considerably different long-run stock market returns due to risk-premia, as these two groups of firms reportedly have very different exposures to government contracting policies. In contrast, they may also experience different stock market returns due to differences in firm-level cash flows.

3.5.1 Stock market reactions to the seniority lottery announcements

Market reactions to seniority lottery results provides me with a tool for examining whether the stock market is able to forecast differences in future profitability between firms in lottery-winner and lottery-loser districts. To that end, I compare the cumulative abnormal returns (CARs) of firms in lottery-winner and lottery-loser districts after lottery announcements. I take all lottery announcements between January 2001 and December 2012, and compute 3-day,

5-day, 9-day and 16-day abnormal returns in excess of the market model. In doing so, I follow Edmans (2011) and estimate abnormal returns over estimates from a 255-day period ending 46 days before the event date (i.e. announcements of lottery outcomes).

[Table 3.4 about here]

Panel A of Table 3.4 shows CARs of firms in lottery-winner and lottery-loser districts, along with their difference. Each row presents results from different event windows. In all specifications, I find that firms in lottery-winner districts possess economically and statistically significant lottery announcement returns. Announcement returns of firms in lottery-loser districts, however, are consistently insignificant and economically close to zero. Univariate 3-day CAR difference is an economically and statistically significant 1.4%.

Panel B in Table 3.4 provides results from multivariate regressions of the 3-day CARs, in which I control for firm characteristics, i.e., market value of equity and book-to-market equity ratio. As shown in Column 2, the 3-day CAR difference between firms in lottery-winner and loser-loser districts is an economically and statistically significant 1.1%. Overall, these results provide me with direct evidence on the impact of the seniority lottery on stock prices. They are line with the notion that the market prices senior representation very positively. Next subsections analyse the ramifications on long run stock market returns along with potential economic channels.

3.5.2 Long-run stock market returns after the seniority lottery

In this subsection I show that seniority lottery outcomes predict the cross section of long-run stock market returns in lottery-winner and lottery-loser districts. I examine the impact of the seniority lottery on long-run stock market performance by estimating the following time-series regression:

$$r_{p,t} = \alpha_p + \beta_p' f_t + \varepsilon_{p,t} \quad (3.4)$$

where $r_{p,t}$ is the monthly portfolio excess return (over the monthly risk-free rate), f_t is a vector of excess returns on benchmark factors, and α_p is the abnormal performance measure of interest.

Since the lottery outcomes are announced in early January, I form portfolios in the beginning of February⁶⁸. I form value-weighted portfolios, and portfolio weights come from each firm's last year-end market value. Since each congress lasts two years, I hold the portfolios for two years and update them after the beginning of each congress. To adjust for risk I use different factor models and risk adjustment techniques. First, I compute abnormal returns to each portfolio using CAPM. Second, I use Fama-French-Carhart four factor model as in Carhart (1997)⁶⁹. In both cases, I also compute portfolio alpha of the corresponding long-short portfolio.

[Table 3.5 about here]

⁶⁸ Lottery announcements are in January, so the announcement returns cannot drive results on subsequent excess returns.

⁶⁹ I obtain these four factors from Kenneth French's web site.

Panel A in Table 3.5 presents the results on the long-run stock market performance differences of firms in lottery-winner and lottery-loser districts. First two rows show results from unconditional models. In CAPM specification, value-weighted winner minus loser alpha is a significant 4.43% per year. In Fama-French-Carhart four factor model specification, value-weighted winner minus loser alpha amounts to a significant 4.14% per year. The difference in stock returns of firms in lottery-winner and lottery-loser districts, therefore, is economically significant, and it persists even after controlling for conventional risk factors.

If the expected returns and betas of our portfolios change over time (e.g. during economic downturns or political cycles) and they are correlated, then the unconditional model is misspecified and my results may potentially derive from this misspecification. To eliminate this risk I follow Ferson and Schadt (1996) and assume a linear functional form on the conditional beta as follows:

$$\beta_p(z_t) = b_{p0} + B_p z_t \quad (3.5)$$

z_t is a $(J \times 1)$ vector of the deviations of predetermined variables, and B_p is a $(K \times J)$ matrix where K is the number of risk factors and J is the number of predetermined variables. In each row B_p contains conditional betas for a given risk factor of a given portfolio. b_{p0} is a $(K \times 1)$ vector of “unconditional means” for each risk factor's beta in a given portfolio. I follow Ferson and Harvey (1999) and use dividend-price ratio, default premium, term spread, and risk-free rate as

my predetermined variables ⁷⁰, because these variables are known to have predictive power over business cycles. I proxy for political cycles with dummies for Democratic president years and Democratic majority years in Congress. In doing so, I update specification (3.2) with these modifications and estimate the below specification:

$$r_{p,t} = \alpha_p + (\beta_p' z_{t-1})' f_t + \varepsilon_{p,t}$$

$$r_{p,t} = \alpha_p + b_{p0}' f_t + (b_{p1}' z_{t-1})' f_t + \varepsilon_{p,t}, \quad (3.6)$$

where f_t is the vector of excess returns on Fama-French-Carhart four factors (namely, market, size, book-to-market, and momentum).

Rows 3 and 4 of Table 3.5's Panel A present results from using time-varying betas as in specification (3.6). I find that the value-weighted winner minus loser portfolio alpha is a statistically and economically significant 5.13% per year. Once I also control for political cycles, I find that the value-weighted winner minus loser alpha increases to 5.24% per year. As a further check, I perform my placebo test, in which the legislators are not yet at the House. Row 5 of Table 3.5's Panel A presents the results from this placebo test. I find that there is not a significant difference in stock market returns between false winners and false losers.

⁷⁰ Default premium is Moody's seasoned Baa corporate bond yield minus Moody's seasoned Aaa corporate bond yield. Term spread is the difference between 10-year and 1-year treasury constant maturity rates. Dividend-price ratio measures dividends paid to the market portfolio over the price of market portfolio. I take default premium and term spread data from St. Louis Fed's web page. Dividend-price ratio and risk-free rate are driven from CRSP data.

Results in this section are in line with the view that firms located in lottery-winner districts outperformed firms located in lottery-loser districts. This outperformance is economically and statistically significant, and it is robust to correcting for conventional risk factors, in addition to using time-varying betas with economic and political cycle risks.

3.5.3 Time series of abnormal returns

My findings reveal that portfolio returns associated with the seniority lottery cannot be explained by exposures to standard risk factors and are robust to using various methodologies. A latent political risk factor that is correlated with senior representation could drive the heterogeneity in stock market returns. If the abnormal returns are due to higher risk premium due to this latent risk factor, we should observe large movements in excess stock market returns right after lottery outcomes⁷¹.

To that end, I investigate how realized excess returns associated with senior political connections vary during the first and second years of each congress. I define excess returns to long-short portfolio (LS) in month $t+1$ to be

$$AR_{LS,t+1} = r_{LS,t+1} - (\beta_{LS}'z_t)'f_{t+1}, (3.7)$$

where $r_{LS,t+1}$ is the realized high minus low portfolio return and $\beta_{LS}'z_t$ is specified in 5. I then run the below model:

$$AR_{LS,t+1} = a \text{ First Year}_t + b \text{ Second Year}_t + v_{LS,t+1}, (3.8)$$

⁷¹ This, of course, assumes that the risk premium would not affect the returns more in second congressional years.

where $First\ Year_t$ and $Second\ Year_t$ are dummy variables coded as one during first and second years of each congress, and $v_{LS,t+1}$ is the error term.

Panel B of Table 3.5 presents the results on time series variation in the long-short portfolio excess returns. In the first years of congress long-short portfolio alpha amounts to an annual 3.08%, where in the second years it reaches to a significant 7.22%. This means, in a two-year period, about 70% of the excess returns can be associated with second years of congress, whereas only about 30% can be associated with first years. Therefore, there is no evidence of excess returns being concentrated earlier on in first years of congress. This, of course, doesn't disprove the alternative hypothesis that the latent risk factor could be apparent in the second congressional years. This is a plausible story given the legislative and budgeting calendars.

3.5.4 Double-sorting portfolios on lottery outcomes and government contracts

To understand the ramifications of district-level government procurement on stock market returns, I now double-sort firms into four portfolios using lottery outcomes and district-level government contracts. I first sort firms according to lottery outcomes, and then within these two groups I sort firms according to district-level government contract allocation in the previous month.

[Table 3.6 about here]

Table 3.6 presents results from double-sorted portfolios. It compares lottery-winner and lottery-loser districts with high and low government contract allocation in the previous month. I do not find significant stock market returns to lottery-winner and lottery-loser districts with low government contract allocation. In contrast, lottery-winner districts with high government contract allocation in the previous month generate annual abnormal returns of 7.00%. I also find an annual abnormal return spread of 7.03% once I compare lottery-winner and lottery-loser districts with high and low government contract allocation in the previous month. These findings suggest that the difference in abnormal returns between winner and loser portfolios is indeed closely related to prior district-level government contract allocation.

3.5.5 Longevity of outperformance after the allocation of government contracts

I now analyse the longevity of abnormal returns after government contract allocation to lottery-winner districts. I compare the stock market performance of firms that receive government contracts and the stock market performance of firms that are from the same districts but do not receive any government contracts. To that end, I hold portfolios of contracted and uncontracted firms and cumulate their portfolio abnormal returns. I compute abnormal returns once again by correcting for time-varying betas as in specification (3.5). I start my analysis after lottery announcements and before government contract allocation. This is

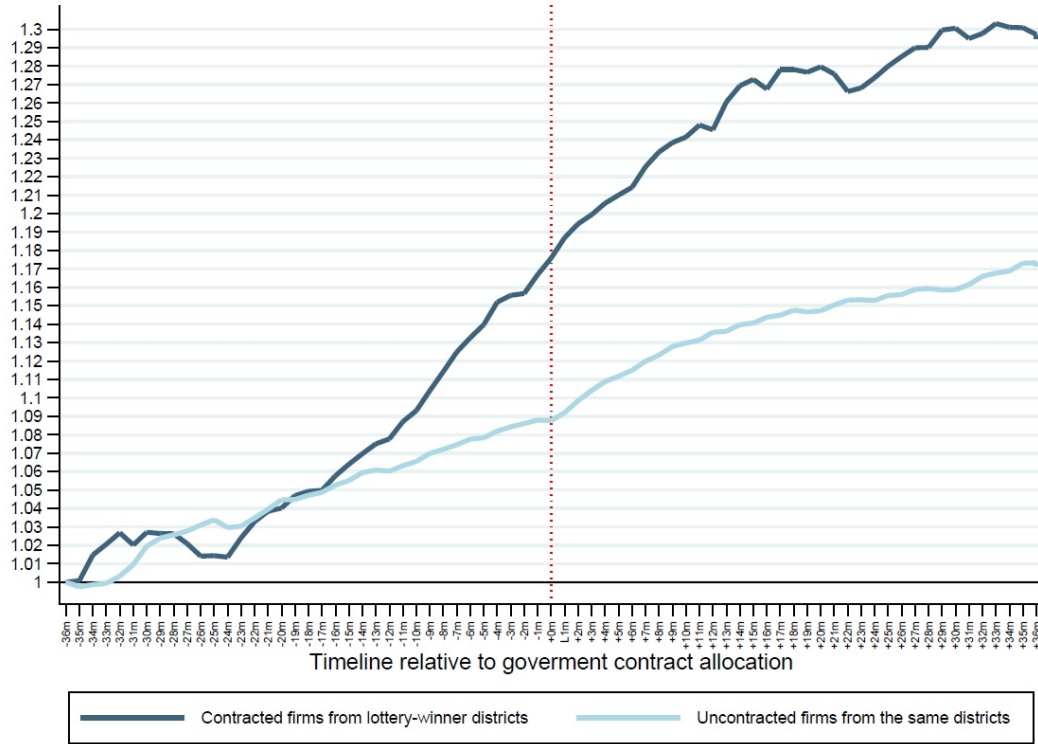
because the uncertainty on government contracts starts to get resolved before the allocation actually occurs. The necessary legislation and bid process should have implications for contracted and uncontracted firms even before contract is allocated. Therefore, I start my CAR analysis three years before the contract allocation and end it three years after the contract allocation.

[Table 3.7 about here]

Table 3.7 presents my results. Panel A shows that the CARs for contracted firms start to grow even before the allocation of government contracts. The drift continues for about one year after contract allocation, but then flattens out eventually. Interestingly, there is a similar trend for uncontracted neighbour firms. Panel B shows that they exhibit consistent abnormal returns up to 3 months after their neighbours receive procurement contracts. This drift also disappears after about one year.

Figure 3.6 Longevity of abnormal returns in lottery-winner districts

This figure shows cumulative abnormal returns (CARs) of firms that receive government contracts, and CARs of firms that are from the same districts but do not receive any government contracts. I form portfolios of both groups of firms after lottery announcements and before government contract allocation. Risk-adjusted returns are computed in value-weighted form and using time varying betas as in Ferson and Harvey (1999). CARs are then computed by cumulating these portfolio alphas. Sample period is 2001m1 to 2012m12.



To delve deeper in explaining the drift after government contract allocation, I examine whether the stock market is pricing potential upcoming government contracts to contracted firms. This is a possible scenario, because contracted firms in lottery-winner districts are more likely to have the appropriate investments in place in order to produce similar products for the government. To that end, I run Fama-Macbeth regressions on the following specification:

$$\begin{aligned}
 Contract_{i,t+1} = & \alpha_0 + \alpha_1 Lottery\ winner_{i,t} + \alpha_2 Contracted_{i,t} \\
 & + \alpha_3 Lottery\ winner_{i,t} * Contracted_{i,t} + \alpha_4 X_{i,t} \\
 & + \varepsilon_{i,t+1}, (3.9)
 \end{aligned}$$

where $Contracted_{i,t+1}$ denotes total government contracts allocated to firm i in year $t+1$ in billion dollars, $Lottery\ winner_{i,t}$ is equal to one if firm i is located

in a lottery-winner district and zero otherwise, and $Contracted_{i,t}$ denotes whether firm i received a government contract in year t . $X_{i,t}$ includes firm-level returns on equity. Table 3.8 presents my results. I find that firms in lottery-winner districts in a given year receive additional government contracts of \$0.24B in the following year. Independent of lottery outcomes, contracted firms in a given year receive additional government contracts of \$0.23B in the following year. Firms that are both contracted and located in lottery-winner districts receive additional government contracts of \$0.45B in the following year. These results are in line with the notion that the stock market may indeed be pricing the follow-up contracts after government contract allocation.

[Table 3.8 about here]

3.6 Understanding the impact of senior representation

3.6.1 Firm profitability and the seniority lottery

Previous findings report a robust relationship between seniority lottery outcomes, firm-level economic activity and subsequent stock market returns. Lottery announcement returns are supportive of the notion that the stock market anticipates the positive spillover effects of government contracts and positively prices firms in lottery-winner districts. Subsequent excess returns experienced by firms in lottery-winner districts cannot be explained by exposures to conventional risk factors, and they are robust to a battery of specifications. My

results are not suggestive of a latent risk factor story, and they show that the excess returns are closely related to district-level government contract allocation.

To better understand the mechanisms driving these results, I delve into analysing potential economic channels. To that end, I start by investigating firm profitability. In doing so, I horserace two hypotheses: a cash flow hypothesis and a cash flow volatility hypothesis (Belo et al., 2013). According to a cash flow hypothesis, firms in lottery-winner districts would earn higher stock market returns, because their fundamental performances improve after valuable government contracts, subcontracts and positive spillover effects.

A second (non-exclusive) hypothesis is a cash flow volatility hypothesis, in which firms in lottery-winner districts would earn higher stock returns as a compensation for their higher exposure to government contracting uncertainty. If having senior representation does imply a higher exposure to government contracting uncertainty, we should observe higher volatility of profitability in firms from lottery-winner districts.

To test these two hypotheses, I follow Belo et al. (2013) and run Fama-Macbeth regressions on the following specification:

$$ROE_{i,t+1} = \alpha_0 + \alpha_1 Lottery\ winner_{i,t} + \alpha_2 V/A_{i,t} + \alpha_3 DD_{i,t} + \alpha_4 DB_{i,t} + \alpha_5 ROE_{i,t} + \varepsilon_{i,t+1}, (3.10)$$

where $Lottery\ winner_{i,t}$ is a dummy that is equal to one if firm i 's congressional district is a seniority lottery winner in year t , ROE denotes return

on equity defined as net income to book-equity ratio, $V/A_{i,t}$ is the ratio of market value of assets to book-value of assets, $DD_{i,t}$ is a dummy for nondividend-paying firms, $DB_{i,t}$ is the ratio of dividend payments to lagged book value of equity⁷².

[Table 3.9 about here]

Columns 1 to 3 in Panel A of Table 3.9 shows that a positive relationship exists between future profitability and the lottery winner dummy. In particular, I find a 2% difference in future profitability of firms in lottery-winner districts and lottery-loser districts. This result is robust to controlling for firm characteristics, and in line with the cash flow story.

In the second stage, I take $\varepsilon_{i,t+1}$ i.e. the residual from the first stage regression in specification (3.10) and run Fama-Macbeth regressions on its square using the following specification:

$$\varepsilon_{i,t+1}^2 = \alpha_0 + \beta_1 \text{Lottery winner}_{i,t} + v_{i,t+1}, (3.11)$$

Panel B of Table 3.9 presents my results on the cash flow volatility hypothesis. It shows that a negative relationship exists between volatility of future profitability and the lottery winner dummy. More specifically, I find that future volatility of profitability of firms in lottery-winner districts are 2% less than those in lottery-loser districts. This suggests that an increased cash flow

⁷² Controls are as in Belo, Gala, and Li (2013), Fama and French (2000), Vuolteenaho (2002), and Hou and Robinson (2006).

volatility story doesn't explain my results. On the contrary, this result is supportive of government contracting uncertainty being less for firms in lottery-winner districts than those in lottery-loser districts.

3.6.2 Earnings surprises and seniority lottery

My findings so far are in line with the notion that the stock market returns to firms in lottery-winner districts are driven by higher cash flows and lower cash flow volatility. I also examine equity analysts' 1-year and 2-years ahead earnings forecast surprises for firms in lottery-winner and lottery-loser districts. I define earnings surprise as the actual EPS minus the I/B/E/S median analyst forecast 8 (20) months prior to the end of forecast period, scaled by the lagged stock price or standard deviation in analyst forecasts. I follow Edmans (2011) and run panel regressions on the below specification:

$$Surprise_{i,t} = \alpha_0 + \alpha_1 Lottery\ winner_{i,t} + \alpha_2 X_{i,t-1} + \eta_t + \varepsilon_{i,t}, \quad (3.12)$$

where $Lottery\ winner_{i,t}$ is a dummy that is equal to one if firm i 's congressional district is a seniority lottery winner in year t , $X_{i,t-1}$ includes log book-to-market and log market equity calculated at the previous year-end, and η_t is year dummies.

[Table 3.10 about here]

Table 3.10 presents my results. Panel A shows results from 1-year ahead earnings forecast surprises. Rows 1 to 3 use lagged stock price as the denominator, and Rows 4 to 6 use standard deviation in earnings forecasts. I find

a 1.23% (Panel A, Column 3) difference in 1-year ahead earnings surprises of lottery winner firms and lottery loser firms. 2-year ahead earnings surprise difference is a significant 1.96% (Panel B, Column 3). I find similar results when I deflate the earnings surprises using standard deviations or use mean analyst forecast rather than median⁷³. In untabulated results, I also run 1-year ahead earnings forecast surprises in placebo periods and find no earnings surprises to firms in placebo lottery-winner districts.

3.7 Conclusion

I use a novel identification methodology to investigate the impact of government contract allocation on firm-level investment, profitability and the cross-section of stock market returns. Every time a tie-breaking seniority lottery decision is made in the Democratic Caucus, an experiment is conducted on the electoral districts of effected political representatives. First and the foremost, the lottery outcomes cause shocks on the geographic distribution of federal government contract allocation. In line with predictions of strategic delegation theory, lottery-winner districts are awarded 41% more government contracts than lottery-loser districts each year. This result is robust to controlling for district-level characteristics, district fixed effects and yearly trends in government contract allocation.

⁷³ Currently untabulated, available upon request.

To analyse the spillover effects of government contracting, I use the seniority lottery as a source of exogenous variation in district-level government contracting. In particular, I instrument district-level government contracts with seniority lottery outcomes. I find that 1% increase in government contracts to firms from a given district increases investments of uncontracted firms from the same district by 2.85%. This result is robust to controlling for firm-level characteristics, firm fixed effects and yearly trends in firm-level investments.

Geographic shifts in government contracting also impact firm-level profitability and stock market returns. First, firms in lottery-winner districts exhibit 2% higher future profitability and 2% lower future cash flow volatility relative to firms in lottery-loser districts. Second, there is a 3-day cumulative abnormal return (CAR) difference of 1.4% between firms in lottery-winner and lottery-loser districts. Third, starting from the month after the lottery, firms in lottery-winner districts outperform firms in lottery-loser districts by an economically and statistically significant 5.13% per year. Fourth, I analyse the influence of government contract allocation on this outperformance and discover that it is strongly driven by firms in lottery-winner districts with high government contract allocation in the previous month. I find, for example, a return spread of 7.03% per year between firms in lottery-winner districts with high government contract allocation and firms in lottery-loser districts with low government contract allocation. Fifth, I delve deeper and investigate the CARs of contracted

firms from lottery-winner districts before and after the contract allocation date. Before the contract allocation date and after the seniority lottery, contracted firm returns grow as the contract dates approach. Stock market reacts positively to the allocation of government contracts. After contract allocation, there is a strong drift in contracted firm returns, and this drift disappears after a year. Sixth, to shed light on this drift, I investigate upcoming government contracts and discover that contracted firms in lottery-winner districts receive additional government contracts in the following year.

My findings have three main implications. First, consistent with strategic delegation theories, senior political representation drives government contract allocation to home districts. Second, government procurement has profound spillover effects on corporate investments, and these investments prove to be very profitable. Third, the geographic distribution of government procurement strongly influences stock market returns.

Table 3.1 Descriptive Statistics

This table reports summary statistics for firms that are in lottery-loser, lottery-winner and remaining districts. Panel A presents government contracting characteristics after the lottery, whereas Panel B and Panel C present firm-level and district-level characteristics before the lottery. Total market capitalization share denotes the share of lottery-loser, lottery-winner and remaining districts in the stock market, measured by their total year-end market capitalizations. Total government contract share is government contracts allocated to firms in lottery-loser, lottery-winner and remaining districts as a percentage of total government contracts allocated to all publicly traded firms. Government contracts to sales ratio denotes time series average of the mean government contracts to lagged sales ratios in lottery-loser, lottery-winner and remaining districts. For the remaining variables, I present yearly averages of portfolio medians, where portfolios include all firms in lottery-loser, lottery-winner and remaining districts. Sample period is between 2001m1 and 2012m12. Variable descriptions for Panels B and C are in Appendix, Section A.

Panel A. Government contracting characteristics after the lottery

	Firms in Lottery-loser districts	Firms in Lottery-winner districts	Firms in Remaining districts
Total Market Capitalization Share	14.04%	8.55%	77.41%
Total Government Contracts Share	5.09%	16.36%	78.55%
Government Contracts to Sales	3.96%	20.13%	10.13%

Panel B. Firm-level characteristics before the lottery

	Firms in Lottery-loser districts	Firms in Lottery-winner districts	Firms in Remaining districts
Tobin's Q	1.49	1.47	1.41
Market Capitalization (log)	12.41	12.57	12.69
Market to Book	1.92	1.98	1.86
PPE to Book Value of Assets	32.94%	36.75%	34.52%
Debt to Book Value of Assets	12.57%	12.60%	13.87%
R&D Expenses to Assets	5.27%	4.81%	4.70%
HHI	0.05	0.05	0.05
Capex to Assets	2.28%	2.77%	2.68%
Tobin's Q	1.49	1.47	1.41

Panel C. District-level characteristics before the lottery

	Firms in Lottery-loser districts	Firms in Lottery-winner districts	Firms in Remaining districts
Per capita income	10.10	10.17	10.14
Income growth	4.44%	3.94%	3.05%
Population	13.40	13.39	13.43
Unemployment	6.63%	7.10%	7.58%

Table 3.2 First-stage regressions on government procurement

Panel A presents results from my difference-in-differences test, in which I regress log of total government contracts allocated to congressional district i in year t using the below specification: $Contract_{i,t} = \alpha_0 + \alpha_1 Lottery\ winner_i + \alpha_2 Post - lottery_{i,t} + \alpha_3 Lottery\ winner_i * Post - lottery_{i,t} + Y_t + \varepsilon_{i,t}$, $Lottery\ winner_i$ is a time invariant dummy that denotes whether congressional district i is a lottery-winner or a lottery-loser district. For a given district, $Post - lottery_{i,t}$ is equal to one after the lottery outcome and zero before. Y_t denotes year dummies. For this panel, the sample period is between 1996 and 2012. Panel B contains my first stage panel regressions after the lottery. I regress log of total government contracts allocated to a given congressional district i in year t using the following specification $Contract_{i,t} = \alpha_0 + \alpha_1 Lottery\ winner_{i,t} + \alpha_2 X_{i,t-1} + \gamma_i + \eta_t + \varepsilon_{i,t}$. $Lottery\ winner_{i,t}$ is a dummy that denotes whether congressional district i is a lottery winner in year t or a lottery loser. $X_{i,t-1}$ contains controls including congressional district level log per capita income over the past 6 years, lagged values of congressional-district level per capita income growth, log of congressional district population and unemployment rates for congressional district i in year t . γ_i and η_t are district and year dummies. In the placebo test (presented in Column 3 of Panel B) I apply lottery outcomes to two previous congresses (i.e. four previous years), during which the legislators are not yet at their corresponding House committees. The standard errors are clustered in congressional district years. For this panel, the sample period is 2001 to 2012. ***, **, and * denote statistical significance at 1%, 5% and 10% levels respectively. Variable descriptions are in Section 3.8.

Panel A. Difference-in-differences test

	District-level Government Contracts
Lottery-winner district	-0.34 (0.13)
Post-lottery	0.73*** (0.00)
Lottery-winner district * Post-lottery	0.75*** (0.00)
Intercept	-46.12*** (0.00)
District dummies and year dummies	Y
Observations	1,460
R-squared	0.29

Panel B. Instrumenting government contracts with lottery outcomes

	District-level Government Contracts	District-level Government Contracts	District-level Government Contracts (Placebo Period)
Lottery-winner district	0.41*** (0.00)	0.33** (0.02)	
Placebo lottery-winner district			-0.23 (0.95)
Population		17.20*** (0.00)	
Per-capita income		0.66*** (0.00)	
Income growth		4.36*** (0.00)	
Unemployment rate		-0.39*** (0.00)	
Intercept	-39.90*** (0.00)	-269.26*** (0.00)	-4.19*** (0.00)
District dummies and year dummies	Y	Y	Y
Observations	1,190	734	258
R-squared	0.32	0.33	0.32

Table 3.3 Second-stage regressions of firm-level investments

Panel A presents results from regressions of firm-level investments on seniority lottery outcomes and district-level government contracts. Panel B reruns Panel A regressions in placebo periods, and Panel C reruns Panel A regressions by using only the firms that are not given any government contracts. All panels present results from the below specification: $Y_{i,t} = \beta_0 + \beta_1 Z_{i,t} + \beta_2 \widehat{X}_{i,t-1} + \gamma_i + \eta_t + \varepsilon_{i,t}$, where $Y_{i,t}$ is firm-level capital expenditures deflated by book value of assets for a given firm i in year t . $\widehat{X}_{i,t-1}$ contains firm-specific controls including Tobin's Q , cash flows and leverage. γ_i and η_t are industry and year dummies. The definition of $Z_{i,t}$ changes in each column. In Column 1, $Z_{i,t}$ is a lottery-winner dummy that is equal to one if firm i 's congressional district is a seniority lottery winner in year t . In Column 2, $Z_{i,t}$ is exogenous variation in district-level government contracts ($Contracts IV_{i,t}$), which is computed as: $Contracts IV_{i,t} = \widehat{Contract}_{i,t} = \hat{\alpha}_0 + \hat{\alpha}_1 Lottery\ winner_{i,t} + \gamma_i + \eta_t + \varepsilon_{i,t}$. The first stage of the instrument is presented in Column 1 of Table 2, Panel B. In Column 3, $Z_{i,t}$ is uninstrumented total government contracts allocated to district i in year t , i.e. $Contract_{i,t}$. In the placebo test I apply lottery outcomes to two previous congresses (i.e. four previous years), during which the legislators are not yet at their corresponding House committees. The standard errors are clustered in congressional district years. Sample period is 2001m1 to 2012m12. ***, **, and * denote statistical significance at 1%, 5% and 10% levels respectively. Variable descriptions are in Appendix, Section A.

Panel A. Regressions of Capex to Assets (%)

	(1)	(2)	(3)
Lottery-winner district	0.93*** (0.01)		
District-level government contracts (Instrumented)		6.80*** (0.01)	
District-level government contracts			-0.02 (0.57)
Tobin's Q	0.71*** (0.00)	0.71*** (0.00)	0.72*** (0.00)
Cash flow to assets	0.65 (0.12)	0.65 (0.12)	0.66 (0.11)
Debt to assets	-6.85*** (0.00)	-6.85*** (0.00)	-6.79*** (0.00)
Intercept	5.10*** (0.00)	-69.06** (0.01)	6.65*** (0.00)
Firm dummies and year dummies	Y	Y	Y
Observations	5,231	5,231	5,231
R-squared	0.76	0.76	0.76

Panel B. Placebo period regressions of Capex to Assets (%)

	(1)	(2)	(3)
Lottery-winner district	-0.57 (0.64)		
District-level government contracts (Instrumented)		-0.15 (0.64)	
District-level government contracts			0.02 (0.57)
Tobin's Q	0.29 (0.15)	0.29 (0.15)	0.29 (0.19)
Cash flow to assets	1.84 (0.21)	1.84 (0.21)	1.78 (0.22)
Debt to assets	-8.66* (0.05)	-8.66* (0.05)	-8.60* (0.06)
Intercept	7.42*** (0.01)	7.63** (0.02)	6.40*** (0.00)
Firm dummies and year dummies	Y	Y	Y
Observations	789	789	789
R-squared	0.77	0.77	0.77

Panel C. Regressions of Capex to Assets (%) using firms that do not receive any government contracts

	(1)	(2)	(3)
Lottery-winner district	1.18*** (0.01)		
District-level government contracts (Instrumented)		2.85*** (0.01)	
District-level government contracts			-0.04 (0.36)
Tobin's Q	0.82*** (0.00)	0.82*** (0.00)	0.82*** (0.00)
Cash flow to assets	0.63 (0.15)	0.63 (0.25)	0.64 (0.25)
Debt to assets	-8.21*** (0.00)	-8.21*** (0.00)	-8.06*** (0.00)
Intercept	6.39*** (0.00)	-14.42* (0.08)	7.23*** (0.00)
Firm dummies and year dummies	Y	Y	Y
Observations	4,157	4,157	4,157
R-squared	0.77	0.77	0.77

Table 3.4 Seniority lottery announcement returns

This table shows results on cumulative abnormal returns after seniority lottery announcements. Abnormal returns are calculated above a market model, in which I estimate the coefficients over a 255-day period ending 46 days before the lottery announcement. Panel A compares the average announcement returns to firms in lottery-winner and lottery-loser districts. Panel B runs multivariate regressions of 3-day cumulative abnormal returns. Lottery winner is a dummy that denotes that a given firm's congressional district is lottery-winner in a given year. Controls include log of book-to-market and log of market equity calculated at the previous year-end. P-values are based on standard errors that are clustered in district years, and they are reported in parentheses. Sample period is 2001m1 to 2012m12. ***, **, and * denote statistical significance at 1%, 5% and 10% levels respectively.

Panel A. Univariate Comparisons of CARs

	Firms in lottery-loser districts	Firms in lottery-winner districts	Winner-Loser difference
CAR (-1,+1)	0.002 (0.52)	0.016*** (0.00)	0.014*** (0.00)
CAR (-1,+3)	0.005 (0.12)	0.027*** (0.00)	0.022*** (0.00)
CAR (-1,+7)	0.000 (0.99)	0.021*** (0.00)	0.021*** (0.00)
CAR (-1,+14)	-0.002 (0.59)	0.018*** (0.00)	0.020*** (0.00)

Panel B. Multivariate Comparisons of CARs

	CAR (-1,+1) difference	CAR (-1,+1) difference
Lottery winner	0.011** (0.02)	0.011** (0.03)
Size	Y	Y
Book-to-market	N	Y
Intercept	0.010 (0.39)	0.006 (0.59)
Observations	865	865
R-squared	0.02	0.03

Table 3.5 Risk-adjusted portfolio returns

Panel A shows results from monthly regressions of risk-adjusted, value-weighted returns to lottery-winner and lottery-loser portfolios along with their difference, i.e., Wi-Lo. Lottery-winner (lottery-loser) portfolio consists of firms located in congressional districts that are seniority lottery winners (losers). CAPM alpha is computed using the CAPM model as in Sharpe (1964) and Jensen (1968). Fama-French-Carhart four factors alpha denotes portfolio alphas using Fama-French-Carhart model from Carhart (1997). Ferson-Harvey conditional model alpha is computed using time varying betas as in Ferson and Harvey (1999). Political cycle proxies are dummies for Democratic President, Senate and House of Representatives. In the placebo test I apply lottery outcomes to previous congressional years (i.e. two previous years), during which the legislators are not yet at their corresponding House committees. Panel B includes time series regressions of abnormal returns to the Wi-Lo, i.e. the long-short, portfolio. Abnormal returns are computed using the Ferson-Harvey conditional model as in Ferson and Harvey (1999). First and second years of congress are dummies that are equal to one during the first and second years of each congress. Returns are annualized and in percentages. P-values are based on standard errors, robust to conditional heteroskedasticity and serial correlation as in Newey and West (1987), and they are reported in parentheses. Sample period is 2001m1 to 2012m12. ***, **, * denotes statistical significance at 1%, 5% and 10% levels respectively.

Panel A. Univariate Comparisons of CARs

	Firms in lottery-loser districts	Firms in lottery-winner districts	Winner-Loser difference
CAPM alpha	-3.06*** (0.01)	1.37 (0.36)	4.43** (0.01)
Fama-French-Carhart four factors alpha	-1.46 (0.36)	2.68* (0.08)	4.14** (0.02)
Ferson-Harvey conditional model alpha	-1.28 (0.51)	3.86** (0.03)	5.13** (0.01)
Ferson-Harvey conditional model alpha <i>correcting for political cycles</i>	-2.05 (0.14)	3.19*** (0.01)	5.24*** (0.00)
Placebo period alpha	1.62 (0.80)	1.04 (0.71)	-0.58 (0.91)

Panel B. Wi-Lo portfolio abnormal returns across congressional years

	Wi - Lo AR
First years of congress	3.08* (0.07)
Second years of congress	7.22** (0.03)
Observations	143
R-squared	0.05

Table 3.6 Double-sorted portfolio returns

This table shows results from monthly regressions of risk-adjusted returns to lottery-winner and lottery-loser districts with high and low government contract allocation. Lottery-winner (lottery-loser) districts portfolio consists of firms located in congressional districts that are seniority lottery winners (losers). Within these two portfolios, I group districts according to government contracts they received in the previous month. Districts with high (low) government contract allocation are those that are allocated more (less) government contracts than the median. Risk-adjusted returns are presented in value-weighted form and are computed using time varying betas as in Ferson and Harvey (1999). Returns are annualized and in percentages. P-values are based on standard errors, robust to conditional heteroskedasticity and serial correlation as in Newey and West (1987), and they are reported in parentheses. Sample period is 2001m1 to 2012m12. ***, **, * denotes statistical significance at 1%, 5% and 10% levels respectively.

	Firms in districts with low government contract allocation	Firms in districts with high government contract allocation
Lottery-loser districts	-0.03 (0.99)	0.49 (0.84)
Lottery-winner districts	0.56 (0.63)	7.00*** (0.01)
Spread	7.03** (0.02)	

Table 3.7 Longevity of abnormal returns in lottery-winner districts

This table shows cumulative abnormal returns (CARs) of firms that receive government contracts, and CARs of firms that are from the same districts but do not receive any government contracts. It examines firms only in lottery-winner districts. I form portfolios of both groups of firms after lottery announcements and before government contract allocation. Panel A shows CARs from three years before the government contract allocation up to three years after. Panel B shows monthly abnormal returns during the 12 months before and after. Risk-adjusted returns are presented in value-weighted form and are computed using time varying betas as in Ferson and Harvey (1999). Returns in Panel B are presented in monthly form and in percentages. P-values are based on standard errors, robust to conditional heteroskedasticity and serial correlation as in Newey and West (1987), and they are reported in parentheses. Sample period is 2001m1 to 2012m12. ***, **, * denotes statistical significance at 1%, 5% and 10% levels respectively.

Panel A. Univariate Comparisons of CARs

Timeline relative to government contract allocation	Contracted firms in lottery-loser districts	Uncontracted firms in lottery-winner districts
36 months before	1.00	1.00
30 months before	1.03	1.02
24 months before	1.01	1.03
18 months before	1.05	1.05
12 months before	1.08	1.06
6 months before	1.13	1.08
0 months after	1.18	1.09
6 months after	1.21	1.11
12 months after	1.25	1.14
18 months after	1.28	1.15
24 months after	1.27	1.15
30 months after	1.30	1.16
36 months after	1.29	1.16

Panel B. Monthly abnormal returns before and after the allocation of government contracts

Timeline relative to government contract allocation	Contracted firms in lottery-loser districts		Uncontracted firms in lottery-winner districts	
	AR	t-stat	AR	t-stat
12 months before	0.87	(0.19)	0.28	(0.15)
11 months before	0.55	(0.40)	0.21	(0.27)
10 months before	0.99**	(0.05)	0.42*	(0.09)
9 months before	0.94	(0.13)	0.20	(0.38)
8 months before	0.95*	(0.06)	0.24	(0.16)
7 months before	0.69	(0.20)	0.28	(0.16)
6 months before	0.62	(0.26)	0.07	(0.72)
5 months before	1.08	(0.17)	0.33	(0.16)
4 months before	0.32	(0.46)	0.21	(0.18)
3 months before	0.09	(0.85)	0.17	(0.38)
2 months before	0.88	(0.12)	0.17	(0.45)
1 months before	0.77	(0.26)	-0.02	(0.92)
0 months after	0.94*	(0.07)	0.39**	(0.04)
1 months after	0.63	(0.25)	0.60**	(0.02)
2 months after	0.41	(0.34)	0.50**	(0.01)
3 months after	0.52	(0.44)	0.44*	(0.07)
4 months after	0.37	(0.48)	0.26	(0.28)
5 months after	0.35	(0.48)	0.29	(0.35)
6 months after	0.92	(0.10)	0.45*	(0.09)
7 months after	0.65	(0.14)	0.29	(0.19)
8 months after	0.41	(0.41)	0.42	(0.10)
9 months after	0.24	(0.70)	0.17	(0.46)
10 months after	0.52	(0.33)	0.13	(0.45)
11 months after	-0.21	(0.69)	0.38*	(0.05)
12 months after	1.21*	(0.09)	0.05	(0.79)

Table 3.8 Future firm-level government contracts

This table shows results from Fama-Macbeth regressions of future firm-level contracts: $Contract_{i,t+1} = \alpha_0 + \alpha_1 Lottery\ winner_{i,t} + \alpha_2 Contracted_{i,t} + \alpha_3 Lottery\ winner_{i,t} * Contracted_{i,t} + \alpha_4 X_{i,t} + \varepsilon_{i,t+1}$, where $Contract_{i,t+1}$ denotes total government contracts allocated to firm i in year $t+1$ in billion dollars, $Lottery\ winner_{i,t}$ is equal to one if firm i is located in a lottery-winner district and zero otherwise, and $Contracted_{i,t}$ denotes whether firm i received a government contract in year t . $X_{i,t}$ includes firm-level returns on equity. P-values are based on standard errors that are clustered in firms, and they are reported in parentheses. Sample period is 2010 to 2012. ***, **, * denotes statistical significance at 1%, 5% and 10% levels respectively.

	(1)	(2)	(3)	(4)
Lottery-winner district	0.24** (0.02)		0.25** (0.01)	0.05 (0.19)
Contracted firm		0.23** (0.04)	0.26** (0.02)	0.09*** (0.00)
Lottery-winner district * Contracted firm				0.31* (0.06)
Intercept	0.08*** (0.01)	0.05 (0.30)	-0.10 (0.10)	0.01 (0.57)
Other controls [ROE]	Y	Y	Y	Y
Observations	819	819	819	819
R-squared	0.05	0.05	0.06	0.06
Number of groups	11	11	11	11

Table 3.9 Future firm profitability

This table explores the relationship between the seniority lottery and cash flows (mean and volatility). In Panel A, I run Fama-Macbeth regressions on the following specification: $ROE_{i,t+1} = \alpha_0 + \alpha_1 \text{Lottery winner}_{i,t} + \alpha_2 V/A_{i,t} + \alpha_3 DD_{i,t} + \alpha_4 DB_{i,t} + \alpha_5 ROE_{i,t} + \varepsilon_{i,t+1}$, where $\text{Lottery winner}_{i,t}$ is a dummy that is equal to one if firm i 's congressional district is a seniority lottery winner in year t , ROE denotes return on equity defined as net income to book-equity ratio, $V/A_{i,t}$ is the ratio of market value of assets to book-value of assets, $DD_{i,t}$ is a dummy for nondividend-paying firms, $DB_{i,t}$ is the ratio of dividend payments to book value of equity. Panel B reports results from the Fama-Macbeth regression of $\varepsilon_{i,t+1}^2$, where $\varepsilon_{i,t+1}$ is the residual from the first stage regression in Column 3 of Panel A. P-values are based on standard errors, robust to serial correlation as in Newey and West (1987), and they are reported in parentheses. Sample period is 2001m1 to 2012m12. ***, **, * denotes statistical significance at 1%, 5% and 10% levels respectively.

Panel A. Regressions on future profitability

	(1)	(2)	(3)
Lottery winner	0.03*** (0.00)	0.03*** (0.00)	0.02* (0.05)
Market-to-book		-0.31 (0.76)	0.32 (0.66)
Nondividend-paying firm dummy		-0.09*** (0.00)	-0.06*** (0.00)
Dividend payments to book equity		1.07*** (0.00)	0.35* (0.09)
Return on equity			0.44*** (0.00)
Intercept	0.01 (0.70)	0.05* (0.09)	0.02 (0.27)
Observations	7,498	7,001	7,000
R-squared	0.002	0.072	0.247
Number of groups	12	12	12

Panel B. Regressions on volatility of future profitability

	(1)
Lottery winner	-0.02** (0.03)
Intercept	0.11*** (0.00)
Observations	7,000
R-squared	0.003
Number of groups	12

Table 3.10 Earnings surprises

This table shows results from regressions of 1-year ahead and 2-years ahead earnings (EPS) surprises using the below specification: $\text{Surprise}_{i,t} = \alpha_0 + \alpha_1 \text{Lottery winner}_{i,t} + \alpha_2 X_{i,t-1} + \eta_t + \varepsilon_{i,t}$, where $\text{Lottery winner}_{i,t}$ is a dummy that is equal to one if firm i's congressional district is a seniority lottery winner in year t, $X_{i,t-1}$ includes log book-to-market and log market equity calculated at the previous year-end, and η_t is year dummies. The 1- (2-) year ahead earnings surprise is defined as the actual EPS minus the I/B/E/S median analyst forecast 8 (20) months prior to the end of forecast period, scaled by the lagged stock price or standard deviation in analyst forecasts. Panel A presents results on 1-year ahead earnings surprises, Panel B presents results on 2-years ahead earnings surprises. Standard errors are clustered in congressional district years. Sample period is 2001m1 to 2012m12. ***, **, * denotes statistical significance at 1%, 5% and 10% levels respectively.

Panel A. 1-year ahead earnings surprises

	<u>EPS surprise deflated by stock price (in %)</u>			<u>EPS surprise deflated by stock price (in %)</u>		
	(1)	(2)	(3)	(4)	(5)	(6)
Lottery winner	1.16*	1.30**	1.23**	0.72**	0.78**	0.73**
	(0.07)	(0.04)	(0.05)	(0.02)	(0.01)	(0.02)
Size, Book-to-market, Year dummies	Y	Y	Y	Y	Y	Y
Intercept	Y	Y	Y	Y	Y	Y
Observations	6,143	5,894	5,894	5,301	5,089	5,089
R-squared	0.009	0.015	0.018	0.027	0.031	0.038

Panel B. 2-years ahead earnings surprises

	<u>EPS surprise deflated by stock price (in %)</u>			<u>EPS surprise deflated by stock price (in %)</u>		
	(1)	(2)	(3)	(4)	(5)	(6)
Lottery winner	2.16** (0.04)	2.09** (0.05)	1.96* (0.05)	1.57** (0.04)	1.71** (0.03)	1.66** (0.04)
Size, Book-to-market, Year dummies	Y	Y	Y	Y	Y	Y
Intercept	Y	Y	Y	Y	Y	Y
Observations	5,391	5,192	5,192	4,608	4,431	4,431
R-squared	0.002	0.006	0.009	0.023	0.025	0.027

CONSUMER REPUTATION

‘Our reputation is more important than the last hundred million dollars.’ - Rupert Murdoch, responding to a phone-hacking scandal engulfing News International.

4.1 Introduction⁷⁴

“What’s in a name? That which we call an Apple, by any other word would sell as swift.”⁷⁵ Or would it? Would it be as trustworthy, innovative and glamorous? Would the stock market value it similarly? These are precisely the questions to which companies, investors and academics seek answers. Does it pay for a firm to be trustworthy – not just in the sense of generating increased revenue but in terms of corporate value, given that it may cost the firm more than it is worth for it to be trustworthy? Is it better to be glamorous than trustworthy? Which imagery attributes of firms and products are particularly valuable, and how valuable are they?

Not only are these important to practitioners and researchers alike but, by all accounts, it is of rapidly growing significance. According to a number of studies,

⁷⁴ This chapter is entirely based on the working paper “Is Consumer Reputation Priceless?” co-authored with Colin Mayer, Oguzhan Ozbas, and Han Ozsoylev.

⁷⁵ William Shakespeare *Romeo and Juliet*, with slight adaptation.

there has been a substantial shift in the composition of corporate assets from tangibles to intangibles, with the median market intangibility ratio of publicly traded US firms increasing from 20% in the 1960s to 60% in 2007, the proportion of market value of S&P 500 companies attributable to intangible assets rising from 10% to 84% between 1975 and 2015, and investment in intangible assets growing from 4% of US GDP in 1977 to 10% in 2006⁷⁶. Despite this pronounced increase in the scale of intangible assets and investments, we know very little about the determinants of their value and, in particular, about how the stock market values one of its most important components – consumer reputation.

There are several reasons for this omission. First, data on firm and product reputations are not easy to come by. There are many surveys but they are in general regarded as proprietary information and commercially confidential. Second, it is unclear how such data can be aggregated together to provide succinct summaries of consumer perceptions. Third, the focus on intangibles has been on accounting statements rather than consumer measures.

This paper represents a significant advance of this topic by identifying a very large dataset on consumer perceptions of a large number of companies and their products. It describes a way of summarizing the information in a small number of principal components, it examines how they are related to the valuations that investors attach to companies, and it evaluates how the relation between the attributes and valuations varies over time and the state of economies and

⁷⁶ Ocean Tomo (2015) and Nakamura (2009).

financial markets. It therefore differs from and appreciably advances existing studies on brand and intangible valuation.

The data in this study come from detailed quarterly consumer surveys⁷⁷ from BAV Consulting. In comparison to existing studies⁷⁸, our consumer reputation have a longer horizon (from 2001Q1 to 2014Q4), are more diverse (they cover 440 large companies and 2600 products), are more geographically granular (allowing us to identify consumer reputation in different locations), are of higher frequency (in quarterly format), and include multiple dimensions of reputation (48 different emotional imagery attributes)⁷⁹. To the best of our knowledge, our paper has the richest dataset available in this literature in terms of the number of firms, products, available time period, frequency, geographic detail, and the number of consumer reputation attributes.

Existing research in finance, economics, accounting, and marketing frequently uses firms' advertising expenses to proxy for consumer reputation⁸⁰. But advertising expenditure is neither a necessary nor a sufficient condition for consumer reputation⁸¹. It is merely an input and a very noisy measure of the output. Some of the most reputable firms, for example, created their consumer

⁷⁷ Johansson, Dimofte, and Mazvancheryl (2012) horserace consumer survey based and accounting information based brand values on the same firms, and provide evidence on consumer-based brand measures being more price relevant compared to accounting data-based measures.

⁷⁸ See, for example, Aaker and Jacobbson (2001), Rego, Billett, and Morgan (2009), and Aaker and Jacobbson (1994).

⁷⁹ Aaker (1997) underlines the fact that brands have distinct personality dimensions. To best of our knowledge, BAV has the most detailed dataset on various dimensions of brands.

⁸⁰ See, for example, Belo, Lin, and Vitorino (2014), McAlister, Srinivasan and Kim (2007), Han and Manry (2004), and Shah, Stark, and Akbar (2009).

⁸¹ Landes and Rosenfield (1994) show that the apparent life of advertising shrinks dramatically when firm-specific factors are held constant. It is also very difficult to separate firms that do not advertise from firms that do advertise but do not fully report their advertisement expenses. This causes a large part of the data to be dropped in most studies (see, for example, Belo, Lin, and Vitorino (2014)).

reputations without any advertising and some damaged their consumer reputations with advertisements⁸². Using advertisement expenses to proxy for consumer reputation therefore has serious drawbacks⁸³ and may be subject to incentive problems of disclosure⁸⁴. Furthermore, these studies merely relate accounting measures of intangible assets to market values; they do not answer the more fundamental question of the determinants of market values⁸⁵.

A more direct and economically relevant question is how consumer perceptions of firms and products affect the way in which investors price firms. This paper provides a first such exploration. We investigate the impact of firm and product reputation on firm value in three ways. First, we examine their effect

⁸² An excellent illustration of this is the case of Dove's *before – after* campaign, in which Dove had an offensive advertisement and damaged its consumer reputation. Here is Dove's advertisement:

<http://cdn2.list25.com/wp-content/uploads/2014/07/dove-beauty-ad-610x781.jpg> and here is an article about its damage to Dove's consumer reputation : <http://www.dailymail.co.uk/femail/article-1390312/Soap-giant-Dove-accused-racism-body-wash-advert.html>

⁸³ We show later on that advertising expenses to assets ratio is flat across different consumer reputation portfolios.

⁸⁴ In the UK, for example, during most of Kallapur and Kwan (2004)'s sampling period, firms were allowed to recognize brand assets and potentially avoid London Stock Exchange shareholder approval rules for acquisitions. This meant that the recognition and revaluation of intangible assets could potentially have been correlated with share price movements linked with expectations of future acquisition activity rather than brand value.

⁸⁵ Much of the remaining literature uses Interbrand's monetary brand asset values (See, for example, Barth, Clement, Foster, and Kasznik (1998), Madden, Fehle, Fournier (2004), Fehle, Fournier, Madden, and Shrider (2008), Kerin and Sethuraman (1998). Other accounting data based studies include Gu, and Lev (2003) and Chauvin and Hirschey (1994)) or recognized brand assets (See, for example, Kallapur and Kwan (2004), Barth and Clinch (1998), Ely and Waymire (1999), Kanodia, Sapra, and Venugopalan (2004), and Kanodia, Sapra, and Venugopalan (2004)) to proxy for consumer reputation. Interbrand's values brand assets using estimates of the abnormal earnings not attributable to a firm's other assets computed by subtracting earnings on capital employed from actual earnings of a company. An estimate of the price/earnings ratio is then applied to those earnings to derive a brand value. The assumptions that have to be employed in determining these valuations, for example regarding the cost of capital on capital employed and the price to earnings ratio, render their accuracy and reliability open to serious question (For an explanation of Interbrand methodology please see page 65 of Barth, Clement, Foster, and Kasznik (1998)). Furthermore, the method is subject to sampling problems (Interbrand sample is dominated by large, profitable companies in food and tobacco, chemicals and allied products, rubber, plastic, leather, and glass industries, and under-represented by many other important industries such as financial services. Therefore, it is questionable whether results from Interbrand data are generalizable. See Wyatt's (2008) criticism on Interbrand data and methodology.) and endogeneity issues arising from the influence of brand values on projected future earnings (See, for example, page 82 of Fehle, Fournier (2004)).

on stock market valuations. Does the stock market value firm and product reputation? Is there a cross-sectional relation between them and Tobin's Q? In other words, for how much of the observed variation in firms' intangible assets does reputation account?

We start by undertaking a principal components analysis on firm reputations to identify the common factors generating the 58 consumer attributes. We identify five principal factors. Since the strongest factor is correlated with most attributes, we call it "firm reputation". We term the remaining factors "fancy", "sciency", "social" and "distant". Table 4.1 shows the types of attributes associated with higher "firm reputation". These are classic, customer centric, best brand, trustworthy, reliable, good value and no nonsense. The attributes associated with "fancy" are chic, upper class, prestigious, different, glamorous and trendy. The attributes associated with "sciency" are intelligent, superior, progressive, dynamic, innovative and cutting edge, with "social" are social, independent, outgoing, gaining popularity, and friendly, and with "distant" are unapproachable, arrogant, and restrained. Together these five factors account for 67 percent of the variation in the 58 attributes.

Firm reputation is the single most important factor accounting for 33% percent of the consumer attributes. Companies such as Walt Disney, Google, Microsoft, Nike, Coca-Cola, Target and Harley Davidson are classified as reputable. Saks, Tiffany and Abercrombie & Fitch are fancy. Microsoft, Lockheed Martin, Boeing, Intel, Dell and IBM are sciency. It is therefore

possible to synthesize a very large amount of detailed information about consumer perceptions of firms in a small number of summary factors.

Despite having similar advertising expenditures, reputable and disreputable firms are very different in terms of how recognized their products are by consumers, whether their products are seen as the best products available, and whether their products provide good value for money. For example, around 80% of reputable firms' products are seen as classic brands, best brands available, and are perceived to be worth more than their purchase prices. Only 25% of disreputable firms' products are perceived like that. This suggests product recognition, product quality and product value for money are inherently important for generating stronger firm reputation.

We start our analysis by relating firm and product reputations to the cross-sectional variation in firm value. What emerges is that they account for a substantial proportion of cross-sectional variations in firms' intangible assets: a standard deviation increase in consumer reputation as measured by the first factor, firm reputation, is associated with an increase in Tobin's Q of 0.2 units and there is a 0.57 unit Tobin's Q difference between the most reputable and disreputable firms.

One possible explanation for these variations could be that consumer reputation is not so much an influence on expected cash flows, but more on assets' exposure to systematic risk. We undertake extensive examinations of whether there is evidence that consumer reputation is a risk factor but find no support for this. If instead consumer reputation is an influence on expected cash

flows then the question this raises is whether the market values expectations appropriately?

We find strong evidence to suggest that this is not always the case. First, we show that a self-financing trading strategy that longs a value-weighted portfolio of high reputation firms and shorts a value-weighted portfolio of low reputation firms yields an annual four-factor alpha of 7.9%. Second, we report that the impact of consumer reputation on the valuation of firms decreases substantially during recessions and weak investor sentiment periods, leading to substantial future abnormal returns. During recessions the price difference between the most reputable firms and the most disreputable firms disappears and we observe subsequent high-minus-low abnormal returns (i.e. a correction) of 18% per year. The mispricing and subsequent correction is not only observed in recessions. A standard deviation increase in “market crash expectations” causes mispricing and subsequent high-minus-low abnormal returns of 2.88% per year, suggesting that investor sentiment plays a central role in misvaluation of consumer reputation.

Third, we examine equity analysts’ earnings per share (EPS) forecasts and find that they significantly underpredict (overpredict) future EPS realizations for high (low) reputation firms during recessions. While consumer reputation is valued, it is not adequately captured by market or analysts’ expectations, in particular during periods of weak investor sentiment and recessions. Fourth, we look at the investment behaviour of different classes of investors over time in firms with varying reputations. We find that retail investors are the ones who sell shares of high consumer reputation firms during weak investor sentiment periods

and institutional investors are the purchasers. Similarly, retail investors buy disreputable firms during weak investor sentiment periods and institutional investors sell them. So, relatively uniformed retail investors forgo the high abnormal returns that institutional investors earn from undervalued high reputation firms and overvalued low reputation firms during periods of weak investor sentiment.

Finally, to understand the economic mechanism driving our results, we analyse firms' product recognition, product leadership and product value for money characteristics. We discover that there is a flight to product quality and value, particularly during economic downturns, and the market doesn't seem to price this fully. Reputable firms with the most recognized and preferred products are valued less, particularly during downturns. Nonetheless, reputable firms with such products outperform disreputable firms without such products by up to 15.86% per year, and this outperformance rises all the way up to 19.19% during recessions. In short, once we incorporate product worth and quality, the valuation difference between reputable and disreputable firms narrows, but the return spread between them widens. Reputable firms with value for money products, in particular, are priced down during both expansions and recessions, yet they generate strongest stock market performance and experience largest earnings surprises. While doing so, they also generate higher future profitability, and do not possess relatively higher risk or cash flow volatility.

In summary, consumer reputation is a significant determinant of firm intangible assets and valuations, and the market at least partially prices it. But it

does not do so fully and buying high reputation and selling low reputation firms yield abnormal returns, particularly during recessions and weak investor sentiment periods. This is at least partially related to a flight to value and quality, particularly during downturns. The abnormal returns are mirrored in errors made by equity analysts in their earnings forecasts, and retail investors are the ones who lose by selling during periods of mispricing.

These results are important in demonstrating a significant relation of consumer perceptions of firms to the valuation of firms. Brands and company names may matter but underlying them are key attributes that influence their valuations. It is possible to identify some characteristics of companies and products that have important influences on their market valuations but the stock market does not always correctly reflect them. There are particular periods when these misvaluations are most pronounced, namely during recessions and weak investor sentiment periods, and certain investors are especially prone to misvalue the attributes, namely retail investors. As intangibles grow in significance relative to tangible assets in total company valuation, the relevance of the valuation of consumer perceptions of companies and products will arguably intensify.

The remainder of the paper is organized as follows. Section 2 describes the data and section 3 provides results on the relation between firm valuation and consumer reputation. Section 4 examines the influences of firm and product reputations on share price returns, earnings surprises, future profitability, cash flow volatility, and trading strategies of different classes of investors. It also

shows how flight to value and quality in consumer preferences settles the main findings of this paper. Section 5 concludes the article.

4.2 Data and Methodology

Our firm and product reputation data come from quarterly surveys carried out by BAV Consulting (BAV) since 2001. BAV's surveys consist of questions on 58 emotional imagery attributes that aim to measure firm and product reputations. In each survey respondents in the US are asked to evaluate a subsample of firms in BAV's imagery attributes, and each firm is then assigned a score for each of the attributes. When, for example, respondents evaluate Firm X on BAV's imagery attribute trustworthy, they each give a yes or no answer to the following question: do you find Firm X to be trustworthy? Firm X then receives a score on imagery attribute trustworthy depending on the percentage of respondents that associate Firm X with being trustworthy. Firms' scores on each attribute are then ranked so that the top scoring firm for a particular imagery attribute gets a score of hundred for that attribute. All firms receive scores for all attributes, and firms and attributes are allocated randomly to respondents. Quarterly surveys are carried out after the beginning of each quarter and the results are announced on average 2-3 weeks before the end of the quarter.

We manually identify publicly listed US firms and their products in BAV data, and use their emotional imagery attribute scores to create time-varying firm and product reputation indices. There are 443 publicly listed US firms and 2599 products in BAV's quarterly surveys. Using surveys in each state, we first create

quarterly state-level attribute scores for each firm. In so doing, we compile firm scores for each of the 58 attributes in each quarter across different states in the US. By weighting state-level scores of each firm using state populations, we generate US-wide firm scores. This means we have 58 quarterly imagery attribute scores for each firm in our sample.

To analyse the main drivers of firms' reputations, we follow Fabrigar, Wegener, MacCallum and Strahan (1999), Jolliffe (2004), Kaplan, Klebanov, and Sorensen (2012) and Hochberg, Lindsey, and Westerfield (2015) in using factor analysis⁸⁶. To do that, we use data on firm-level imagery attribute scores and identify the most prominent factors in a quarterly manner.

[Table 4.1 about here]

Table 4.1 reports loadings of BAV's imagery attributes on the five most prominent factors driving the variation in BAV data⁸⁷. Factor 1 captures 33% of the total variation and has positive loadings on all brand attributes. It has particularly high loadings on classic (83%), customer centric (77%), best brand (72%), outgoing (69%), cutting edge (68%), trustworthy (67%), and worth more (67%). Since it's correlated with almost all of BAV's attributes, we interpret factor 1 as a measure of what we term "firm reputation". Throughout the paper we will denote the predicted values from factor 1 as our firm reputation index. Figure 4.1 shows the factor loadings using word clouds. Word size is determined by the size of correlation between the given imaginary attribute and the given

⁸⁶ Results of this paper are robust to creating the consumer reputation index as the simple average of all attributes.

⁸⁷ Five most prominent factors possess an average eigenvalue of 6.26.

corresponding factor. Word colour is green if the correlation is more positive, and red if it's negative.

Figure 4.1 Word clouds for our reputational factors

This figure summarizes factor loadings in Table 1 using word clouds. Word size is determined by the size of correlation between the given imaginary attribute and the given corresponding factor. Word colour is green if the correlation is positive, and red if it's negative.

Figure 4.1.1 Correlations between imagery attributes and Factor 1



Figure 4.1.2 Correlations between imagery attributes and Factor 2



Figure 4.1.3 Correlations between imagery attributes and Factor 3



Figure 4.1.4 Correlations between imagery attributes and Factor 4



Figure 4.1.5 Correlations between imagery attributes and Factor 5



Factor 2 captures 13% of the variation and loads positively on attributes such as chic (61%) and upper class (50%). Meanwhile, it loads negatively on attributes such as down to earth (-52 %) and customer centric (-50%). We therefore interpret this factor as a measure of what we term “fanciness”. Factor 3 loads positively on characteristics such as intelligent (56%) and superior (51%) and negatively on characteristics such as fun (-35%) and outgoing (-34%). It therefore resembles being tech-savvy, efficient and we term it “sciency”. Our fourth factor loads positively on characteristics including outgoing (34%) and independent (28%), and negatively on tough (-36%) and high quality (-51%). It resembles trendiness and we characterize it as “socialness”. Finally, our fifth factor loads positively on distant (59%) and unapproachable (45%), and negatively on innovative (-30%) and energy (-33%). It therefore resembles being “distant”. Our third, fourth and fifth factors explain 9%, 7% and 5% of the

variation respectively, which means that the five factors explain 67% of the total variation in BAV's 58 imagery attributes.

[Table 4.2 about here]

Table 4.2 records imagery attributes, in which companies scored most highly. Apple, for example, scored highest in imagery attribute "intelligent", and Blockbuster scored highest in "fun". Among carmakers, Ford scored highest in "rugged", GM in "traditional" and Tesla in "unique". The attribute in which the largest number of companies scored most highly was "intelligent".

[Insert Table 4.3 about here]

Table 4.3 lists firms that received the highest predicted scores from each of the top five reputational factors. Top 10 companies according to firm reputation (factor 1) scores include companies that have a decent track record of reputation such as Walt Disney, Google, Nike, Coca Cola, and Microsoft. Top 10 fancy companies (according to factor 2 loadings) include Saks, Polo, and Goldman Sachs. Top 10 sciency companies (according to factor 3 loadings) include Ameritrade, Microsoft, Lockheed Martin, Boeing, and Intel.

[Insert Table 4.4 about here]

Table 4.4 shows the products owned by firms with the highest firm reputation scores. It also lists their brand categories. Nike, for example, owns brands such as Converse (a shoe brand) and Eyetoy: Kinetic (a video game brand). Target, for example, owns brands such as Archer Farms (a food brand) and Merona (a clothing brand). In addition to providing us with consumers' perceptions of firms,

BAV's data also allows us to also measure reputations of firms' products every quarter using the same 58 imagery attributes.

[Insert Table 4.5 about here]

Table 4.5 shows how reputable and disreputable firms differ in terms of product reputations. We form portfolios using firm scores in factor 1, i.e. our firm reputation measure, from the previous quarter. As shown in Table 4.5, the greatest differences in product reputations between reputable and disreputable firms are in imagery attributes "classic", "best brand" and "worth more". We label these imagery attributes as product recognition, product leadership and product value for money. So, reputable firms are particularly different than disreputable firms in terms of how recognized their products are by the consumers, whether their products are seen as the best products available, and whether their products provide good value for money to the customers. They also provide products that are perceived as less unapproachable and less arrogant. Although their advertising expenditures do not differ from those of disreputable firms, reputable firms seem to outclass disreputable firms in firm reputation, and this may be attributable to their success in product quality and product value for money.

To analyse the financial implications of firm and product reputations, we match BAV's firm and product reputation data with financial and accounting data from CRSP and COMPUSTAT. We use data on ordinary common shares in NYSE, AMEX and NASDAQ and exclude firms with missing end of quarter

market values from our calculations. We also exclude firms with last month's closing price less than \$5 and more than \$1000.

[Insert Table 4.6 about here]

We present summary statistics in Table 4.6, which gives time-series averages of portfolio medians. Panel A compares reputational characteristics across portfolios. Reputable firms operate in more sectors (1.9 vs 1.0) and have more product variety (5.48 vs. 1.1). Their products are also consumed more than the products of disreputable firms (38.92% vs. 6.72%). As shown earlier in Table 4.5, products of reputable firms also have higher scores in product recognition, product leadership and product value for money.

Panel B of Table 4.6 presents information on financial characteristics. It is noticeable that our sample comprises large firms: median year-end market value for portfolio 3 firms falls into the top 10% of the CRSP universe both at the beginning and the end of our sampling period. Most notably, firms in the higher firm reputation portfolios have larger Tobin's Q, market to book ratios and price to earnings ratios. We do not however find a monotonic relationship between firm reputation and physical capital to assets ratios. The fact that there is no relation between firm reputation and R&D expenses to assets ratios suggests that firm reputation reflects a different intangible asset class from R&D. Furthermore, we also observe no monotonicity in book intangibility and advertising-to-assets ratios. The fact that there is not a close relationship between firm reputation and these two accounting ratios suggests that accounting-based measures used in previous studies are poor proxies for firm reputation. Although advertising ratios

do not differ between reputable and disreputable firms, sales to assets ratios differ a lot (28.5% vs. 16.7%). This is in line with earlier observations from Panel A about product reputation and utilization. In short, reputable firms do not advertise excessively, but their products are the best ones and they offer great value for money.

Equally interesting is the monotonicity of market intangibility, which increases by approximately 17% when moving from portfolio 1 to portfolio 5. This increase is economically significant given that the mean market intangibility ratio for a portfolio 1 firm is around 53%. Firm reputation, as proxied by factor 1, therefore may potentially capture a substantial proportion of the variation in firms' market intangibility ratios.

Panel C of Table 4.6 presents information on risk characteristics. Stock returns of reputable firms have relatively lower betas, downside betas, upside betas, kurtosis and higher skewness. This is in line with the hypothesis that they exhibit similar, or relatively smaller risk.

[Insert Table 4.7 about here]

Our approach to measuring consumer reputation has several significant advantages compared to other approaches that have been used previously in the intangibles literature. First, we use the most detailed dataset in consumer reputations, which simultaneously measures firm and product reputations by using 58 imagery attributes. This allows us to establish links between product reputation, firm reputation and firm performance. Second, unlike previous studies based on lists of top-rated firms according to different forms of intangible capital,

our sample includes firms regardless of whether they are highly or poorly rated. This increases not only the size of the sample but also the variation in intangible capital that we can study. Third, as Table 4.7 shows, we are able to observe firms as they transition between portfolios, whereas other studies may lose measurement once a firm drops out of a particular list that only contains the “top” firms. This is important because firm reputation does change over time. In fact only 41% of the firms stay in their quintile portfolio in the following quarters. Fourth, our reputation measure can be thought as an output rather than an input to a process that generates intangible capital. Therefore, our approach does not rely on potentially noisy proxies such as advertising expenditures or future profitability and returns, which complicate inference.

4.3 Valuation of Consumer Reputation

We begin by investigating the cross-sectional relation between firm valuation and firm reputation. To that end, we estimate quarterly Fama-Macbeth regressions in the following specification:

$$\text{Valuation}_{i,t} = \alpha_0 + \alpha_1 Z_{i,t} + \beta X_{i,t} + \varepsilon_{i,t} \quad (4.1)$$

where $Z_{i,t}$ is either firm i 's firm reputation (factor 1) score in quarter t or firm reputation quintile portfolio to which firm i is assigned in quarter t . $X_{i,t}$ is the vector of control variables. As alternative valuation measures, we use Tobin's Q as in Gompers, Ishii and Metrick (2003) and log market to book ratio and log price earnings ratio as in Edmans (2011). For control variables, we follow Shin and Stulz (2000) and Gompers, Ishii and Metrick (2003) and include logged book value of assets and logged firm age.

[Insert Table 4.8 about here]

The first three columns of Table 4.8 show an economically significant and positive cross-sectional relationship between firm reputation and firm value. In column 1, one-standard deviation increase in firm reputation is associated with a rise of about 0.2 units in Tobin's Q. The results for market to book and price earnings ratios in columns 2 and 3 are similarly significant.⁸⁸

The next three columns of Table 4.8 compare how firms in different quintile portfolios are valued relative to portfolio 1 firms (omitted category). The results show that firm reputation is valued monotonically across the five quintile portfolios. For example, the Tobin's Q of portfolio 5 firms exceeds that of portfolio 1 firms by about 0.57. Once again, the results are similar for the market to book, price earnings, and sales ratios in columns 6 to 8.

To explore the incremental effect of product reputation, we estimate Fama-Macbeth regressions on the below specification:

$$Q_{i,t} = \alpha_0 + \alpha_1 \text{Portfolio}_{i,t} + \alpha_2 \text{PR dummy}_{i,t} + \alpha_3 \text{Portfolio}_{i,t} * \text{PR dummy}_{i,t} + \beta X_{i,t} + \varepsilon_{i,t}, (4.2)$$

where $Q_{i,t}$ denotes Tobin's Q, $\text{Portfolio}_{i,t}$ is firm i's portfolio in quarter t according to its firm reputation in quarter t, $\text{PR dummy}_{i,t}$ denotes whether firm i's product reputation is higher than the median product reputation in firm i's portfolio in quarter t. Product reputation is measured by one of product recognition, leadership and value for money in columns 1 to 3. $X_{i,t}$ is the vector of control variables including log of book value of assets and the log of firm age.

[Insert Table 4.9 about here]

⁸⁸ As might be expected, the relation between firm reputation and firm value is reflected in sales. Breaking down the variation in sales between that component which is explained by fluctuations in reputation and that which is not shows that a significant proportion of the impact of reputation on Tobin's Q comes via its influence on sales – a standard deviation in sales explained by reputation is associated with a 0.22 standard deviation change in Q.

Table 4.9 presents the results. Surprisingly, product recognition, product leadership and product value for money have negative influences on the relative valuation of reputable firms. As shown in column 3, reputable firms without value for money products command 0.79 units higher in Tobin's Q than disreputable firms without value for money products. Reputable firms with value for money products, however, exhibit only 0.41 (=0.907-0.501) units higher Tobin's Q values than disreputable firms without value for money products. Results in columns 1 to 3 are in line with the hypothesis that the market prices down product recognition, product leadership and product value for money for reputable firms.

To explore the valuation of firm reputation under different market conditions, we also estimate panel regressions with interaction terms:

$$Q_{i,t} = \alpha_0 + \alpha_1 \text{Portfolio}_{i,t} + \alpha_2 \text{Portfolio}_{i,t} * \text{Shock}_t + \beta X_{i,t} + \mu_i + \varepsilon_{i,t}, \quad (4.3)$$

where Shock_t is an indicator variable for NBER recession quarters or market crash expectations of institutional and individual investors. Once again, $\text{Portfolio}_{i,t}$ is firm i 's firm reputation quintile portfolio, and $X_{i,t}$ is the vector of control variables including log of book value of assets and the log of firm age. We include firm fixed effects and two-way cluster the standard errors across firms and years.

[Insert Table 4.10 about here]

Table 4.10 reports the results. The first column shows that the valuation premium of portfolio 5 firms relative to portfolio 1 firms decreases significantly during recessions. Similarly in columns 2 and 3, the valuation difference between portfolio 5 firms and portfolio 1 firms narrows significantly when market crash expectations of institutional and individual investors increase.

To summarize, we observe that the stock market values firm reputation significantly. There are two glitches that drive substantial declines in the value of

firm reputation. The first decline in value is through product reputations. Market prices down product recognition, product leadership and product value for money for reputable firms. The second decline in value occurs during recessions and periods of low investor sentiment. These raise the questions of whether these patterns are accurate reflections of changing fundamentals or mispricing of intangible assets. We provide thorough analyses of these matters in the following section.

4.4 Returns to Consumer Reputation

4.4.1 Firm reputation and stock returns

In this subsection, we examine the impact of firm reputation on long-run stock market performance. To that end, we form five value-weighted portfolios in the beginning of each quarter by ranking firms according to their firm reputation values from the previous quarter. The portfolio weights come from each firm's last quarter-end market value of equity. To ensure that any outperformance linked to firm reputation does not result from conventional risk factors, we use different risk adjustment techniques. First, we compute abnormal returns for each portfolio using a Fama-French-Carhart (FFC) four-factor model as in Carhart (1997). We do so by estimating the following time-series regression:

$$r_{p,t} = \alpha_p + \beta_p' f_t + \varepsilon_{p,t} \quad (4.4)$$

where $r_{p,t}$ is the monthly portfolio excess return (over the monthly risk-free rate), f_t is the vector of returns on the market, value, size, and momentum factors (taken from Kenneth French's web site), and α_p is the abnormal performance

measure of interest. Second, we also compute value-weighted returns for each portfolio in excess of Fama and French (2015), Hou, Xue, and Zhang (2015), and Stambaugh and Yuan (Forthcoming) risk factors. Third, we compute value-weighted returns for each portfolio in excess of industry-based benchmark returns.⁸⁹ We also compute abnormal returns for long-short portfolios of firm reputation (longing the quintile of firms with highest firm reputation and shorting the quintile with lowest firm reputation) in each of the above specifications.

[Insert Table 4.11 about here]

Table 4.11 presents results on long-run stock market returns. As shown in Panel A, FFC alpha of the long-short portfolio is a significant 7.91% per year with a t-statistic of 3.66. The excess returns are robust to correcting for Fama and French (2015), Hou, Xue, and Zhang (2015), and Stambaugh and Yuan (Forthcoming) risk factors. Furthermore, after correcting for industry benchmark returns, we still find excess returns of 4.06% per year to the long-short portfolio with a t-statistic of 3.41. These results are in line with the notion that reputable firms outperform disreputable firms, and this outperformance is not attributable to conventional risk factors⁹⁰. Nonetheless, if the risk exposures vary over time and our portfolio returns are correlated with these variations (e.g., during economic downturns or when stock market crash expectations increase), then our

⁸⁹ The industry-based benchmark returns are the value-weighted returns of industries formed according to 3-digit SIC codes. This risk-adjustment is to ensure that outperformance does not exist simply because firms with high consumer reputation are in industries that happened to enjoy strong returns.

⁹⁰ In untabulated results, we find that our inferences are qualitatively unchanged when alphas are computed using equally-weighted portfolios instead of value-weighted portfolios. However, abnormal returns from long-short portfolios of consumer reputation are both economically and statistically more significant for value-weighted portfolios, which in turn suggests that the effects of branding and consumer reputation are greater in large than small companies.

unconditional model may be misspecified and our results can be potentially driven by this misspecification. To eliminate this risk, we also measure abnormal returns by assuming a model of conditional expected returns that allows for time-variation in the risk factor loadings. To that end, we follow Ferson and Harvey (1999) and assume a linear functional form for the time-varying betas:

$$\beta_p(z_t) = b_{p0} + B_p z_t, (4.6)$$

where z_t is a $(J \times 1)$ vector of the deviations of predetermined variables, and B_p is a $(K \times J)$ matrix where K is the number of risk factors and J is the number of predetermined variables. In each row B_p contains conditional betas for a given risk factor of a given portfolio. b_{p0} is a $(K \times 1)$ vector of “unconditional means” for each risk factor's beta in a given portfolio. We follow Petkova and Zhang (2005) and Belo, Gala and Li (2013) and use dividend-price ratio, default premium, term spread, and risk-free rate as our conditioning variables⁹¹. These variables are known to have predictive power over business cycles. We test for abnormal returns by estimating the following equation:

$$\begin{aligned} r_{p,t} &= \alpha_p + (\beta_p' z_{t-1})' f_t + \varepsilon_{p,t} \\ &= \alpha_p + b_{p0}' f_t + (b_{p1}' z_{t-1})' f_t + \varepsilon_{p,t}, (8) \end{aligned}$$

where f_t is the vector of excess returns on Fama-French-Carhart four factors (namely, market, size, book-to-market, and momentum).

⁹¹ Default premium is Moody's seasoned Baa corporate bond yield minus Moody's seasoned Aaa corporate bond yield. Term spread is the difference between ten-year and one-year treasury constant maturity rates. Dividend-price ratio measures dividends paid to the market portfolio over the price of market portfolio. We take default premium and term spread data from the St. Louis Federal Reserve's web page. Dividend-price ratios and the risk-free rate are obtained from CRSP dataset.

Panel B of Table 4.11 presents risk-adjusted returns using time-varying betas. We find that a strategy that longs the quintile of firms with highest firm reputation and shorts the quintile with lowest firm reputation generates an alpha of 10.24% per year with a t-stat of 5.53. This conditional alpha derives from both the underperformance of low reputation firms and the outperformance of high reputation firms: the bottom quintile has a yearly alpha of -6.41% monthly and the top quintile has a yearly alpha of 3.83%.

To provide even further adjustment for time-varying risk, we add two more variables to the list of conditioning variables listed above - institutional and individual market crash expectation indices - to proxy for market sentiment. With the addition of these sentiment proxies, conditional alphas stay economically unchanged and they become statistically more significant.

4.4.2 Product reputation and stock returns

In Section 3 we observed a substantial decline in relative valuations reputable firms due to their product reputations. In this section we delve deeper into this issue by analysing the incremental effect of product reputation on the return difference between reputable and disreputable firms. To that end, we double-sort our quintile firm reputation portfolios into high and low product reputation groups. Firms are first sorted into portfolios with respect to their firm reputation scores, and within these portfolios they are sorted into two groups according to their product reputation score. Firm reputation is measured by factor 1 scores from firm-level factor analysis, and brand reputation of a given firm is once again

measured by its product recognition, product leadership and product value for money.

[Insert Table 4.12 about here]

Table 4.12 presents results from our double-sorting exercise. We report abnormal returns in excess of Ferson and Harvey (1999) time-varying betas as in equation (4.6) above. After double-sorting firms, the return spread between reputable and disreputable firms increases significantly. Reputable firms with high product recognition, for example, outperform disreputable firms with low product recognition by 15.86% per year. Similarly, reputable firms with high product leadership outperform disreputable firms with low product leadership by 12.99% per year, and reputable firms with high product value for money outperform disreputable firms with low product value for money by 11.92% per year.

4.4.3 Returns during turbulent times

One aspect of consumer reputation that deserves particular attention is its exposure to economic downturns. Recessions include an element of loss of trust to which firms' intangible assets are potentially vulnerable. Investors' loss of trust during recessions may impact abnormal returns linked to consumer reputation in different ways. Given the similarity between reputable firms in downside and upside risk characteristics (Table 4.6, Panel C), one possibility is that consumer reputation is underpriced across the board during recessions. Another possibility is that investors' loss of trust results in them underestimating the effect of consumer reputation on firm valuation, resulting in low reputation firms being relatively overpriced and high reputation firms being relatively underpriced

during recessions. A third possibility is that recession has no marginal impact on the way consumer reputation is priced by investors. We test these possibilities in this section.

We use our specification in equation (4.6) in order to compute monthly abnormal high-minus-low (HML) returns associated with firm reputation as:

$$AR_{p,t+1} = \alpha_{p,t+1} + \varepsilon_{p,t+1} \quad (4.7)$$

where $\alpha_{p,t+1}$ is the abnormal return from longing the top quintile of firm reputation and shorting the bottom quintile, and $\varepsilon_{p,t+1}$ is the disturbance term. In other words, monthly abnormal HML returns are defined as realized HML returns minus expected HML returns, where the latter come from either Carhart (1997) four-factor model or Ferson and Harvey (1999) time-varying beta models. After the computation of monthly abnormal HML returns, we run the following regression:

$$AR_{p,t+1} = \alpha_{p,0} + \alpha_{p,1} \text{Recession}_t + \varepsilon_{p,t+1} \quad (4.8)$$

where Recession_t stands for a dummy variable that equals 1 if month $t+1$ falls in an NBER recession quarter. This modification allows us to discriminate abnormal returns across recessions and expansions. In our regressions, we once again use dividend-price ratio, default premium, term spread, and risk-free rate as conditioning variables.

[Insert Table 4.13 about here]

Table 4.13 presents the regression results. We see that the unconditional long-short performance due to firm reputation amounts to 7.37% per year but it more than doubles during NBER recession months and reaches 18.0% per year⁹². We also see that lowest firm reputation firms generate incremental negative alpha and

⁹² Note that alpha during a recession month is equal to the unconditional alpha plus the incremental recession alpha.

highest firm reputation firms generate incremental positive alpha during recessions. Given the fact that reputable firms have relatively lower betas, downside betas, upside betas, kurtosis and higher skewness, investors might be overpricing low reputation firms and underpricing high reputation firms during recessions.

We next focus on the link between abnormal returns and market sentiment. As before, we proxy market sentiment by institutional and individual market crash expectation indices. Since these indices vary every month, we need a measure of abnormal performance that also varies by month⁹³. Once again, we compute monthly abnormal high-minus-low (HML) returns as in equation (4.6), and run the following regression:

$$AR_{i,t+1} = \beta_0 + \beta_1 X_t + v_{i,t+1} \quad (4.9)$$

where X_t denotes market crash expectations of institutional or individual investors as of month t .

[Insert Table 4.14 about here]

Table 4.14 presents the regression results. We find a statistically significant positive association between monthly abnormal HML returns and market sentiment in the previous month. A standard deviation increase in institutional investors' market crash expectation increases abnormal HML returns by 2.66% annually⁹⁴. Similarly, a standard deviation increase in individuals' market crash expectation increases abnormal HML returns by about 2.32% annually.

⁹³ Note that the *alphas* we measured so far were either constant throughout the sample period or only varied between recessions and expansions.

⁹⁴ In our sampling period the standard deviation of institutional (individual) market crash expectation is .089 (.076).

4.4.4 Earnings surprises during turbulent times

Our evidence so far is in line with the notion that reputable firms are undervalued relative to disreputable firms, particularly during recessions and periods of weak investor sentiment: (i) the valuation difference between the two sets of firms narrow during those times (Section 4.3), (ii) trading strategies designed to exploit potential misvaluation of firm reputation yield significant abnormal returns precisely following those times (Section 4.2), and (iii) risk characteristics (including downside and upside risks) cannot explain our findings (Section 4.2).

To test whether these patterns are indeed indicative of the market's misvaluation of firm reputation, we study the expectation errors of investors, in particular the errors in the earnings per share (EPS) forecasts of equity analysts. Given our findings of abnormal returns for up to 6 months into the future, we measure the current error in the EPS forecast of equity analysts as the difference between an EPS realization in six months and the current median I/B/E/S EPS forecast for that EPS realization in six months. A positive (negative) forecast error means that the EPS realization in six months is above (below) the current consensus expectation. We scale forecast errors either by stock prices lagged by three months to prevent the measure from being hard-wired to current misvaluations or by assets per share, i.e., book value of assets divided by shares outstanding. Using these two measures, we investigate how EPS forecast errors for firms in each of the quintile portfolios change during recessions with regressions of the form:

$$FE_{i,t} = \beta_0 + \beta_1 Z_t + \beta_2 Portfolio_{i,t} + \beta_3 Z_t * Portfolio_{i,t} + \gamma X_{i,t} + \delta_t + \varepsilon_{i,t},$$

(4.10)

where $FE_{i,t}$ is the forecast error of analysts for firm i in quarter t , Z_t is an indicator variable for an NBER recession in quarter t , or it denotes market crash expectations. $Portfolio_{i,t}$ is the quintile firm reputation portfolio of firm i in quarter t . We follow Edmans (2011) and include log of market capitalization and log of book to market values in the vector of control variables $X_{i,t}$. We also use year dummies.

[Insert Table 4.15 about here]

Table 4.15 presents the results. Across all four specifications, we find that during recessions, EPS forecast errors for portfolio 5 firms are greater than those for portfolio 1 firms. These results show that equity analysts underestimate the future profitability of reputable firms relative to that of disreputable firms during recessions. The results also suggest that our earlier findings regarding the valuation of firm reputation and abnormal returns might be driven at least in part by the expectation errors of investors.

[Insert Table 4.16 about here]

As shown in Table 4.16, we also find a significantly positive relationship between earnings surprises and market crash expectations of institutions and individuals. Our results are therefore supportive of the notion that the association of earnings surprises with firm reputation is systematically related to market

sentiment. We study the types of firms that generate higher earnings than expected in the following sections.

4.4.5 Investor sentiment induced demand shifts

In this subsection we examine the impact of business cycles and investor sentiment on retail and institutional ownership of reputable and disreputable firms. Our results so far have shown that firm reputation is an important determinant of firm value, and that the market values it significantly less during recessions and weak investor sentiment periods. Subsequently, reputable firms generate positive abnormal returns. To delve deeper into these expectation and pricing errors, we now look into demand shifts of institutional and retail investors in our top and bottom firm reputation portfolios and examine how they relate to investor sentiment. We run regressions of the form⁹⁵:

$$\Delta Y_{i,p,t+1} = a_p + b_p Z_t + n_i + \varepsilon_{i,p,t+1} \text{ and}$$

$$\Delta Y_{i,p,t} = a_p + b_p Z_t + n_i + \varepsilon_{i,p,t} \quad (4.11)$$

where $\Delta Y_{i,p,t+1}$ denotes how the weight of portfolio p in fund i's holdings changes from quarter t to t+1, and $\Delta Y_{i,p,t}$ denotes how the weight of portfolio p in fund i's holdings change from quarter t-1 to t. Z_t denotes institutional or individual crash expectations, n_i denotes fund dummies, and $\varepsilon_{i,p,t+1}$ and $\varepsilon_{i,p,t}$ denote the error terms. We follow institutional investor classification schemes proposed by Brian

⁹⁵ Existing research in finance, accounting and marketing shows a positive relation between retail investors' stock ownership and consumer reputation Frieder and Subrahmanyam (2005) use a sample of 91 firms and find that individual investors prefer to invest in stocks with easily recognized products. Grullon, Kanatas, and Weston (2004) show that firms with greater advertising expenditures, ceteris paribus, have a larger number of both individual and institutional investors, and better liquidity of their common stock. Keloharju, Knuepfer, and Linnainmaa (2012) use microdata from the auto industry to show that a strong positive relation exists between customer relationship, ownership of a company, and size of the ownership stake.

Bushee⁹⁶ in order to classify funds into different investor groups and only concentrate on firm reputation portfolios five and one. In order to eliminate the mechanical impact of price changes on portfolio holdings of funds, we follow Addoum and Kumar (2015) and use average stock prices within ± 12 months. To determine the weight of portfolio q in fund i 's holdings, we first multiply average stock price of a given firm with the number of shares fund i holds of that firm. After computing fund i 's investments in all firms, we compute the percentage of fund i 's money allocated to each portfolio. This is done by simply adding up the money invested in each firm in a given portfolio p and computing the weight of portfolio p in fund i 's total investments.

[Insert Tables 4.22 and 4.23 about here]

Results in Tables 4.22 and 4.23 reveal that, when market crash expectations increase, sophisticated investors systematically increase their ownership in portfolio 5 firms and decrease their ownership in portfolio 1 firms. In the following quarter, however, they systematically sell portfolio 5 firms and buy back portfolio 1 firms. Columns (1) and (6) of Table 4.22's Panel A show that as the market crash expectations increase in time t , institutional investors increase their portfolio 5 holdings in time t and decrease in time $t+1$. They do exactly the opposite for portfolio 1 firms. Table 4.23 runs the same regressions using

⁹⁶ Institutional investor classification data is publicly available on Brian Bushee's website: <http://acct.wharton.upenn.edu/faculty/bushee/>. Bushee groups institutional investors into five groups: mutual funds (IIA), investment companies (INV), bank trusts (BNK), insurance companies (INS) and pensions and endowments (PEN). We run each of the above eight regressions on these different groups of funds and see how their demand in portfolios 5 and 1 change over time. We cluster the standard errors at the fund-level.

individual market crash expectations rather than institutional market crash expectations and presents similar results.

Our findings in this section are in line with the hypothesis that sophisticated investors foresee the possibility of unsophisticated investors (i.e. uninformed retail investors) mistakenly overselling the top portfolio and overbuying the bottom portfolio, moving stock prices in corresponding portfolios too low and too high compared to their true values. These results are robust to using both individual and institutional crash expectations, and they are in line with the notion that the institutional investors are cashing in the profits from market overreactions.

4.4.6 Flight to product quality and value during downturns

In this section we try to shed some light on the economic mechanism that is driving our results. To explain the abnormal returns and the unexpected earnings enjoyed by reputable firms during turbulent times, we analyse firms' product reputations. In particular, we analyse whether having the best and greatest value for money products can explain the abnormal returns and positive earnings surprises experienced by reputable firms during downturns. We therefore start with analysing the return spread due to both firm and product reputations.

As we did in Section 4.3, we double-sort our firm reputation portfolios into high and low product reputation groups. Spread is then computed between firms with high firm and product reputation and firms with low firm and product reputation. Brand reputation of a given firm is measured individually by its product recognition, product leadership and product value for money.

[Insert Table 4.15 about here]

Table 4.15 shows how return spreads from double-sorted portfolios change over the business cycle. We present abnormal spread returns (AR) from Ferson and Harvey (1999) model with time-varying betas. Panel A shows that the spreads between reputable firms with high product reputations and disreputable firms with low product reputations increase significantly during recessions. In particular, reputable firms with high value for money products outperform disreputable firms with low value for money products by 19.19% during recessions. Panels B and C show that crisis expectations of investors and individuals also have a positive effect on the spreads.

To provide more information on the valuation of product reputation during downturns, we rerun our Fama-Macbeth regressions in equation (2). Table 4.18 to 4.20 show the incremental effect of product reputation on firm reputation during expansionary and recessionary periods.

$$\begin{aligned} \text{Valuation}_{i,t} = & \alpha_0 + \alpha_1 P_{i,t} * \text{Expansion}_t + \alpha_2 P_{i,t} * \text{Recession}_t + \alpha_3 P_{i,t} * \\ & \text{BR dummy}_{i,t} * \text{Expansion}_t + \alpha_4 P_{i,t} * \text{BR dummy}_{i,t} * \text{Recession}_t + \\ & \alpha_5 \text{BR dummy}_{i,t} * \text{Expansion}_t + \alpha_6 \text{BR dummy}_{i,t} * \text{Recession}_t + \beta X_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (4.12)$$

where $\text{Valuation}_{i,t}$ denotes Tobin's Q or logged P/E ratio. $P_{i,t}$ is either firm i's firm reputation portfolio according to firm reputation in quarter t. $\text{BR dummy}_{i,t}$ denotes whether firm i's product reputation is higher than the median product reputation in firm i's portfolio. Expansion_t and Recession_t

denote NBER expansions and recessions. $X_{i,t}$ is the vector of control variables including include the log of book value of assets and the log of firm age. Following Belo, Gala, and Li (2013), we run cross sectional regressions in each quarter and report time-series averages of the coefficients during expansions and recessions. Results are in columns 1 and 2 of Tables 4.18, 4.19, and 4.20.

In Tables 4.18 to 4.20, we show that reputable firms without recognized products are valued higher than disreputable firms without recognized products. This is true during recessions and expansions. Reputable firms with recognized products however are valued down during recessions (Table 4.18, Column 1, coef = -0.31). Same is true for firms with high brands leadership (Table 4.19, Column 1, coef = -0.33), and high brand value for money (Table 4.20, Column 1, coef = -0.46). Interestingly, reputable firms with value for money products are also valued down during expansions (Table 4.18, Column 1, coef = -0.48).

To provide further evidence on the economic mechanism that drives our return spreads, we also look at future profitability and volatility of future volatility. We follow Belo et al. (2013) and run Fama-Macbeth regressions on the following specification:

$$\begin{aligned} ROE_{i,t+1} = & \alpha_0 + \alpha_1 P_{i,t} * Expansion_t + \alpha_2 P_{i,t} * Recesson_t + \alpha_3 P_{i,t} * \\ & BR\ dummy_{i,t} * Expansion_t + \alpha_4 P_{i,t} * BR\ dummy_{i,t} * Recesson_t + \\ & \alpha_5 BR\ dummy_{i,t} * Expansion_t + \alpha_6 BR\ dummy_{i,t} * Recesson_t + \beta X_{i,t} + \varepsilon_{i,t} \quad , \end{aligned}$$

(4.13)

where $ROE_{i,t}$ denotes future return on equity, defined as net income to book-equity ratio. $P_{i,t}$ is either firm i 's firm reputation score in quarter t or firm reputation quintile portfolio to which firm i is assigned in quarter t . $BR\ dummy_{i,t}$ denotes whether firm i 's product reputation is higher than the median product reputation in firm i 's portfolio. $Expansion_t$ and $Recession_t$ denote NBER expansions and recessions. $X_{i,t}$ is the vector of control variables including current return on equity, ratio of market value of assets to book-value of assets, a dummy for nondividend-paying firms, and the ratio of dividend payments to lagged book value of equity. Following Belo, Gala, and Li (2013), we run cross sectional regressions in each quarter and report time-series averages of the coefficients during expansions and recessions. Results are in column (3) of Tables 4.18, 4.19, and 4.20. Results from these panel regressions are presented in columns 3 of Tables 4.18, 4.19, and 4.20.

To analyse whether risk is driving our results, we also look at volatility of future profitability. Following Belo, Gala, and Li (2013), we take $\varepsilon_{i,t+1}$ i.e. the residual from the first stage regression, and run panel regressions on its square in following specification:

$$\begin{aligned} \varepsilon_{i,t+1}^2 = & \alpha_0 + \alpha_1 P_{i,t} * Expansion_t + \alpha_2 P_{i,t} * Recession_t + \alpha_3 P_{i,t} * \\ & BR\ dummy_{i,t} * Expansion_t + \alpha_4 P_{i,t} * BR\ dummy_{i,t} * Recession_t + \\ & \alpha_5 BR\ dummy_{i,t} * Expansion_t + \alpha_6 BR\ dummy_{i,t} * Recession_t + v_{i,t+1} \end{aligned} \quad (4.14)$$

Columns 3 of Tables 18, 19, and 20 show that reputable firms with high brand recognition, high brand leadership and high brand value for money exhibit

higher future profitability during recessions. Meanwhile, columns 4 of Tables 4.18, 4.19, and 4.20 show that reputable firms with high brand recognition, high brand leadership and high brand value for money do not exhibit higher volatility in future profitability during recessions or expansions. These results suggest our abnormal returns are driven by higher profitability rather than risk.

To provide further evidence on our cash flow story, we finally look at earnings surprises experienced by reputable firms with reputable products. We run regressions on the form:

$$\begin{aligned} FE_{i,t} = & \alpha_0 + \alpha_1 P_{i,t} * Expansion_t + \alpha_2 P_{i,t} * Recession_t + \alpha_3 P_{i,t} * \\ & BR\ dummy_{i,t} * Expansion_t + \alpha_4 P_{i,t} * BR\ dummy_{i,t} * Recession_t + \\ & \alpha_5 BR\ dummy_{i,t} * Expansion_t + \alpha_6 BR\ dummy_{i,t} * Recession_t + \gamma X_{i,t} + \delta_t + \\ & \varepsilon_{i,t} \end{aligned} \quad (4.15)$$

where $FE_{i,t}$ is the forecast error of analysts for firm i in quarter t . $P_{i,t}$ is the quintile firm reputation portfolio of firm i in quarter t . $Expansion_t$ and $Recession_t$ denote NBER expansions and recessions. We follow Edmans (2011) and include log of market capitalization and log of book to market values in the vector of control variables $X_{i,t}$. δ_t denotes year dummies.

[Insert Table 4.21 about here]

Table 4.21 presents the results. Reputable firms with low product reputations generate disappointing earnings surprises during expansionary periods. However, reputable firms with high product reputations (product leadership and product value for money) generate positive earnings surprises during

expansionary periods. Moreover, reputable firms with high product reputations (product recognition and product value for money) also generate positive earnings surprises during recessions. These results coupled with earlier results on product reputations driving higher return spread, higher earnings surprises, higher future profitability, and being valued less during downturns are in line with the hypothesis that there are pricing errors in firm and product reputations, particularly during downturns. Furthermore, earnings surprises during expansions are in accordance with the abnormal returns during expansions⁹⁷.

4.5 Conclusion

This paper provides a first robust exploration of the link between a pivotal component of intangible assets, consumer reputation, and its market valuation. We start by showing that firm and product reputations account for a substantial proportion of both cross-sectional variations in firms' intangible assets and their market values. We show that a standard deviation increase in firm reputation increases Tobin's Q by 0.2 units, and we find a 0.57 unit Tobin's Q difference between the most and least reputable firms.

One possible explanation for these variations could be that consumer reputation is not so much an influence on expected cash flows, but more on assets' exposure to systematic risk. We undertake extensive examinations of whether there is evidence that consumer reputation is a risk factor but find no support for this. If instead consumer reputation is an influence on expected cash

⁹⁷ Return and EPS spreads due to each BAV attribute are presented in Figure 4.2.

flows then the question this raises is whether the market values expectations appropriately?

We find strong evidence to suggest that this is not always the case. First, we show that a self-financing trading strategy that longs a value-weighted portfolio of high reputation firms and shorts a value-weighted portfolio of low reputation firms yields an annual four-factor alpha of 7.9%. Second, we report that the impact of consumer reputation on the valuation of firms decreases substantially during recessions and weak investor sentiment periods, leading to substantial future abnormal returns. During recessions the price difference between the most reputable firms and the most disreputable firms disappears and we observe subsequent high-minus-low abnormal returns (i.e. a correction) of 18% per year. The mispricing and subsequent correction is not only observed in recessions. A standard deviation increase in “market crash expectations” causes mispricing and subsequent high-minus-low abnormal returns of 2.88% per year, suggesting that investor sentiment plays a central role in misvaluation of consumer reputation.

Third, we examine equity analysts’ earnings per share (EPS) forecasts and find that they significantly underpredict (overpredict) future EPS realizations for high (low) reputation firms during recessions. While consumer reputation is valued, it is not adequately captured by market or analysts’ expectations, in particular during periods of weak investor sentiment and recessions. Fourth, we look at the investment behaviour of different classes of investors over time in firms with varying reputations. We find that retail investors are the ones who sell shares of high consumer reputation firms during weak investor sentiment periods

and institutional investors are the purchasers. Similarly, retail investors buy disreputable firms during weak investor sentiment periods and institutional investors sell them. So, relatively uniformed retail investors forgo the high abnormal returns that institutional investors earn from undervalued high reputation firms and overvalued low reputation firms during periods of weak investor sentiment.

Finally, to understand the economic mechanism driving our results, we analyse firms' product recognition, product leadership and product value for money characteristics. We discover that there is a flight to product quality and value, particularly during economic downturns, and the market doesn't seem to price this fully. Reputable firms with the most recognized and preferred products are valued less, particularly during downturns. Nonetheless, reputable firms with such products outperform disreputable firms without such products by up to 15.86% per year, and this outperformance rises all the way up to 19.19% during recessions. In short, once we incorporate product worth and quality, the valuation difference between reputable and disreputable firms narrows, but the return spread between them widens. Reputable firms with value for money products, in particular, are priced down during both expansions and recessions, yet they generate strongest stock market performance and experience largest earnings surprises. While doing so, they also generate higher future profitability, and do not possess relatively higher risk or cash flow volatility.

In summary, using a more relevant measure of firm reputation than has been available to date, we have observed that, in a world in which intangible

valuations account for a substantial proportion of firms' assets, firm reputation is a good indicator of fundamental value. It is however not fully incorporated into stock prices and it leads to abnormal returns for firms with reputable products, and during recessions and low investor sentiment periods, earnings forecast errors of equity analysts, and trading by institutional investors at the expense of retail investors.

Table 4.1: Capturing firm reputations in a small number of key factors

This table reports results from running factor analysis on BAV's imagery attributes. We present factor loadings of BAV's imagery attributes in relation with the top five factors, which we name as *firm reputation*, *fanciness*, *scienciness*, *socialness*, and *distance*. To compute factor loadings, we first compute quarterly the correlations between each attribute and each factor, and then take time series averages. Top five factors are the factors that account for the most variance in the data. In each column, BAV's attributes are sorted with respect to their correlations with the corresponding factor. Factors are sorted with respect to the variation in the data that they explain. Sample period is from 2001 to 2014.

Correlations between imagery attributes and factors			
Factor 1 ("Firm reputation")		Factor 2 ("Fancy")	
classic	83%	chic	61%
customer centric	77%	upper class	50%
best brand	72%	differentiation	50%
outgoing	69%	arrogant	49%
cutting edge	68%	distant	49%
trustworthy	67%	prestigious	48%
worth more	67%	glamorous	48%
leader	66%	trendy	44%
reliable	65%	stylish	43%
superior	65%	energy	40%
good value	64%	unapproachable	39%
no nonsense	62%	unique	39%
cares customers	62%	dynamic	39%
down to earth	61%	daring	38%
high quality	61%	distinctive	37%
high performance	61%	different	34%
original	60%	innovative	28%
authentic	59%	sensuous	27%
up to date	59%	cutting edge	25%
friendly	59%	charming	20%
differentiation	56%	intelligent	20%
fun	56%	progressive	19%
straightforward	53%	independent	17%
distinctive	53%	social	13%
gaining in popularity	51%	energetic	12%
energetic	51%	up to date	11%
energy	51%	fun	10%
simple	51%	gaining in popularity	10%
carefree	51%	restrained	7%
social	50%	carefree	6%
kind	50%	authentic	5%
traditional	50%	high quality	4%
socially responsible	50%	high performance	2%
charming	49%	superior	1%
progressive	49%	rugged	-4%
dynamic	48%	worth more	-4%
chic	47%	outgoing	-6%
innovative	47%	tough	-8%
unique	46%	obliging	-9%
helpful	45%	socially responsible	-9%
obliging	42%	leader	-10%
trendy	40%	original	-12%
stylish	40%	kind	-13%
independent	40%	best brand	-14%
rugged	39%	friendly	-22%
daring	38%	classic	-23%
different	37%	healthy	-27%
sensuous	35%	cares customers	-27%
healthy	33%	straightforward	-29%
tough	33%	traditional	-30%
glamorous	32%	helpful	-31%
prestigious	32%	trustworthy	-39%
intelligent	31%	reliable	-41%
upper class	27%	no nonsense	-45%
restrained	21%	good value	-46%
distant	17%	simple	-49%
unapproachable	8%	customer centric	-50%
arrogant	1%	down to earth	-52%

Correlations between imagery attributes and factors

Factor 3 (“ <i>Sciency</i> ”)		Factor 4 (“ <i>Social</i> ”)		Factor 5 (“ <i>Distant</i> ”)	
intelligent	56%	outgoing	34%	distant	59%
superior	51%	independent	28%	unapproachable	45%
energy	35%	social	28%	arrogant	43%
progressive	34%	gaining in popularity	28%	independent	31%
tough	32%	friendly	25%	restrained	26%
dynamic	29%	obliging	21%	socially responsible	24%
leader	29%	kind	21%	obliging	23%
innovative	27%	cutting edge	19%	upper class	22%
high performance	27%	distant	18%	prestigious	20%
cutting edge	24%	fun	18%	cares customers	20%
helpful	24%	different	16%	traditional	19%
up to date	18%	unapproachable	14%	straightforward	17%
distant	12%	helpful	14%	kind	15%
independent	11%	socially responsible	12%	customer centric	14%
reliable	11%	arrogant	12%	glamorous	13%
socially responsible	11%	restrained	12%	helpful	13%
trustworthy	10%	carefree	10%	sensuous	13%
daring	8%	cares customers	9%	social	10%
unapproachable	6%	innovative	9%	trustworthy	9%
restrained	5%	energetic	8%	chic	7%
straightforward	4%	straightforward	8%	leader	7%
arrogant	4%	simple	7%	friendly	7%
customer centric	4%	daring	5%	charming	6%
prestigious	3%	up to date	4%	no nonsense	5%
energetic	3%	progressive	3%	down to earth	3%
rugged	2%	down to earth	3%	healthy	3%
obliging	2%	sensuous	3%	carefree	2%
gaining in popularity	1%	intelligent	2%	reliable	1%
best brand	0%	no nonsense	2%	intelligent	-1%
cares customers	0%	charming	2%	stylish	-1%
authentic	-1%	healthy	2%	simple	-2%
upper class	-1%	customer centric	1%	outgoing	-2%
high quality	-2%	unique	0%	superior	-4%
distinctive	-3%	energy	-1%	rugged	-4%
no nonsense	-3%	good value	-1%	worth more	-5%
different	-4%	differentiation	-3%	daring	-5%
traditional	-5%	trendy	-5%	authentic	-5%
worth more	-5%	dynamic	-5%	high performance	-6%
unique	-6%	superior	-7%	classic	-6%
kind	-7%	original	-7%	energetic	-6%
original	-7%	leader	-8%	progressive	-7%
differentiation	-7%	authentic	-9%	best brand	-7%
classic	-7%	glamorous	-10%	gaining in popularity	-8%
good value	-10%	distinctive	-12%	distinctive	-8%
down to earth	-10%	best brand	-13%	good value	-8%
sensuous	-14%	reliable	-14%	up to date	-8%
social	-15%	trustworthy	-15%	high quality	-8%
healthy	-15%	traditional	-17%	tough	-9%
simple	-19%	rugged	-19%	trendy	-12%
glamorous	-19%	chic	-20%	original	-13%
carefree	-21%	stylish	-21%	different	-17%
friendly	-23%	upper class	-23%	unique	-17%
stylish	-27%	prestigious	-23%	cutting edge	-18%
trendy	-28%	high performance	-24%	differentiation	-18%
chic	-29%	worth more	-24%	dynamic	-22%
charming	-33%	classic	-30%	fun	-22%
outgoing	-34%	tough	-36%	innovative	-30%
fun	-35%	high quality	-51%	energy	-33%

Table 4.2: Firms' strongest imagery attributes

This table presents strongest imagery attribute of each firm in BAV's sample. Each firm is listed under the attribute, in which it receives its highest average score across time. AMERICAN GREETINGS CORP, for example, received its highest average score in attribute "*Charming*". No firm received highest score in *Authentic, Best Brand, Carefree, Differentiation, Distinctive, Dynamic, No Nonsense, Obliging, Prestigious, Progressive, Straightforward, and Worth More*. Sample period is from 2001 to 2014.

<i>Arrogant</i>	A O L INC; ALTRIA GROUP INC; CAPITAL ONE FINANCIAL CORP; CHARTER COMMUNICATIONS INC; CITIGROUP INC; COMCAST CORP NEW; EXXON MOBIL CORP; JPMORGAN CHASE & CO; M C I INC; PHILIP MORRIS COS INC
<i>Cares Customers</i>	A F L A C INC; ALLSTATE CORP; WASHINGTON MUTUAL INC
<i>Charming</i>	AMERICAN GREETINGS CORP
<i>Chic</i>	BEBE STORES INC; BED BATH & BEYOND INC; FEDERATED DEPT STORES INC DEL; J JILL GROUP INC; MACYS INC; MOVADO GROUP INC; RALPH LAUREN CORP; ZALE CORP NEW
<i>Classic</i>	CAMPBELL SOUP CO; CLOROX CO; COCA COLA CO; HEINZ H J CO; HERSHEY CO; HERSHEY FOODS CORP; KRAFT FOODS INC; LA Z BOY INC; OWENS CORNING; PEPSICO INC; TUPPERWARE CORP
<i>Customer Centric</i>	C V S CORP; COLGATE PALMOLIVE CO; FEDEX CORP; HOME DEPOT INC; JOHNSON & JOHNSON; LOWES COMPANIES INC; MIDAS INC; O REILLY AUTOMOTIVE INC NEW; OFFICE DEPOT INC; PROCTOR & GAMBLE CO; RADIOSHACK CORP; RITE AID CORP; STAPLES INC; TRACTOR SUPPLY CO NEW; UNITED PARCEL SERVICE INC; WALGREEN CO
<i>Cutting Edge</i>	AMAZON COM INC; C D W CORP; EBAY INC; FOX ENTERTAINMENT GROUP INC; METROPCS COMMUNICATIONS INC; YAHOO INC
<i>Daring</i>	BLACKROCK INC; NAPSTER INC
<i>Different</i>	JONES SODA CO; POLYCOM INC
<i>Distant</i>	A O L TIME WARNER INC; AETNA INC NEW; AMERICAN INTERNATIONAL GROUP INC; BANK OF AMERICA CORP; BELLSOUTH CORP; C I G N A CORP; CABLEVISION SYSTEMS CORP; CIGNA CORP; COMPUWARE CORP; CONOCOPHILLIPS; COX COMMUNICATIONS INC NEW; DISH NETWORK CORPORATION; EQUIFAX INC; FIFTH THIRD BANCORP; FLEETBOSTON FINANCIAL CORP; HALLIBURTON COMPANY; M B N A CORP; NET2PHONE INC; P N C FINANCIAL SERVICES GRP INC; PROVIDIAN FINANCIAL CORP; QWEST COMMUNICATIONS INTL INC; REYNOLDS AMERICAN INC; REYNOLDS R J TOBACCO HLDGS INC; SPIRIT AIRLINES INC; SPRINT CORP; SUNTRUST BANKS INC; TIME WARNER CABLE INC; TUMI HOLDINGS INC; WELLS FARGO & CO NEW
<i>Down To Earth</i>	WEIS MARKETS INC
<i>Energetic</i>	LULULEMON ATHLETICA INC; SPORTS AUTHORITY INC NEW
<i>Energy</i>	KAYAK SOFTWARE CORP; TEKTRONIX INC; VIACOM INC NEW
<i>Friendly</i>	ALASKA AIRGROUP INC; APPLEBEES INTERNATIONAL INC; BJS RESTAURANTS INC; CONTINENTAL AIRLINES INC; CRACKER BARREL OLD COUNTRY STORE; DELTA AIR LINES INC; DENNYS CORP; DUNKIN BRANDS GROUP INC; JACK IN THE BOX INC; KEYCORP NEW; KROGER COMPANY; MCDONALDS CORP; NORTHWEST AIRLINES CORP; PAPA JOHNS INTL INC; PEETS COFFEE AND TEA INC; PETCO ANIMAL SUPPLIES INC; PETSMART INC; RED ROBIN GOURMET BURGERS INC; RUBY TUESDAY INC; SAFEWAY INC; SOUTHWEST AIRLINES CO; U S AIRWAYS GROUP INC NEW; WENDYS CO
<i>Fun</i>	BLOCKBUSTER INC; BUFFALO WILD WINGS INC; DISNEY WALT CO; DREAMWORKS ANIMATION S K G INC; ELECTRONIC ARTS INC; GAMESTOP CORP NEW; GYMBOREE CORP; KRISPY KREME DOUGHNUTS INC; LUCAS ENERGY INC; METRO GOLDWYN MAYER INC NEW; PANDORA MEDIA INC; PIXAR; SHUTTERFLY INC; SONIC CORP; TOOTSIE ROLL INDS INC; TOYS R US INC; TRAVELZOO INC; ZYNGA INC
<i>Gaining In Popularity</i>	DIRECTV; GROUPON INC; NETFLIX INC; OVERSTOCK COM INC DEL; PRICELINE COM INC; TICKETMASTER
<i>Glamorous</i>	AVON PRODUCTS INC; ELIZABETH ARDEN INC; OPENTABLE INC; REVLON INC
<i>Good Value</i>	B J S WHOLESALE CLUB INC; BEST BUY COMPANY INC; BIG 5 SPORTING GOODS CORP; BURGER KING HOLDINGS INC; COSTCO WHOLESALE CORP NEW; DOLLAR GENERAL CORP NEW; DOLLAR TREE INC; DOMINOS PIZZA INC; FAMILY DOLLAR STORES INC; HANESBRANDS INC; HORMEL FOODS CORP; JETBLUE AIRWAYS CORP; JUNO ONLINE SERVICES INC; KMART HOLDING CORP; KOHLS CORP; LUMBER LIQUIDATORS HOLDINGS INC; PAYLESS SHOESOURCE INC; PENNEY J C CO INC; TARGET CORP; WAL MART STORES INC
<i>Healthy</i>	ABBOTT LABORATORIES; BAUSCH & LOMB INC; BRISTOL MYERS SQUIBB CO; CHIQUITA BRANDS INTL INC; DEL MONTE FOODS CO; DOLE FOOD INC; EINSTEIN NOAH RESTAURANT GRP INC; G N C HOLDINGS INC; GENERAL MILLS INC; HUMANA INC; JENNY CRAIG INC; KELLOGG CO; MERCK & CO INC; NAUTILUS INC; NUTRISYSTEM INC; PACIFICARE HEALTH SYS INC DEL; PANERA

	BREAD CO; PFIZER INC; QUAKER OATS CO; RALSTON PURINA CO; SCHERING PLOUGH CORP; TYSON FOODS INC; UNITEDHEALTH GROUP INC; WEIGHT WATCHERS INTL INC NEW; WELLPOINT INC; WHOLE FOODS MARKET INC; WILD OATS MARKETS INC;
<i>Helpful</i>	ADVANCE AUTO PARTS INC; ANGIES LIST INC; ASK JEEVES INC; AUTOZONE INC; CLEARONE INC; DRUGSTORE COM INC; EXPEDIA INC DE; EXPRESS SCRIPTS HOLDING CO; EXPRESS SCRIPTS INC; GOOGLE INC; HOTJOBS COM LTD; MEDCO HEALTH SOLUTIONS INC; MONEYGRAM INTERNATIONAL INC; MONRO MUFFLER BRAKE INC; MONSTER WORLDWIDE INC; ORBITZ WORLDWIDE INC; PEP BOYS MANNY MOE & JACK; SAFECO CORP; SERVICEMASTER CO; TICKETMASTER; TICKETMASTER ENTERTAINMENT INC; TRIPADVISOR INC; WEBMD CORP; WEBMD HEALTH CORP; YELP INC
<i>High Performance</i>	PENNZOIL QUAKER STATE CO
<i>High Quality</i>	CALLAWAY GOLF CO; DREYERS GRAND ICE CREAM INC; MCCORMICK & CO INC; SHERWIN WILLIAMS CO; STRIDE RITE CORP; VALSPAR CORP
<i>Independent</i>	AVAYA INC; NORTHWEST AIRLINES CORP
<i>Innovative</i>	3COM CORP; ECHOSTAR CORPORATION; MONSANTO CO NEW; NEXTEL COMMUNICATIONS INC; PEREGRINE SYSTEMS INC; PLANTRONICS INC NEW; TIVO INC
<i>Intelligent</i>	ADOBE SYSTEMS INC; ADVANCED MICRO DEVICES INC; AMERIPRISE FINANCIAL INC; AMERITRADE HOLDING CORP; APPLE INC; BANK ONE CORP; BARNES & NOBLE INC; BORDERS GROUP INC; C A INC; C B S CORP NEW; CISCO SYSTEMS INC; COMMERCE BANCSHARES INC; COMPAQ COMPUTER CORP; COMPUTER ASSOCIATES INTL INC; DIEDRICH COFFEE INC; EARTHLINK INC; FRANKLIN RESOURCES INC; HONEYWELL INTERNATIONAL INC; I T T INDUSTRIES INC IND; INTEL CORP; IVILLAGE INC; JACKSON HEWITT TAX SERVICE INC; LEXMARK INTERNATIONAL INC NEW; LUCENT TECHNOLOGIES INC; MACROMEDIA INC; MCAFEE INC; N C R CORP NEW; NEW YORK TIMES CO; NEWS CORP; NOVELL INC; ORACLE CORP; PEOPLESOFT INC; PRINCIPAL FINANCIAL GROUP INC; PRODIGY COMMUNICATIONS CORP; PRUDENTIAL FINANCIAL INC; RAYTHEON CO; ROCKWELL AUTOMATION INC; ROCKWELL INTERNATIONAL CORP NEW; SANDISK CORP; SUN MICROSYSTEMS INC; SYMANTEC CORP; T D AMERITRADE HOLDING CORP; T ROWE PRICE GROUP INC; TEXAS INSTRUMENTS INC; THESTREET INC; UNISYS CORP; UNITED TECHNOLOGIES CORP; VERISIGN INC; VIACOM INC; WASHINGTON POST CO; WYETH
<i>Kind</i>	I D T CORP; RED HAT INC
<i>Leader</i>	A T & T INC; ALCOA INC; AVERY DENNISON CORP; BOISE CASCADE CORP; CHEVRON CORP NEW; DOW CHEMICAL CO; GENERAL MOTORS CORP; GEORGIA PACIFIC CORP; VISA INC
<i>Original</i>	DR PEPPER SNAPPLE GROUP INC; POLAROID CORP
<i>Outgoing</i>	CHEESECAKE FACTORY INC
<i>Reliable</i>	AMERICAN STANDARD COS INC DEL; AVIS BUDGET GROUP INC; ENERGIZER HOLDINGS INC; GILLETTE CO; HERTZ GLOBAL HOLDINGS INC; MAYTAG CORP; WHIRLPOOL CORP;
<i>Restrained</i>	QUEPASA CORP
<i>Rugged</i>	ARMSTRONG WORLD INDS INC NEW; BLACK & DECKER CORP; BRIGGS & STRATTON CORP; CATERPILLAR INC; COLUMBIA SPORTSWEAR COMPANY; DICKS SPORTING GOODS INC; EVERLAST WORLDWIDE INC; EXIDE TECHNOLOGIES; FORD MOTOR CO DEL; GOODRICH CORP; GOODYEAR TIRE & RUBBER CO; HARLEY DAVIDSON INC; RYDER SYSTEMS INC; SAMSONITE CORP NEW; TIMBERLAND CO; TORO COMPANY; UNDER ARMOUR INC
<i>Sensuous</i>	PLAYBOY ENTERPRISES INC
<i>Simple</i>	DIXIE GROUP INC
<i>Social</i>	ANHEUSER BUSCH COS INC; FACEBOOK INC; LINKEDIN CORP
<i>Socially Responsible</i>	AIR PRODUCTS & CHEMICALS INC; METLIFE INC; ST PAUL TRAVELERS COS INC; TRAVELERS COMPANIES INC; WASTE MANAGEMENT INC DEL
<i>Stylish</i>	AEROPOSTALE INC; CHEROKEE INC DEL NEW; CHICOS FAS INC; COLDWATER CREEK INC; D S W INC; EXPRESS INC; FINISH LINE INC; FOOT LOCKER INC; GUESS INC; J CREW GROUP INC; LANDS END INC; LINENS N THINGS INC; MAIDENFORM BRANDS INC; MOHAWK INDUSTRIES INC; NIKE INC; OAKLEY INC; OSHKOSH CORP; REEBOK INTERNATIONAL LTD; TALBOTS INC; ULTA SALON COSMETICS & FRAG INC; VENATOR GROUP INC
<i>Superior</i>	3M CO; BOEING CO; DELL COMPUTER CORP; DU PONT E I DE NEMOURS & CO; GENERAL DYNAMICS CORP; GENERAL ELECTRIC CO; HEWLETT PACKARD CO; INTERNATIONAL BUSINESS MACHS COR; LOCKHEED MARTIN CORP; MICROSOFT CORP; MINNESOTA MINING & MFG CO; MOTOROLA INC; MOTOROLA SOLUTIONS INC; NORTHROP GRUMMAN CORP; VERIZON

	COMMUNICATIONS INC; XEROX CORP
<i>Tough</i>	UNOCAL CORP
<i>Traditional</i>	GENERAL MOTORS CO; PHILLIPS 66; TEXACO INC
<i>Trendy</i>	ABERCROMBIE & FITCH CO; AMERICAN APPAREL INC; AMERICAN EAGLE OUTFITTERS INC NE; CARIBOU COFFEE CO INC; CHIPOTLE MEXICAN GRILL INC; CROCS INC; FOSSIL INC; GAP INC; H S N INC NEW; HOT TOPIC INC; K SWISS INC; P F CHANGS CHINA BISTRO INC; PIER 1 IMPORTS INC DE; SHARPER IMAGE CORP; SKECHERS U S A INC; SPORTS AUTHORITY INC; STARBUCKS CORP
<i>Trustworthy</i>	KIMBERLY CLARK CORP; WESTERN UNION CO
<i>Unapproachable</i>	COSI INC; FAIR ISAAC CORP
<i>Unique</i>	TESLA MOTORS INC; TREX COMPANY INC
<i>Up To Date</i>	ALLTEL CORP; CIRCUIT CITY STORES INC
<i>Upper Class</i>	AMERICAN EXPRESS CO; BLUEFLY INC; CROSS A T CO; ETHAN ALLEN INTERIORS INC; FLORSHEIM GROUP INC; GOLDMAN SACHS GROUP INC; HILTON HOTELS CORP; HYATT HOTELS CORP; MARRIOTT INTERNATIONAL INC NEW; MELLON FINANCIAL CORP; MERRILL LYNCH & CO INC; MORGAN STANLEY DEAN WITTER & CO; NEIMAN MARCUS GROUP INC; NORDSTROM INC; OPPENHEIMER HOLDINGS INC; RESTORATION HARDWARE INC; SAKS INC; TIFFANY & CO NEW; WILLIAMS SONOMA INC; WYNDHAM INTL INC

Table 4.3: The most reputable and disreputable firms

This table lists the firms that receive the highest and the lowest scores in our reputational factors *firm reputation*, *elegance*, *intelligence*, *friendliness* and *hubris*. To identify these firms, we run factor analysis on BAV's imagery attributes every quarter from 2001 to 2014. A firm's quarterly score in a given factor is computed by adding that firm's score in each imagery attribute and using factor loadings as weights. Last column takes an equally-weighted average of imagery attributes. This summation is done every quarter to calculate each firm's quarterly score in each factor. Each firm's quarterly scores are then averaged across time. WALT DISNEY, for example, received the highest score in our first factor, *firm reputation*, and ORACLE received the lowest. For the last column, in order to compute average score across all attributes, we drop firms with less than 3 years of data.

<u>Highest</u>	<u>Firm reputation</u>	<u>Firm Elegance</u>	<u>Firm Intelligence</u>	<u>Firm Socialness</u>	<u>Firm Hubris</u>	<u>Average score across all attributes</u>
1	WALT DISNEY	SAKS INC	AMERITRADE	KEYCORP	ALLSTATE	HARLEY DAVIDSON
2	GOOGLE	TIFFANY & CO	MICROSOFT	CITIGROUP	CITIGROUP	WALT DISNEY
3	HARLEY DAVIDSON	ABERCROMBIE & FITCH	LOCKHEED MARTIN	JETBLUE AIRWAYS	AMERICAN EXPRESS	GOOGLE
4	WAL MART	POLO RALPH LAUREN	BOEING	ALLSTATE	GOLDMAN SACHS	NIKE
5	TARGET	STARBUCKS	INTEL	SPRINT	WELLS FARGO	YAHOO
6	MICROSOFT	GUESS	DELL	WEIGHT WATCHERS	NEW YORK TIMES	MICROSOFT
7	NIKE	GOLDMAN SACHS	IBM	YAHOO	AETNA INC	TARGET
8	COCA COLA	NORDSTROM	TEXAS INSTRUMENTS	WALMART	SAKS INC	WAL MART
9	HOME DEPOT	HARLEY DAVIDSON	NEW YORK TIMES	WALGREEN	KEYCORP	STARBUCKS
10	YAHOO	WILLIAMS SONOMA	VERIZON	MONSTER WORLDWIDE	NORDSTROM	COCA COLA
<u>Lowest</u>	<u>Firm reputation</u>	<u>Firm Elegance</u>	<u>Firm Intelligence</u>	<u>Firm Socialness</u>	<u>Firm Hubris</u>	<u>Average score across all attributes</u>
1	ORACLE	GENERAL MILLS	TOOTSIE ROLL INDS	TIMBERLAND	TIVO	AVAYA
2	CIGNA	KELLOGG	OSHKOSH	BRIGGS & STRATTON	SKECHERS	UNISYS
3	I T T INDUSTRIES	CHIQUITA BRANDS	REVLON	TORO COMPANY	INTEL	ZYNGA
4	ROCKWELL AUTOMATION	COLGATE PALMOLIVE	CHIQUITA BRANDS	GOODYEAR	NAUTILUS GROUP	TRAVELZOO
5	TRAVELERS COMPANIES	CLOROX	AMERICAN GREETINGS	TEXAS INSTRUMENTS	TEXAS INSTRUMENTS	DIEDRICH COFFEE
6	MONSANTO	SAFEWAY	SKECHERS	WILLIAMS SONOMA	ENERGIZER	COMPUWARE CORP
7	KEYCORP	CAMPBELL SOUP	PEPSICO	WHIRLPOOL	EBAY INC	UNITED TECHNOLOGIES
8	MORGAN STANLEY	WALGREEN	BED BATH & BEYOND	CATERPILLAR	ORACLE	JUNO ONLINE SERVICES
9	AMERITRADE	KRAFT FOODS	GAP	MINNESOTA MINING	PRICELINE GROUP	RED HAT
10	EARTHLINK	HEINZ	GENERAL MILLS	CLOROX	TOOTSIE ROLL INDS	ABBOTT LABORATORIES

Table 4.4: Products of firms with highest firm reputation scores

This table lists products and product categories of most reputable firms, i.e. firms with the highest *firm reputation* scores, listed in Table 3, Column 1. Product and category names are by BAV.

Panel A: Firms and their products	
WALT DISNEY	A&E, Disney, Disney Animated Movies, Disney Toys, ESPN, ESPN Full Court, ESPN Game Plan, ESPN Mobile, ESPN The Magazine, ESPN.com, ESPNZone, Go, Go.com, InfoSeek, Mickey Mouse, Miramax, The Disney Channel, Touchstone/Hollywood Pictures, Toy Story, Walt Disney Pictures, Winnie the Pooh
GOOGLE	Android by Google, Froogle, Gmail, Google, Google +, Google Buzz, Google Checkout, Google Chrome, Google Docs, Google Earth, Google Maps, Google Mobile, Google News, Google Offers, Google Talk, Google Wallet, Google Weather, Orkut, picasa, YouTube
HARLEY DAVIDSON	Buell Motorcycles, Harley-Davidson
WALMART	Canopy, Durabrand (Wal-Mart), Equate (Wal-Mart), Faded Glory, Great Value, Kid Connection, Mainstays (Wal-Mart), Ol' Roy, Puritan, Sam's Choice, Sam's Club, Special Kitty, Walmart, Wal-Mart Connect, Wal-Mart Organic, Wal-Mart Supercenter, Wal-Mart Tire and Lube Express, Walmart.com, Wal-Mart's Organic, White Stag
TARGET	Archer Farms, Gilligan & O'Malley, Market Pantry, Merona, Super Target, Target, Target Home, Target.com, Up & Up (Target)
MICROSOFT	.net Passport, Bing, Bing Mobile, Bing Shopping, Bing Travel, CarPoint.com, Halo, Hotmail.com, Kinect for Windows, Kinect for Xbox 360, Live.com, Microsoft, Microsoft Advertising, Microsoft Hardware, Microsoft Internet Explorer, Microsoft LifeCam, Microsoft Network (MSN), Microsoft Office, Microsoft Office Live, Microsoft Outlook, Microsoft SideWinder, Microsoft Windows, Microsoft.com, MSN, MSN Autos, MSN Carpoint, MSN Hotmail, MSN Internet Access, MSN Messenger, MSN Money, MSN Premium, MSN Search, MSN Shopping, MSN Spaces, MSN TV, MSN.com, MSN/Fox Sports, MSNBC.com, msnNow, passport.com, Pocket PC, Skype, Visual Studio, Windows 7, Windows Live, Windows Live Expo, Windows Live Hotmail, Windows Live Local, Windows Live Mail, Windows Live Messenger, Windows Live Search, Windows Mobile, Windows Phone, Windows Phone 7, Windows Server System, Windows Vista, Windows XP, Windows/Windows`95/'98, Xbox, Xbox 360, Xbox Live, Xbox Live Arcade, Xbox Music, Zune
NIKE	All Star, Chuck Taylor, Converse, Converse One Star, Eyetoy: Kinetic, Hurley, Jordan (Clothing), Nike, Nike +, Nike Basketball, Nike Fitness, Nike Football, Nike Golf, Nike Running, Nike Soccer, Nike Women, Niketown
COCA COLA	Barq's Root Beer, Coca-Cola, Coke Zero, Dasani, Diet Coke, Diet Sprite, Fanta, Fresca, Fresh Samantha, Fruitopia, Glacéau Vitamin Water, Gold Peak, Hi-C, Honest Tea, innocent, Minute Maid, Minute Maid Natural Energy, Odwalla, Pibb Xtra, Powerade, Simply Orange, Sprite, Sprite Zero, Surge (soft drink), Vanilla Coke, VitaminWater, vitaminwater Zero, ZICO
HOME DEPOT	Home Depot, HomeDepot.com
YAHOO	Broadcast.com, Flickr, flickr.com, GeoCities.com, Launch.com, MusicMatch, my Yahoo!, Overture, Rivals.com from Yahoo!, SBC Yahoo!, SBC Yahoo! Dial, Shine from Yahoo!, Tumblr, Yahoo Mobile, Yahoo!, Yahoo! Auctions, Yahoo! Autos, Yahoo! Entertainment, Yahoo! Finance, Yahoo! Games, Yahoo! GeoCities, Yahoo! Get Local, Yahoo! Hotjobs, Yahoo! Internet Life, Yahoo! Local, Yahoo! Mail, Yahoo! Maps, Yahoo! Messenger, Yahoo! Mobile, Yahoo! Movies, Yahoo! Music, Yahoo! News, Yahoo! Personals, Yahoo! Photos, Yahoo! Premium, Yahoo! Search, Yahoo! Shopping, Yahoo! Sports, Yahoo! Travel, Yahoo! Yellow Pages
Panel B: Firms and their product categories	
WALT DISNEY	Cable Companies, Film Studios & Entertainment Companies, Internet Information Sites, Internet Search, Magazines & Newspapers (Sports), Mobile Entertainment, Movie Franchises, Specialty Retail Stores, Television Stations, Toys
GOOGLE	Internet Commerce Service, Internet Communication, Internet Information Sites, Internet News/Information, Internet Tools and Services, Mobile & Cellular Phones/Pagers, Mobile Software
HARLEY DAVIDSON	Motorcycles
WALMART	Auto Repair Centers, Cooking Oils and Sprays Butter & Margarine, Department Stores & Mass Merchandisers, Home Design, Internet Service Providers, Pet Products, Private Label, Sports & Casual Clothing, Toys
TARGET	Canned or Jarred Food, Department Stores & Mass Merchandisers, Home Design, Private Label, Salsas, Sports & Casual Clothing, Underclothing
MICROSOFT	Computers and Computer Related Products, Consumer Electronics such as Stereos TVs and VCRs, Internet Commerce Service, Internet Commerce Sites, Internet Communication, Internet Information Sites, Internet News/Information, Internet Portal, Internet Search, Internet Service Providers, Internet Tools and Services, Mobile Software, Video Games
NIKE	Clothing and Footwear Retail, Shoes, Sport & Leisure Shoes, Sporting Equipment, Sports & Casual Clothing, Video Games
COCA COLA	Bottled Waters, Carbonated Soft Drinks, Diet Fitness & Health Products, Fruit & Vegetable Drinks including Juices & Punches, Infused Water, Mineral & Sparkling Waters, Tea
HOME DEPOT	Specialty Retail Stores
YAHOO	Internet Commerce Service, Internet Commerce Sites, Internet Information Sites, Internet News/Information, Internet Search, Internet Service Providers, Internet Tools and Services, Magazines & Newspapers (Computers), Mobile Software

Table 4.5: Product reputations of firms in BAV sample

This table presents imagery attributes of products that are produced by firms across our *firm reputation* portfolios. For each firm, we first compute a weighted-average score of its products in each attribute. Weights are respondents' percentage usage of each product. We then compute portfolio averages across firms. This is done by taking time-series averages of portfolio medians. Products of portfolio 5 firms received, for example, an average score of 78.83 in BAV's imagery attribute "*worth more*". Sample period is from 2001 to 2014.

Imagery attributes of firms' products	Portfolios are formed using <i>firm reputation</i>					
	Low	2	3	4	High	High - Low
<i>Classic (Product recognition)</i>	20.14	41.33	58.98	72.56	80.97	60.83
<i>Best Brand (Product leadership)</i>	23.12	38.95	58.19	73.22	81.55	58.43
<i>Worth More (Product value for money)</i>	25.72	42.71	60.29	71.58	78.83	53.12
<i>Outgoing</i>	20.70	35.66	50.63	62.13	71.87	51.17
<i>Knowledge</i>	31.99	50.10	61.78	75.24	80.84	48.85
<i>Original</i>	20.42	32.34	45.70	60.44	68.08	47.66
<i>High Quality</i>	29.91	44.68	63.86	72.74	76.79	46.88
<i>Down To Earth</i>	27.12	39.22	50.77	66.04	72.51	45.38
<i>Good Value</i>	31.73	45.10	59.69	71.13	77.10	45.37
<i>No Nonsense</i>	25.38	35.39	48.00	62.05	70.47	45.09
<i>Authentic</i>	24.15	36.12	49.90	62.43	69.01	44.86
<i>Cutting Edge</i>	38.71	49.34	58.62	70.04	81.68	42.96
<i>Friendly</i>	31.92	46.62	59.84	70.65	74.64	42.71
<i>Fun</i>	22.63	34.48	46.93	56.49	65.07	42.43
<i>Customer Centric</i>	36.05	49.61	60.68	73.01	78.31	42.26
<i>Leader</i>	42.65	55.76	67.51	77.25	82.72	40.07
<i>Up To Date</i>	44.34	57.21	67.18	76.53	83.93	39.59
<i>High Performance</i>	37.84	48.09	58.93	69.14	77.34	39.50
<i>Distinctive</i>	27.25	37.93	50.81	58.39	66.25	39.01
<i>Trustworthy</i>	39.23	50.32	60.99	72.78	78.22	38.99
<i>Reliable</i>	39.77	50.89	61.41	72.87	77.90	38.13
<i>Gaining In Popularity</i>	38.16	47.93	56.29	63.36	74.33	36.16
<i>Trendy</i>	30.33	45.43	56.62	58.31	66.16	35.84
<i>Cares About Customers</i>	42.05	55.97	66.80	74.10	77.22	35.17
<i>Superior</i>	47.27	55.64	63.73	74.36	81.95	34.68
<i>Energetic</i>	34.39	41.94	50.13	58.06	68.88	34.49
<i>Social</i>	28.88	39.76	48.86	55.25	63.20	34.33
<i>Simple</i>	31.68	39.56	48.74	60.10	65.51	33.83
<i>Carefree</i>	24.83	33.31	41.37	51.27	58.36	33.53
<i>Straightforward</i>	37.12	45.10	54.53	64.67	70.44	33.32
<i>Unique</i>	26.57	35.80	44.65	50.13	59.58	33.01
<i>Chic</i>	29.13	40.42	50.81	55.49	61.90	32.77
<i>Energy</i>	41.12	46.43	51.49	60.09	73.35	32.23
<i>Stylish</i>	31.09	41.68	51.78	54.85	63.09	32.00
<i>Traditional</i>	32.96	41.90	50.61	60.30	64.31	31.35
<i>Kind</i>	33.10	42.00	48.77	60.28	64.33	31.23
<i>Charming</i>	26.05	38.13	47.43	55.00	57.23	31.17
<i>Progressive</i>	50.37	56.09	60.06	70.42	81.08	30.70
<i>Innovative</i>	46.05	48.29	52.92	62.70	76.14	30.09
<i>Dynamic</i>	41.03	46.23	51.04	56.86	68.54	27.51
<i>Socially Responsible</i>	43.36	50.34	55.98	61.39	68.70	25.34
<i>Tough</i>	47.39	50.89	54.18	59.47	70.26	22.87
<i>Obliging</i>	47.24	53.32	59.35	63.60	67.53	20.29
<i>Different</i>	33.11	38.57	42.23	46.09	53.20	20.10
<i>Helpful</i>	49.50	55.85	57.14	63.33	68.85	19.34
<i>Rugged</i>	36.71	41.02	46.36	51.63	55.24	18.52
<i>Daring</i>	39.11	42.78	45.28	48.07	57.61	18.50
<i>Healthy</i>	28.36	31.90	36.23	41.95	45.76	17.40
<i>Sensuous</i>	34.67	40.83	44.70	48.11	50.67	16.00
<i>Glamorous</i>	36.84	41.54	47.30	48.76	52.63	15.79
<i>Independent</i>	55.31	58.45	61.71	64.57	70.66	15.36
<i>Prestigious</i>	47.97	50.86	53.91	54.98	58.20	10.23
<i>Intelligent</i>	62.58	59.08	58.51	62.34	71.62	9.03
<i>Upper Class</i>	52.66	57.12	58.56	55.32	58.22	5.56
<i>Distant</i>	63.71	62.35	58.13	53.59	57.97	-5.74
<i>Restrained</i>	54.89	51.96	49.55	49.41	47.85	-7.03
<i>Arrogant</i>	64.95	61.89	54.22	46.90	45.54	-19.41
<i>Unapproachable</i>	63.47	59.96	50.18	42.10	41.77	-21.70

Table 4.6: Summary statistics

This table reports summary statistics for firm-quarter observations in our sample spanning the period 2001-2014 (BAV, Compustat, CRSP). Panel A reports reputational characteristics, Panel B reports financial characteristics, and Panel C reports risk characteristics. Our portfolios are formed based on *firm reputation* scores, i.e. factor 1 scores from our factor analysis. Firm reputation score variable in Panel A presents these scores. Remaining variables in Panel A present imagery scores of products owned by firms across our portfolios. To compute these values, we first average across products of firms and then across firms in a given portfolio. Product recognition score denotes product scores in imagery attribute *Classic*. Product leadership score denotes product scores in imagery attribute *Best Brand*. Product value for money score denotes product scores in imagery attribute *Worth More*. Product product utilization shows the percentage of respondents that declare that they use the product in BAV's surveys. To compute product recognition, leadership and value for money scores for a given firm, we value-weight product scores in *Classic*, *Best Brand* and *Worth more* using the corresponding utilizations of its products. After we compute these firm-level product reputation values, we then take time-series averages of portfolio medians. Product product categories and sectors are both assigned by BAV. In Panel B, Tobin's Q is defined as in Gompers, Ishii and Metrick (2003). Market Capitalization is end of calendar year price multiplied by shares outstanding. Market to Book is end of year market capitalization over book value of equity. We define book value of equity as total shareholders' equity plus deferred taxes and investment tax credit minus the book value of preferred stock. If the required data are unavailable, we compute shareholders' equity as the sum of common and preferred equity. If neither of the two are available, we compute shareholders' equity as the difference between total assets and total liabilities. Firm Age is the number of days between end of fiscal year date and smallest end of fiscal year date of a given firm. Price to Earnings is end of quarter price divided by forward-looking earnings per share. Physical Capital to Assets is total property, plant and equipment divided by book value of assets. Debt to Assets is sum of debt in current liabilities and long term debt divided by book value of assets. R&D Expenses to Assets is research and development expenses divided by book value of assets. Return on Assets is sum of income before extraordinary items and depreciation and amortization divided by book value of assets (annualized). Sales to assets is total sales deflated by book value of assets. HHI for a given firm is Herfindahl-Hirschman index for the firm's 3-digit SIC code industry based on book value of assets. Number of industries is the number of different 3-digit SIC codes in a quintile portfolio. Advertising expenses to assets is advertising expenses deflated by book value of assets. Book intangibility is book value of intangible assets divided by book value of assets, and market intangibility is difference between market value of equity and book value of equity as a percentage of market value of equity. In Panel C, kurtosis, skewness, downside beta, upside beta and beta are computed using daily returns from the previous 250 trading days as in Ang, Chen, and Xing (2006). Downside (Upside) beta is market beta conditional on market excess return being lower (higher) than its average over the past 250 trading days. Downside beta (10pct) and Upside beta (90pct) are market betas conditional on market excess returns being lower and higher than the 10th and 90th percentile of the past 250 trading days. All numbers are time series averages of portfolio medians.

	Portfolios are formed using <i>firm reputation</i> scores				
	Low	2	3	4	High
<u>Panel A: Reputational characteristics</u>					
Firm reputation score	-1.24	-0.42	0.14	0.69	1.29
Product recognition score	20.14	41.33	58.98	72.56	80.97
Product leadership score	23.12	38.95	58.19	73.22	81.55
Product value for money score	25.72	42.71	60.29	71.58	78.83
Number of products	1.10	1.37	1.77	2.80	5.48
Number of product categories	1.00	1.01	1.15	1.87	2.66
Number of sectors	1.00	1.00	1.00	1.53	1.94
Product utilization	6.72%	14.42%	22.75%	33.69%	38.92%

Panel B: Financial characteristics

Tobin's Q	1.45	1.51	1.59	1.70	2.08
Market Capitalization	9.14	8.96	8.67	9.13	9.97
Market to Book	2.30	2.35	2.55	2.66	3.55
Firm Age	20.43	21.31	22.78	26.43	30.07
Price to Earnings	14.11	14.46	15.94	17.84	18.23
Physical Capital to Assets	0.37	0.52	0.60	0.57	0.52
Debt to Assets	0.18	0.20	0.21	0.21	0.22
R&D Expenses to Assets	0.90%	0.42%	0.23%	0.32%	0.52%
Return on Assets	8.47%	9.49%	10.21%	10.52%	12.21%
Sales to Assets	16.75%	22.81%	27.18%	28.53%	28.51%
HHI	0.04	0.04	0.05	0.05	0.06
Number of Industries	24.00	28.27	29.33	29.67	27.65
Advertising Expenses to Assets	1.74%	2.62%	3.34%	3.18%	2.88%
Book Intangibility	11.36%	10.39%	11.23%	15.06%	11.55%
Market Intangibility	53.23%	56.40%	59.08%	61.03%	70.66%

Panel C: Risk characteristics

	Low	2	3	4	High
Kurtosis	6.06	6.09	6.17	6.10	5.98
Skewness	0.14	0.16	0.16	0.16	0.18
Downside beta	1.11	1.08	1.03	0.98	0.92
Upside beta	1.11	1.04	1.04	1.00	0.94
Beta	1.12	1.09	1.05	1.00	0.95
Downside beta - Beta	-0.01	-0.01	-0.01	-0.01	0.00
Upside beta - Beta	0.00	-0.02	0.00	0.01	0.00
Downside beta (10pct)	1.09	1.10	1.11	1.01	0.94
Upside beta (90pct)	1.13	1.08	1.06	1.00	0.95

Table 4.7: Transitions across firm-reputation portfolios

This table reports quarterly portfolio transitions in our sample spanning the period 2001-2014. It shows the percentage of firms that transit from and to various portfolios. We assign each firm to a quintile portfolio in quarter t based on its $t-1$ *firm reputation* score, i.e. its factor 1 score from factor analysis. Firms transition to “Dropped” portfolio if their BAV data is unavailable.

Portfolio ($t+1$)	Portfolio (t)				
	Low	2	3	4	High
Low	45.5%	23.1%	10.4%	4.3%	2.5%
2	25.1%	32.5%	21.9%	9.6%	3.1%
3	10.4%	24.1%	31.4%	20.5%	7.1%
4	4.7%	10.2%	21.9%	36.6%	21.8%
High	2.8%	2.9%	7.8%	22.8%	60.9%
Dropped	11.5%	7.2%	6.6%	6.3%	4.5%

Table 4.8: Valuation ratios and firm reputation

This table reports firm-level quarterly Fama-MacBeth regressions of valuation ratios. Firms are sorted into quintile portfolios based on their *firm reputation* scores, i.e. their factor 1 scores from factor analysis. Tobin's Q, market to book ratio, price to earnings ratio, sales to assets ratio, *firm reputation* and control variables are defined in Table 6's caption. Portfolio 1 is the omitted category in columns 5-8. T-statistics are based on Newey-West (1987) standard errors in parentheses. Sample period is 2001 to 2014. ***, **, or * indicates that the coefficient estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	(1) Q	(2) M/B	(3) P/E	(4) SALES/AT	(5) Q	(6) M/B	(7) P/E	(8) SALES/AT
Firm Reputation	0.191*** (15.10)	0.175*** (23.46)	0.078*** (7.41)	0.018*** (13.41)				
Portfolio 2 Indicator					0.043** (2.03)	0.087*** (2.98)	0.058 (1.58)	0.024*** (4.96)
Portfolio 3 Indicator					0.105*** (4.27)	0.151*** (5.15)	0.082** (2.27)	0.049*** (7.53)
Portfolio 4 Indicator					0.203*** (7.70)	0.257*** (10.90)	0.137*** (3.67)	0.045*** (9.99)
Portfolio 5 Indicator					0.573*** (15.92)	0.532*** (20.24)	0.236*** (6.87)	0.055*** (13.35)
Intercept	2.821*** (10.84)	1.146*** (5.04)	3.935*** (20.44)	0.489*** (31.13)	2.692*** (10.14)	0.995*** (4.48)	3.849*** (19.01)	0.489*** (31.13)
Controls: Log(Firm Age), Log(Book value)	Y	Y	Y	Y	Y	Y	Y	Y
Observations	7,802	7,802	6,670	7,785	7,802	7,802	6,670	7,785
R-squared	0.174	0.126	0.087	0.309	0.202	0.149	0.109	0.324

Table 4.9: Tobin's Q, firm reputation and product reputation

This table reports firm-level quarterly Fama-MacBeth regressions of Tobin's Q on firm and product reputation characteristics. Firms are sorted into quintile portfolios based on their *firm reputation* scores, i.e. their factor 1 scores from factor analysis. BR dummy denotes whether a given firm in portfolio X has higher *product recognition*, *product leadership* or *product value for money* score than the median firm score in portfolio X. Tobin's Q, firm reputation, product reputation and control variables are defined in Table 6's caption. Portfolio 1 is the omitted category. T-statistics are based on Newey-West (1987) standard errors in parentheses. Sample period is 2001 to 2014. ***, **, or * indicates that the coefficient estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	(1) PR dummy equals <i>product recognition</i> dummy	(2) PR dummy equals <i>product leadership</i> dummy	(3) PR dummy equals <i>product value for</i> <i>money</i> dummy
	Q	Q	Q
Portfolio 2 Indicator	0.118*** (3.77)	0.160*** (4.92)	0.147*** (3.74)
Portfolio 3 Indicator	0.134*** (5.74)	0.211*** (8.01)	0.195*** (7.45)
Portfolio 4 Indicator	0.301*** (7.56)	0.381*** (7.55)	0.406*** (7.05)
Portfolio 5 Indicator	0.793*** (12.92)	0.843*** (11.31)	0.907*** (12.79)
PR dummy	0.238*** (6.08)	0.228*** (4.99)	0.231*** (4.96)
Portfolio 2 Indicator x PR dummy	-0.090* (-1.96)	-0.176*** (-3.67)	-0.158*** (-3.28)
Portfolio 3 Indicator x PR dummy	-0.017 (-0.31)	-0.185*** (-3.26)	-0.143*** (-3.17)
Portfolio 4 Indicator x PR dummy	-0.060 (-1.04)	-0.226*** (-3.21)	-0.282*** (-3.62)
Portfolio 5 Indicator x PR dummy	-0.248*** (-3.43)	-0.354*** (-3.93)	-0.501*** (-5.76)
Controls: Intercept, Log(Firm Age), Log(Book Value)	Y	Y	Y
Observations	5,991	5,991	5,991
R-squared	0.255	0.255	0.255
Number of groups	49	49	49

Table 4.10: Risk-adjusted returns

This table shows risk-adjusted, value-weighted returns of each *firm reputation* quintile along with the difference between top and bottom quintiles. In Panel A, FFC alpha denotes abnormal returns according to the Fama-French-Carhart four-factor model as in Carhart (1997). FF 5-factor alpha denotes returns in excess of Fama and French (2015) factors. HXZ Q-Factors alpha denotes returns in excess of Hou, Xue, and Zhang (2015) factors, and SY M-Factors alpha denotes returns in excess of Stambaugh and Yuan (Forthcoming) factors. Returns in excess of industry benchmarks are returns in excess of value-weighted returns of corresponding industries formed according to 3-digit SIC codes. In Panel B, abnormal returns are measured according to FFC four-factor model with time-varying betas as in Ferson and Harvey (1999). The conditioning variables are dividend-price ratio, default spread, term spread and risk-free rate. The middle and bottom rows in Panel B use institutional market crash expectation index and individual market crash expectation index, respectively, as additional conditioning variables. T-statistics are based on standard errors, robust to conditional heteroscedasticity and serial correlation as in Newey and West (1987), and they are reported in parentheses. Sample period is 2001 to 2014. ***, **, * denotes statistical significance at 1%, 5% and 10% levels respectively.

	Portfolios are formed using firm reputation scores					
	Low	2	3	4	High	High - Low
<u>Panel A: Unconditional risk-adjusted returns</u>						
Excess returns	1.06 (0.19)	5.41 (1.05)	6.28 (0.98)	6.80 (1.57)	7.54* (1.73)	6.49** (2.41)
FFC alpha	-5.07*** (-3.31)	-0.94 (-0.61)	0.41 (0.20)	1.78 (1.07)	2.84* (1.90)	7.91*** (3.66)
FF 5-factor alpha	-5.71*** (-3.60)	0.09 (0.05)	1.10 (0.69)	1.73 (1.48)	0.38 (0.32)	6.10*** (2.63)
HXZ Q-Factors alpha	-5.89*** (-3.45)	-1.27 (-0.44)	0.50 (0.21)	2.00 (1.64)	1.66 (0.93)	7.55*** (3.11)
SY M-Factors alpha	-5.62*** (-3.67)	0.08 (0.04)	1.29 (0.85)	1.32 (1.10)	1.62 (0.96)	7.24*** (2.86)
Returns in excess of industry benchmarks	-3.42*** (-3.23)	1.31 (0.77)	1.05 (1.11)	0.65 (0.82)	0.64 (0.95)	4.06*** (3.41)
<u>Panel B: Conditional risk-adjusted returns</u>						
Time-varying betas	-6.41*** (-3.64)	1.28 (0.57)	3.96** (2.08)	2.40** (2.56)	3.83*** (4.17)	10.24*** (5.53)
Time-varying betas with institutional crash expectations	-6.43*** (-3.96)	1.36 (0.58)	3.48 (1.50)	1.95** (2.04)	3.73*** (3.85)	10.16*** (6.19)
Time-varying betas with Individual crash expectations	-6.48*** (-3.65)	1.36 (0.57)	3.75* (1.76)	2.24** (2.34)	4.01*** (3.82)	10.49*** (5.89)

Table 4.11: Two-way sorting using firm and product reputation scores

This table shows results from monthly regressions of risk-adjusted returns to reputable and disreputable firms. Firms are first sorted into portfolios with respect to their *firm reputation* scores, and within these portfolios they are sorted into two groups according to their *product reputation* score. *Firm reputation* is measured by firm-level factor 1 scores from factor analysis. Product reputation of a given firm is measured by its product recognition, product leadership and product value for money. Descriptions of these variables are in the caption of Table 6. High and Low portfolios correspond to the top and bottom 20% of firm reputation scores, and Medium portfolio corresponds to the rest. Risk-adjusted returns are in value-weighted form, and they are measured according to FFC four-factor model with time-varying betas as in Ferson and Harvey (1999). The conditioning variables used are dividend-price ratio, default spread, term spread and risk-free rate. T-statistics are based on standard errors, robust to conditional heteroscedasticity and serial correlation as in Newey and West (1987), and they are reported in parentheses. Sample period is 2001 to 2014. ***, **, * denotes statistical significance at 1%, 5% and 10% levels respectively.

Reputation of firms' products measured by:		<i>Firm reputation</i>				
		Low	Medium	High	High - Low	Spread
<i>Product recognition</i>	Low	-9.44***	1.19	3.78**	13.22***	
		(-2.70)	(0.72)	(2.29)	(3.48)	
	High	-4.17	3.21**	6.42***	10.59***	15.86***
		(-1.47)	(2.37)	(3.06)	(3.65)	(3.62)
	Difference	5.27	2.01	2.63		
		(1.16)	(1.00)	(1.46)		
		<i>Firm reputation</i>				
		Low	Medium	High	High - Low	Spread
<i>Product leadership</i>	Low	-5.38***	0.89	1.96	7.34**	
		(-2.70)	(0.46)	(1.12)	(2.37)	
	High	-10.22***	3.26***	7.62***	17.83***	12.99***
		(-2.78)	(2.79)	(4.15)	(4.17)	(4.04)
	Difference	-4.84	2.37	5.66***		
		(-1.18)	(1.07)	(2.59)		
		<i>Firm reputation</i>				
		Low	Medium	High	High - Low	Spread
<i>Product value for money</i>	Low	-7.46**	1.89	4.24***	11.70***	
		(-2.26)	(1.07)	(2.71)	(3.05)	
	High	-5.98**	2.58	4.46***	10.44***	11.92***
		(-2.19)	(1.55)	(2.81)	(2.83)	(3.45)
	Difference	1.48	0.69	0.22		
		(0.39)	(0.30)	-0.09		

Table 4.12: Tobin's Q, recessions, and crash expectations

This table reports panel regressions of Tobin's Q. Firms are sorted into quintile portfolios based on their *firm reputation* scores, i.e. their factor 1 scores from factor analysis. Tobin's Q, *firm reputation* and other control variables are defined in Table 6's caption. Shock is NBER recession in column 1, and respective market crash expectations of institutional and individual investors (Shiller, 2000) in columns 2 and 3. Portfolio 1 is the omitted category. All specifications include firm fixed effects. T-statistics are based on double-clustered standard errors by firm and year-quarter are in parentheses. Sample period is 2001 to 2014. ***, **, or * indicates that the coefficient estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	(1)	(2)	(3)
	Shock equals <i>Recession</i> <i>dummy</i>	Shock equals <i>Institutional</i> <i>Crisis Expectation</i>	Shock equals <i>Individual</i> <i>Crisis Expectation</i>
	Q	Q	Q
Portfolio 2 Indicator	-0.020 (-1.38)	0.044 (0.38)	-0.033 (-0.28)
Portfolio 3 Indicator	0.002 (0.13)	-0.019 (-0.18)	0.045 (0.31)
Portfolio 4 Indicator	-0.017 (-0.77)	0.053 (0.38)	0.180 (0.86)
Portfolio 5 Indicator	0.029 (0.86)	0.461* (1.90)	0.671** (2.05)
Shock	-0.083*** (-2.93)	-0.850*** (-5.68)	-1.151*** (-5.99)
Portfolio 2 Indicator x Shock	0.023 (0.58)	-0.094 (-0.52)	0.028 (0.17)
Portfolio 3 Indicator x Shock	-0.027 (-0.65)	0.027 (0.16)	-0.068 (-0.32)
Portfolio 4 Indicator x Shock	-0.068 (-1.63)	-0.119 (-0.56)	-0.305 (-1.00)
Portfolio 5 Indicator x Shock	-0.127** (-2.17)	-0.693* (-1.88)	-0.972** (-2.02)
Controls: Intercept, Log(Firm Age), Log(Book Value)	Y	Y	Y
Firm dummies	Y	Y	Y
Observations	7,802	7,802	7,802
R-squared	0.785	0.793	0.797

Table 4.13: Conditional risk-adjusted returns during recessions

This table shows results from monthly regressions of returns to each *firm reputation* quintile along with the difference between top and bottom quintiles. The quintile returns are value-weighted. Abnormal returns are specified as in equation (7) and measured according to the four-factor model with time-varying betas as in Ferson and Harvey (1999). The conditioning variables used in the regressions are dividend-price ratio, default spread, term spread and risk-free rate. The unconditional alpha and incremental alpha during recessions in the table corresponds to the first and second coefficients in equation (2), respectively. T-statistics are based on standard errors that are robust to conditional heteroscedasticity and serial correlation as in Newey and West (1987), and they are reported in parentheses. Sample period is 2001 to 2014. ***, **, * denotes statistical significance at 1%, 5% and 10% levels respectively.

	<i>Firm reputation</i>					
	Low	2	3	4	High	High - Low
Incremental alpha during recessions	-8.32*** (-2.78)	6.08 (0.95)	-7.54 (-0.95)	6.49 (1.62)	9.67** (2.17)	18.00*** (3.12)
Unconditional alpha	-5.09*** (-3.06)	0.31 (0.15)	5.16*** (2.73)	1.37 (1.28)	2.29** (2.05)	7.37*** (3.91)

Table 4.14: Returns to firm reputation and market sentiment

This table shows results from monthly regressions of abnormal returns to *firm reputation*. The abnormal returns (AR) are realized returns to the High - Low portfolio minus its expected returns, where expected returns are either given by the FFC four factor model with time-invariant betas as in Carhart (1997) or the Ferson and Harvey (1999) model with time-varying betas. Institutional and individual market crash expectation indices are one month lagged compared to abnormal returns, and they measure investors' expectation of a crash happening within the next 6 months. T-statistics are based on standard errors that are robust to conditional heteroscedasticity and serial correlation as in Newey and West (1987), and they are reported in parentheses. Sample period is 2001 to 2014. ***, **, * denotes statistical significance at 1%, 5% and 10% levels respectively.

	(1)	(2)
	AR according to <i>time-varying beta</i> <i>model</i>	AR according to <i>time-varying beta</i> <i>model</i>
Institutional crash expectation	29.99** (2.17)	
Individual crash expectation		30.65* (1.81)
Intercept	-8.82 (-1.08)	-10.18 (-0.91)
Observations	161	161
R-squared	0.010	0.007

Table 4.15: Return spreads from firm and product reputations in turbulent times

This table shows results from monthly regressions of abnormal returns to *firm reputation* and *product reputation*. Abnormal returns (AR) are realized returns to the value-weighted spread portfolio minus its expected returns, where expected returns are from by Ferson and Harvey (1999) model with time-varying betas. Spread is computed between firms with *high firm and product reputation* and firms with *low firm and product reputations*. Panels A, B and C regress abnormal returns on a recession dummy, along with institutional and individual crisis expectations. *Firm reputation* denotes factor 1 scores from factor analysis. Product reputation is one of *product recognition*, *leadership* or *value for money*. Descriptions for these items are in the caption of Table 6. Recession is contemporaneous to monthly abnormal returns and it denotes a dummy variable that equals 1 if the month of abnormal return falls in an NBER recession quarter. Institutional and individual market crash expectation indices are one month lagged compared to abnormal returns, and they measure investors' expectation of a crash happening within the next 6 months. T-statistics are based on standard errors that are robust to conditional heteroscedasticity and serial correlation as in Newey and West (1987), and they are reported in parentheses. Sample period is 2001 to 2014. ***, **, * denotes statistical significance at 1%, 5% and 10% levels respectively.

	(1)	(2)	(3)
	Return spread from <i>firm reputation & product recognition</i>	Return spread from <i>firm reputation & product leadership</i>	Return spread from <i>firm reputation & product value for money</i>
<u>Panel A: Recessions</u>			
Recession	19.09*** (3.07)	7.92* (1.71)	19.19*** (2.72)
Intercept	12.53*** (3.99)	11.61*** (4.21)	8.57*** (3.37)
Observations	149	149	149
R-squared	0.021	0.004	0.021
<u>Panel B: Institutional crisis expectations</u>	(4)	(5)	(6)
Institutional crisis expectation	40.36 (1.58)	21.51 (0.81)	53.89* (1.67)
Intercept	-9.80 (-0.67)	-0.68 (-0.04)	-22.33 (-1.15)
Observations	149	149	149
R-squared	0.006	0.002	0.010
<u>Panel C: Individual crisis expectations</u>	(7)	(8)	(9)
Individual crisis expectation	96.24*** (4.11)	55.25*** (2.99)	61.48* (1.75)
Intercept	-48.40*** (-3.31)	-23.90* (-1.94)	-29.13 (-1.29)
Observations	149	149	149
R-squared	0.023	0.009	0.009

Table 4.16: Analyst forecast errors during recessions

This table presents forecast errors of equity analysts over the business cycle. Firms are sorted into quintile portfolios based on their *firm reputation* scores, i.e. their factor 1 scores from factor analysis. Forecast error is defined as an earnings per share realization in quarter t+2 minus median EPS estimates of equity analysts in quarter t. Forecast error is scaled by one quarter lagged stock price in columns 1 and 3, and book value of assets per shares outstanding in column 2. Coefficients are multiplied by 1000. Recession denotes NBER recession in quarter t. Portfolio 1 is the omitted category. Control variables are defined in Table 6's caption. T-statistics are based on double-clustered standard errors by firms and years are in parentheses. ***, **, or * indicates that the coefficient estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	(1)	(2)	(3)
	FE / Price	FE / APS	FE / Price
Portfolio 2 Indicator	-0.322 (-0.46)	-0.364 (-0.79)	-0.117 (-0.25)
Portfolio 3 Indicator	0.075 (0.07)	-0.376 (-0.53)	-0.273 (-0.48)
Portfolio 4 Indicator	-0.561 (-0.68)	-0.378 (-0.64)	-0.684 (-0.99)
Portfolio 5 Indicator	-0.730 (-1.15)	-0.559 (-1.31)	0.187 (0.24)
Recession	-1.017 (-0.40)	-1.237 (-1.30)	-2.522 (-1.03)
Portfolio 2 Indicator x Recession	4.677*** (3.44)	1.040 (0.88)	5.711*** (2.75)
Portfolio 3 Indicator x Recession	1.004 (0.39)	0.473 (0.46)	2.832 (1.08)
Portfolio 4 Indicator x Recession	3.165 (1.34)	4.351** (2.24)	3.589 (1.26)
Portfolio 5 Indicator x Recession	5.851** (2.08)	2.720*** (3.33)	6.162* (1.95)
Intercept	-18.211** (-2.44)	-10.610** (-2.53)	1.486 (0.07)
Controls: Log(Size), Log(BM)	Y	Y	Y
Year dummies	Y	Y	Y
Firm dummies	N	N	Y
Observations	7,496	7,496	7,496
R-squared	0.033	0.032	0.198

Table 4.17: Analyst forecast errors and crisis expectations

This table presents forecast errors of equity analysts over the business cycle. Firms are sorted into quintile portfolios based on their *firm reputation* scores, i.e. their factor 1 scores from factor analysis. Forecast error is defined as an earnings per share realization in quarter t+2 minus median EPS estimates of equity analysts in quarter t. Portfolio 1 is the omitted category. Control variables are defined in Table 6's caption. T-statistics are based on double-clustered standard errors by firms and years are in parentheses. ***, **, or * indicates that the coefficient estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	(1)	(2)
	Shock equals <i>Institutional</i> <i>Crisis Expectation</i>	Shock equals <i>Individual</i> <i>Crisis Expectation</i>
	FE / Price	FE / Price
Portfolio 2 Indicator	-0.012** (-2.49)	-0.015** (-2.35)
Portfolio 3 Indicator	-0.007 (-1.31)	-0.011* (-1.73)
Portfolio 4 Indicator	-0.009*** (-3.01)	-0.012** (-2.29)
Portfolio 5 Indicator	-0.008** (-2.54)	-0.013** (-2.06)
Shock	-0.005 (-0.92)	-0.005 (-0.47)
Portfolio 2 Indicator x Shock	0.019*** (2.69)	0.022** (2.41)
Portfolio 3 Indicator x Shock	0.012 (1.32)	0.017* (1.74)
Portfolio 4 Indicator x Shock	0.015*** (2.71)	0.018** (2.13)
Portfolio 5 Indicator x Shock	0.012*** (2.73)	0.019** (2.01)
Intercept	-0.014 (-1.52)	-0.013** (-2.19)
Controls: Log(Size), Log(Book to market)	Y	Y
Year dummies	Y	Y
Observations	7,496	7,496
R-squared	0.031	0.032

Table 4.18: Product recognition, firm valuation and future performance

This table presents results from running Fama-Macbeth regressions on Tobin's Q, logged P/E ratio, future return on equity and volatility of future profitability. It reports time series averages of the first stage coefficients during NBER expansionary and recessionary periods. P1-P5 refer to dummies for quintile portfolios based on *firm reputation* scores, i.e. their factor 1 scores from factor analysis. Product recognition (PR) dummy denotes whether a given firm has a higher *Product recognition* score than the median firm score in its portfolio. Control variables are defined in Table 6's caption. T-statistics are based on standard errors that are robust to conditional heteroscedasticity and serial correlation as in Newey and West (1987), and they are reported in parentheses. ***, **, or * indicates that the coefficient estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	Q	P/E	ROE _{i,t+1}	$\varepsilon^2_{i,t+1}$
P2* Expansion	0.03 (0.50)	-0.02 (-0.48)	0.06 (0.34)	0.52 (1.32)
P3* Expansion	0.16*** (3.62)	0.10*** (2.65)	-0.05 (-0.14)	0.55 (1.56)
P4* Expansion	0.44*** (3.92)	0.24*** (4.78)	-0.37* (-1.69)	-0.08 (-0.76)
P5* Expansion	1.25*** (7.42)	0.31*** (6.04)	0.16 (0.72)	0.34 (0.83)
P2* Recession	0.29*** (5.42)	0.20*** (3.33)	0.16 (0.40)	2.95 (0.97)
P3* Recession	0.14* (1.93)	0.18** (2.53)	-0.72** (-2.27)	0.02 (0.05)
P4* Recession	0.43*** (3.96)	0.33*** (2.70)	-1.56* (-1.84)	1.05* (1.90)
P5* Recession	1.05*** (5.39)	0.41*** (9.76)	-0.04 (-0.10)	-0.42 (-1.05)
P2 * PR dummy * Expansion	0.07 (1.03)	0.05 (1.45)	0.34 (0.57)	0.06 (0.54)
P3 * PR dummy * Expansion	0.09 (1.04)	-0.06 (-1.52)	0.24 (0.58)	-0.50 (-1.44)
P4 * PR dummy * Expansion	0.02 (0.36)	-0.19*** (-4.01)	0.59 (1.24)	-0.43 (-1.14)
P5 * PR dummy * Expansion	-0.25 (-1.60)	-0.11* (-1.92)	0.04 (0.18)	0.06 (0.60)
P2 * PR dummy * Recession	0.02 (0.12)	0.04 (1.42)	0.26 (0.40)	-2.54 (-0.98)
P3 * PR dummy * Recession	0.06 (0.46)	-0.18*** (-2.59)	2.08*** (4.07)	0.13 (0.27)
P4 * PR dummy * Recession	0.05 (0.65)	-0.14 (-0.89)	2.70*** (3.11)	-0.79 (-1.18)
P5 * PR dummy * Recession	-0.31* (-1.77)	-0.18* (-1.73)	2.70*** (7.07)	0.93 (1.52)
PR dummy * Expansion	-0.14*** (-4.17)	-0.04 (-1.49)	-0.09 (-0.22)	
PR dummy * Recession	-0.03 (-0.44)	-0.02 (-0.54)	-1.52 (-1.60)	
Controls:				
Intercept, Log(Firm Age), Log(Book value)	Y	Y	N	N
Intercept, ROE, MB, DD, DB	N	N	Y	Y
Observations	5,991	5,991	7,430	7,430
R-squared	0.2767	0.2756	0.0405	0.006
Number of Quarters	49	49	49	

Table 4.19: Product leadership, firm valuation and future performance

This table presents results from running Fama-Macbeth regressions on Tobin's Q, logged P/E ratio, future return on equity and volatility of future profitability. It reports time series averages of the first stage coefficients during NBER expansionary and recessionary periods. P1-P5 refer to dummies for quintile portfolios based on *firm reputation* scores, i.e. their factor 1 scores from factor analysis. Product leadership (PL) dummy denotes whether a given firm has a higher *product leadership* score than the median firm score in its portfolio. Control variables are defined in Table 6's caption. T-statistics are based on standard errors that are robust to conditional heteroscedasticity and serial correlation as in Newey and West (1987), and they are reported in parentheses. ***, **, or * indicates that the coefficient estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	Q	P/E	ROE _{i,t+1}	$\varepsilon^2_{i,t+1}$
P2* Expansion	-0.03 (-0.59)	-0.07* (-1.89)	0.06 (0.34)	0.47 (1.35)
P3* Expansion	0.07 (1.25)	0.09*** (3.36)	-0.29 (-1.26)	0.28 (1.01)
P4* Expansion	0.31*** (4.19)	0.14*** (3.34)	-0.48 (-1.44)	-0.06 (-0.44)
P5* Expansion	1.12*** (5.63)	0.29*** (5.51)	0.09 (0.18)	0.26 (0.61)
P2* Recession	0.24*** (3.38)	0.07 (1.13)	0.22 (0.32)	-0.47 (-1.35)
P3* Recession	0.06 (1.55)	0.17** (2.28)	0.19 (0.43)	-0.17 (-0.51)
P4* Recession	0.20** (2.29)	0.17* (1.71)	-1.65 (-1.30)	1.10** (1.99)
P5* Recession	1.07*** (5.81)	0.41*** (12.93)	0.46 (0.80)	-0.28 (-0.68)
P2 * PL dummy * Expansion	0.17*** (4.13)	0.13*** (2.76)	-0.35 (-0.59)	-0.06 (-0.44)
P3 * PL dummy * Expansion	0.27** (2.00)	0.00 (0.02)	0.53* (1.77)	-0.51 (-1.61)
P4 * PL dummy * Expansion	0.24*** (4.13)	0.02 (0.55)	0.53* (1.80)	-0.02 (-0.05)
P5 * PL dummy * Expansion	-0.03 (-0.19)	-0.04 (-0.73)	-0.00 (-0.00)	-0.07 (-0.55)
P2 * PL dummy * Recession	0.16 (1.19)	0.20*** (4.60)	0.43 (0.51)	4.14 (1.17)
P3 * PL dummy * Recession	0.20*** (5.58)	-0.11*** (-3.12)	0.75 (1.64)	0.48 (1.37)
P4 * PL dummy * Recession	0.43*** (4.19)	0.18 (1.55)	2.96*** (2.72)	-0.84 (-1.25)
P5 * PL dummy * Recession	-0.33** (-2.21)	-0.25*** (-3.06)	2.02*** (4.35)	0.71 (1.10)
PL dummy * Expansion	0.02 (0.65)	0.07 (1.21)	0.13 (0.43)	
PL dummy * Recession	0.04 (0.41)	-0.03 (-0.97)	-1.52*** (-3.77)	
Controls:				
Intercept, Log(Firm Age), Log(Book value)	Y	Y	N	N
Intercept, ROE, MB, DD, DB	N	N	Y	Y
Observations	5,991	5,991	7,430	7,430
R-squared	0.2832	0.2449	0.0405	0.006
Number of Quarters	49	49	49	

Table 4.20: Product value for money, firm valuation and future performance

This table presents results from running Fama-Macbeth regressions on Tobin's Q, logged P/E ratio, future return on equity and volatility of future profitability. It reports time series averages of the first stage coefficients during NBER expansionary and recessionary periods. P1-P5 refer to dummies for quintile portfolios based on *firm reputation* scores, i.e. their factor 1 scores from factor analysis. Product value for money (PVFM) dummy denotes whether a given firm has a higher *product value for money* score than the median firm score in its portfolio. Control variables are defined in Table 6's caption. T-statistics are based on standard errors that are robust to conditional heteroscedasticity and serial correlation as in Newey and West (1987), and they are reported in parentheses. ***, **, or * indicates that the coefficient estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	Q	P/E	ROE _{i,t+1}	$\varepsilon^2_{i,t+1}$
P2* Expansion	-0.00 (-0.06)	-0.03 (-0.72)	-0.14 (-0.55)	0.18 (0.75)
P3* Expansion	0.12** (2.08)	0.07 (1.59)	0.02 (0.15)	0.48 (1.40)
P4* Expansion	0.44*** (3.30)	0.23*** (3.43)	-0.47*** (-2.77)	-0.07 (-0.45)
P5* Expansion	1.33*** (7.05)	0.34*** (8.11)	0.13 (0.69)	0.24 (0.61)
P2* Recession	0.31*** (4.21)	0.06 (1.48)	1.10** (2.04)	3.41 (1.01)
P3* Recession	0.12* (1.70)	0.12*** (2.62)	-0.02 (-0.04)	-0.02 (-0.05)
P4* Recession	0.55*** (4.50)	0.32** (1.98)	-1.04 (-1.33)	1.18** (2.25)
P5* Recession	1.14*** (6.80)	0.40*** (10.85)	0.55** (2.12)	-0.27 (-0.68)
P2 * PVFM dummy * Expansion	0.09 (1.26)	0.05** (2.11)	0.25 (0.54)	0.01 (0.09)
P3 * PVFM dummy * Expansion	0.14 (1.59)	0.02 (0.45)	0.10 (0.28)	0.07 (0.23)
P4 * PVFM dummy * Expansion	-0.05 (-0.43)	-0.15* (-1.92)	0.70 (1.37)	-0.37 (-0.99)
P5 * PVFM dummy * Expansion	-0.48*** (-2.69)	-0.15*** (-3.11)	0.06 (0.14)	-0.02 (-0.19)
P2 * PVFM dummy * Recession	0.04 (0.31)	0.27*** (10.80)	-1.12 (-0.72)	-3.29 (-1.02)
P3 * PVFM dummy * Recession	0.11 (1.04)	0.02 (0.44)	1.06 (0.62)	0.18 (0.41)
P4 * PVFM dummy * Recession	-0.18 (-1.17)	-0.06 (-0.34)	1.83*** (3.52)	-1.04* (-1.89)
P5 * PVFM dummy * Recession	-0.46*** (-4.16)	-0.16*** (-5.29)	1.88*** (3.20)	0.77 (1.45)
PVFM dummy * Expansion	-0.08*** (-2.69)	-0.05* (-1.76)	-0.12 (-0.32)	
PVFM dummy * Recession	-0.19** (-2.10)	-0.03 (-0.74)	-0.60 (-1.20)	
Controls:				
Intercept, Log(Firm Age), Log(Book value)	Y	Y	N	N
Intercept, ROE, MB, DD, DB	N	N	Y	Y
Observations	5,991	5,991	7,430	7,430
R-squared	0.3099	0.2663	0.0587	0.006
Number of Quarters	49	49	49	

Table 4.21: EPS surprises during recessions and expansions

This table presents forecast errors of equity analysts during NBER expansionary and recessionary periods. Firms are sorted into quintile portfolios based on their *firm reputation* scores, i.e. their factor 1 scores from factor analysis. Forecast error is defined as earnings per share realization in quarter t+2 minus median EPS estimates of equity analysts in quarter t, and it is scaled by one quarter lagged stock price. Coefficients in first, second and the last columns are multiplied by 1000. Portfolio 1 is the omitted category. Control variables are defined in Table 6's caption. T-statistics are based on double-clustered standard errors by firms and years are in parentheses. ***, **, or * indicates that the coefficient estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	BR equals <i>Product recognition</i>	BR equals <i>Product leadership</i>	BR equals <i>Product value for money</i>
P2* Expansion	-1.347 (-1.38)	-1.377 (-1.26)	-1.190 (-1.63)
P3* Expansion	-0.305 (-0.26)	0.208 (0.20)	-0.449 (-0.32)
P4* Expansion	-1.681*** (-2.69)	-0.490 (-0.58)	-1.947*** (-5.21)
P5* Expansion	-1.642*** (-2.60)	-1.486* (-1.96)	-1.799*** (-2.77)
P2* Recession	-7.170** (-2.52)	-2.426 (-0.66)	-5.604** (-2.31)
P3* Recession	-6.574** (-2.05)	-2.311 (-0.52)	-2.945 (-1.02)
P4* Recession	-4.913** (-2.01)	-5.558 (-1.04)	-4.736* (-1.70)
P5* Recession	-1.334 (-0.70)	0.997 (0.22)	-1.696 (-0.86)
P2* PR * Expansion	1.941 (0.98)	2.009 (1.60)	1.634 (1.13)
P3* PR * Expansion	1.374 (0.94)	0.413 (0.40)	1.625 (0.82)
P4* PR * Expansion	2.216 (1.35)	-0.045 (-0.05)	2.695** (2.14)
P5* PR * Expansion	1.978 (1.25)	1.675* (1.78)	2.239** (2.02)
P2* PR * Recession	18.747*** (2.79)	9.819 (1.10)	15.821** (2.55)
P3* PR * Recession	8.792 (1.47)	0.776 (0.14)	1.988 (0.63)
P4* PR * Recession	7.415 (1.38)	8.785 (1.41)	7.115* (1.68)
P5* PR * Recession	7.436** (2.26)	3.072 (0.62)	8.155** (2.17)
PR	-1.741 (-1.22)	-1.337 (-1.56)	-2.146 (-1.45)
Recession	6.262** (2.01)	2.741 (0.63)	5.475 (1.62)
PR * Recession	-7.636* (-1.87)	-1.035 (-0.26)	-6.184 (-1.57)
Controls:			
Intercept, SIZE, Log(BM)	Y	Y	Y
Observations	6,340	6,340	6,340
R-squared	0.037	0.036	0.037

Table 4.22: Institutional investor sentiment induced demand shifts

This table presents investor sentiment induced demand shifts for the top and bottom consumer reputation portfolios. Firms are sorted into quintile portfolios based on their *firm reputation* scores, i.e. their factor 1 scores from factor analysis. Panel A (B) presents results on the changes in institutional investors' long positions in portfolio 5 (1) from time t-1 to t and from t to t+1. We determine these changes by looking at the weight of a given portfolio among a given fund's total investments. We group institutional investors into five groups: mutual funds (IIA), investment companies (INV), bank trusts (BNK), insurance companies (INS) and pensions and endowments (PEN). In order to eliminate the mechanical impact of price changes on portfolio holdings of funds, we follow Addoum and Kumar (2015) and use average stock prices within +/- 12 months. T-statistics based on clustered standard errors at the fund-level are in parentheses. ***, **, or * indicates that the coefficient estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

Panel A: Portfolio 5 trades of institutional investors												
	Trades from t-1 to t						Trades from t to t+1					
	All	BNK	IIA	INS	INV	PEN	All	BNK	IIA	INS	INV	PEN
Institutional crash expectation	0.017*** (4.01)	0.011* (1.71)	0.022*** (4.27)	0.003 (0.16)	0.008 (0.44)	-0.008 (-0.66)	-0.112*** (-24.92)	-0.191*** (-25.02)	-0.103*** (-18.56)	-0.127*** (-7.01)	-0.106*** (-5.19)	-0.106*** (-8.43)
Constant	-0.012*** (-4.38)	-0.008** (-2.10)	-0.015*** (-4.58)	-0.003 (-0.21)	-0.006 (-0.52)	0.005 (0.63)	0.071*** (24.58)	0.120*** (24.70)	0.065*** (18.27)	0.079*** (6.95)	0.066*** (5.11)	0.066*** (8.40)
Observations	99,163	8,275	75,460	2,599	1,973	10,856	99,163	8,275	75,460	2,599	1,973	10,856
R-squared	0.027	0.005	0.029	0.005	0.016	0.026	0.030	0.023	0.031	0.011	0.021	0.029
Panel B: Portfolio 1 trades of institutional investors												
	Trades from t-1 to t						Trades from t to t+1					
	All	BNK	IIA	INS	INV	PEN	All	BNK	IIA	INS	INV	PEN
Institutional crash expectation	0.001 (0.25)	-0.028*** (-5.82)	0.006 (1.16)	-0.002 (-0.09)	0.039* (1.93)	-0.012 (-1.06)	-0.009** (-2.21)	-0.021*** (-3.45)	-0.011** (-2.11)	0.021 (1.03)	-0.006 (-0.23)	0.003 (0.26)
Constant	0.001 (0.25)	0.020*** (6.36)	-0.003 (-0.77)	0.004 (0.29)	-0.023* (-1.82)	0.009 (1.20)	0.007*** (2.71)	0.015*** (3.87)	0.008** (2.51)	-0.011 (-0.83)	0.005 (0.32)	-0.001 (-0.12)
Observations	99,163	8,275	75,460	2,599	1,973	10,856	99,163	8,275	75,460	2,599	1,973	10,856
R-squared	0.030	0.011	0.031	0.009	0.007	0.036	0.030	0.011	0.031	0.009	0.006	0.036

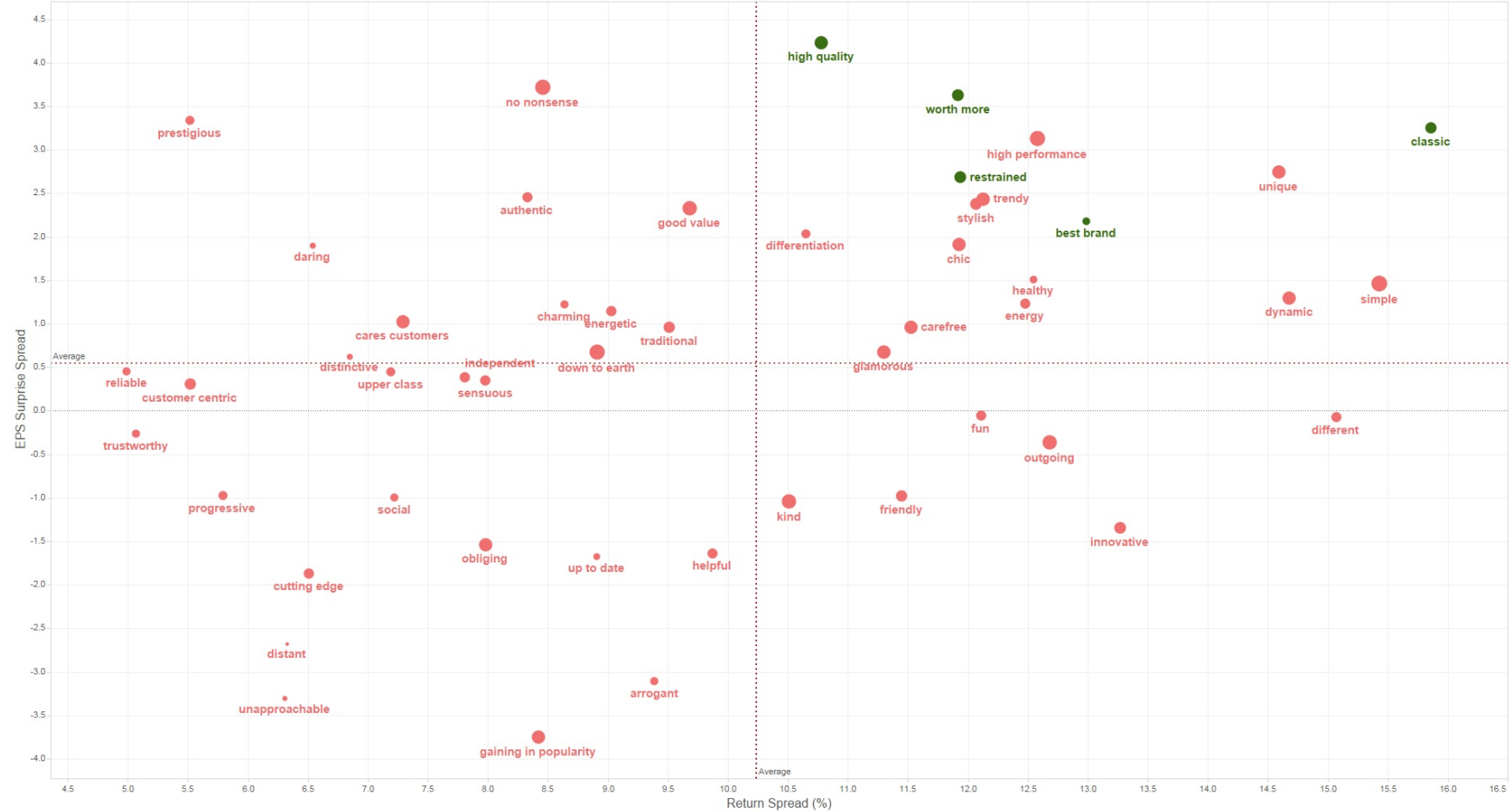
Table 4.23: Individual investor sentiment induced demand shifts

This table presents investor sentiment induced demand shifts for the top and bottom consumer reputation portfolios. Firms are sorted into quintile portfolios based on their *firm reputation* scores, i.e. their factor 1 scores from factor analysis. Panel A (B) presents results on the changes in institutional investors' long positions in portfolio 5 (1) from time t-1 to t and from t to t+1. We determine these changes by looking at the weight of a given portfolio among a given fund's total investments. We group institutional investors into five groups: mutual funds (IIA), investment companies (INV), bank trusts (BNK), insurance companies (INS) and pensions and endowments (PEN). In order to eliminate the mechanical impact of price changes on portfolio holdings of funds, we follow Addoum and Kumar (2015) and use average stock prices within +/- 12 months. T-statistics based on clustered standard errors at the fund-level are in parentheses. ***, **, or * indicates that the coefficient estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

Panel A: Portfolio 5 trades of institutional investors												
	Trades from t-1 to t						Trades from t to t+1					
	All	BNK	IIA	INS	INV	PEN	All	BNK	IIA	INS	INV	PEN
Individual	0.043***	0.079***	0.039***	0.058**	0.037*	0.043***	-0.023***	-0.029***	-0.023***	-0.012	-0.035*	-0.022*
crash expectation	(9.76)	(10.62)	(7.04)	(2.50)	(1.74)	(3.54)	(-5.44)	(-4.24)	(-4.31)	(-0.73)	(-1.69)	(-1.85)
Constant	-0.030***	-0.054***	-0.027***	-0.039**	-0.025*	-0.029***	0.015***	0.018***	0.015***	0.007	0.023	0.014*
	(-10.08)	(-10.93)	(-7.31)	(-2.55)	(-1.81)	(-3.57)	(5.10)	(3.90)	(4.03)	(0.66)	(1.62)	(1.81)
Observations	99,163	8,275	75,460	2,599	1,973	10,856	99,163	8,275	75,460	2,599	1,973	10,856
R-squared	0.027	0.007	0.029	0.006	0.016	0.026	0.027	0.005	0.028	0.005	0.016	0.026
Panel B: Portfolio 1 trades of institutional investors												
	Trades from t-1 to t						Trades from t to t+1					
	All	BNK	IIA	INS	INV	PEN	All	BNK	IIA	INS	INV	PEN
Individual	-0.028***	-0.058***	-0.025***	-0.022	0.027	-0.033***	0.009**	-0.018***	0.010*	0.025	0.035	0.015
crash expectation	(-6.54)	(-10.78)	(-4.73)	(-1.29)	(1.26)	(-2.65)	(2.07)	(-3.31)	(1.88)	(1.52)	(1.37)	(1.12)
Constant	0.020***	0.041***	0.018***	0.017	-0.017	0.023***	-0.005	0.014***	-0.005	-0.014	-0.022	-0.009
	(7.01)	(11.24)	(5.09)	(1.52)	(-1.16)	(2.77)	(-1.61)	(3.77)	(-1.52)	(-1.28)	(-1.29)	(-1.00)
Observations	99,163	8,275	75,460	2,599	1,973	10,856	99,163	8,275	75,460	2,599	1,973	10,856
R-squared	0.030	0.013	0.031	0.009	0.007	0.036	0.030	0.011	0.031	0.009	0.006	0.036

Figure 4.2: Spreads in returns and earnings surprises due to product reputations

This figure shows spreads in stock returns and earnings surprises due to *firm* and *product reputations*. For a given *imagery attribute X*, return spread is computed between portfolio 5 firms with higher *X* score than portfolio 5's median *X* score and portfolio 1 firms with lower *X* score than portfolio 1's median *X* score. In return spreads, we correct for risk using Ferson and Harvey (1999) model with time-varying betas. Earnings surprise spread denotes the difference in EPS surprises between the above portfolios. Earnings surprise is defined as earnings per share realization in quarter t+2 minus median EPS estimates of equity analysts in quarter t, and it is scaled by one quarter lagged stock price. Coefficients in the Y-axis are multiplied by 1000, and coefficients in the X-axis are annualized percentages. Imagery attributes that are statistically significant and that generate higher spreads in EPS surprise and returns than average are shown in green. Sizes of the dots increase with respect to the abnormal spread returns they generate during NBER recessions.



CONCLUSION

This dissertation consists of three essays which examine topics in political finance and consumer reputation.

In the first essay we provide a comprehensive analysis of the movement of individuals between senior government and corporate positions. We identify such revolving-door movements in the United States, and analyse how they affect the performance of U.S. corporations. Such an investigation is timely given the current public unease with revolving-door movements in and out of Washington DC. Unfortunately, there is limited empirical evidence on how revolving doors impact corporate employers' performance and their business with the government. Convincing evidence would therefore allow for a more objective and informed assessment of policy prescriptions regarding this issue. In this chapter we seek to contribute to filling the evidence gap on the conflicts of interest generated by revolving-door movements by investigating their influence on the allocation of government resources and the performance of publicly-listed corporations in the United States.

We show that corporations that end up hiring government officials in the future receive sizable government contracts today and outperform other firms in the stock market. Abnormal returns and government contracts to future employers of revolvers peak in the years prior to revolvers leaving the government to join the firms, having steadily increased until then, and they then decline after the revolvers start their corporate jobs. Furthermore, during these conflicted periods, firm managers exhibit superior information on firm earnings. More specifically, they forecast higher firm earnings than the analyst consensus, and they are correct in their forecasts.

Managers' ability to forecast unexpected (to the consensus) positive cash flows applies only to firms that receive government contracts and hire revolvers. Furthermore, this phenomenon emerges only during the government tenures of revolving-door employees. So, managers of firms that do not hire any revolving-door employees but receive government contracts, and managers of firms that hire revolving-door employees but do not receive any government contracts do not exhibit comparable optimism and precision in their forecasts.

Findings in this chapter are consistent with a view that some in government service could be favouring firms in order to gain future employment with them. This chapter therefore highlights the need to monitor, if not reform the institutional incentives surrounding revolving-door movements, so that public officials act in the public interest. It also highlights the need for a deeper understanding of the formal and informal relationships between governments and firms.

In the second essay I investigate how senior political representation in the United States House of Representatives systematically influences the government contract allocation process, causes investment spillovers and impacts firm

profitability and stock market returns. To analyse the spillover effects of government procurement, I use the seniority lottery as a source of exogenous variation in district-level government contracting. Democratic Caucus assigns seniority ranks to incoming House committee members based on chamber seniority. Incoming members to a given House committee with equal experience therefore cause seniority ties and clog the seniority ranking process. In these cases, Democratic Caucus breaks the ties with a seniority lottery (Kellerman and Shepsle, 2009). As a result, some legislators are randomly assigned higher ranked committee seats than their counterparts with equal chamber seniority. I use outcomes of this seniority lottery as exogenous shocks on government contract allocation to districts of lottery-winner legislators (lottery-winner districts) and lottery-loser legislators (lottery-loser districts). By doing so, I show that government procurement drives positive investment spillovers on local firms.

I also show that firms in lottery-winner districts exhibit higher future profitability and lower future cash flow volatility relative to firms in lottery-loser districts. Stock market prices lottery announcements, and starting from the month after the lottery, firms in lottery-winner districts outperform firms in lottery-loser districts. The outperformance is strongly driven by firms in lottery-winner districts with high government contract allocation in the previous month.

This chapter's findings have three main implications. First, consistent with strategic delegation theories, senior politicians drive government contracts to their home districts. In exchange, they receive higher votes. These results therefore confirm that a commitment mechanism exists between senior politicians and their

voters. This commitment mechanism is preserved, because parts of Federal Acquisition Regulations (FAR) allow senior legislators to follow in depth and influence federal procurement decisions⁹⁸. Providing stronger procurement privacy and curbing the influence of local politics on federal procurement decisions can therefore potentially help government contracts to be better allocated. Second, government procurement has profound spillover effects on corporate investments, and these investments prove to be very profitable. Therefore, the influence of local politics on government contracts also shapes the geography of corporate investment activity and profitability. Third, the geographic distribution of government procurement strongly influences stock market returns, and therefore should be of interest to the investors.

In the third essay we provide a comprehensive exploration of the link between a pivotal component of intangible assets, consumer reputation, and its market valuation. According to a number of studies, there has been a substantial shift in the composition of corporate assets from tangibles to intangibles, with the median market intangibility ratio of publicly traded US firms increasing from 20% in the 1960s to 60% in 2007, the proportion of market value of S&P 500 companies attributable to intangible assets rising from 10% to 84% between 1975 and 2015,

⁹⁸ Procurement officers must follow Federal Acquisition Regulations (FAR) while allocating government contracts. During these allocations, heads of government agencies give written notifications of proposed contracts to the Congress (Part 17, Subpart 10, Section 8). Members of Congress may request full documentation on bids, including information harmful to the competitiveness of the acquisition (Part 4, Subpart 40, Section 3). Members of Congress may also influence negotiation processes and have a significant effect on the action (Part 15, Subpart 40, Section 6 and Subsection 3). These are on top of the influence legislators may exert on procurement decisions, given the fact that procurement must still be authorized and appropriated (Authorization Act, Appropriation Act). See, <https://www.acquisition.gov/?q=browsefar>

and investment in intangible assets growing from 4% of US GDP in 1977 to 10% in 2006⁹⁹. Despite this pronounced increase in the scale of intangible assets and investments, we know very little about the determinants of their value and, in particular, about how the stock market values one of its most important components – consumer reputation. This chapter therefore aims to fill the evidence gap in the market valuation of consumer reputation.

Existing research in finance, economics, accounting, and marketing frequently uses firms' advertising expenses to proxy for consumer reputation¹⁰⁰. But advertising expenditure is neither a necessary nor a sufficient condition for consumer reputation¹⁰¹. It is merely an input and a very noisy measure of the output. Some of the most reputable firms, for example, created their consumer reputations without any advertising and some damaged their consumer reputations with advertisements. Using advertisement expenses to proxy for consumer reputation therefore has serious drawbacks¹⁰² and may even be subject to incentive problems of disclosure¹⁰³. For these reasons, we measure firms' consumer reputations using detailed quarterly consumer surveys¹⁰⁴ by BAV Consulting.

⁹⁹ Ocean Tomo (2015) and Nakamura (2009).

¹⁰⁰ See, for example, Belo, Lin, and Vitorino (2014), McAlister, Srinivasan and Kim (2007), Han and Manry (2004), and Shah, Stark, and Akbar (2009).

¹⁰¹ Landes and Rosenfield (1994) show that the apparent life of advertising shrinks dramatically when firm-specific factors are held constant. It is also very difficult to separate firms that do not advertise from firms that do advertise but do not fully report their advertisement expenses. This causes a large part of the data to be dropped in most studies (see, for example, Belo, Lin, and Vitorino (2014)).

¹⁰² We show later on that advertising expenses to assets ratio is flat across different consumer reputation portfolios.

¹⁰³ In the UK, for example, during most of Kallapur and Kwan (2004)'s sampling period, firms were allowed to recognize brand assets and potentially avoid London Stock Exchange shareholder approval rules for acquisitions. This meant that the recognition and revaluation of intangible assets

In comparison to existing studies¹⁰⁵, our consumer reputation measures have a longer horizon (from 2001Q1 to 2014Q4), are more diverse (they cover 440 large companies and 2600 products), are more geographically granular (allowing us to identify consumer reputation in different locations), are of higher frequency (in quarterly format), and include multiple dimensions of reputation (48 different emotional imagery attributes)¹⁰⁶. To the best of our knowledge, this essay has the richest dataset available in this literature in terms of the number of firms, products, available time period, frequency, geographic detail, and the number of consumer reputation attributes.

With this extensive dataset in hand, we show that firm and product reputations account for a substantial proportion of cross-sectional variations in firms' intangible assets and their market values. One possible explanation for these variations could be that consumer reputation is not so much an influence on expected cash flows, but more on assets' exposure to systematic risk. We undertake extensive examinations of whether there is evidence that consumer reputation is a risk factor but find no support for this. If instead consumer reputation is an influence on expected cash flows then the question this raises is whether the market values expectations appropriately.

could potentially have been correlated with share price movements linked with expectations of future acquisition activity rather than brand value.

¹⁰⁴ Johansson, Dimofte, and Mazvancheryl (2012) horserace consumer survey based and accounting information based brand values on the same firms, and provide evidence on consumer-based brand measures being more price relevant compared to accounting data-based measures.

¹⁰⁵ See, for example, Aaker and Jacobsson (2001), Rego, Billett, and Morgan (2009), and Aaker and Jacobsson (1994).

¹⁰⁶ Aaker (1997) underlines the fact that brands have distinct personality dimensions. To best of our knowledge, BAV has the most detailed dataset on various dimensions of brands.

We find strong evidence to suggest that this is not always the case. First, we show that reputable firms outperform disreputable firms in the stock market in the long run. Second, we report that the impact of consumer reputation on the valuation of firms decreases substantially during recessions and weak investor sentiment periods, leading to these substantial future abnormal returns. Third, we examine equity analysts' earnings per share (EPS) forecasts and find that they significantly underpredict (overpredict) future EPS realizations for reputable (disreputable) firms during recessions. While consumer reputation is valued, it is not adequately captured by market or analysts' expectations, in particular during periods of weak investor sentiment and recessions.

Fourth, we look at the investment behaviour of different classes of investors over time in firms with varying reputations. We find that retail investors are the ones who sell shares of high consumer reputation firms during weak investor sentiment periods and institutional investors are the purchasers. Similarly, retail investors buy disreputable firms during weak investor sentiment periods and institutional investors sell them. So, relatively uninformed retail investors forgo the high abnormal returns that institutional investors earn from undervalued high reputation firms and overvalued low reputation firms during periods of weak investor sentiment.

Finally, to understand the economic mechanism driving our results, we use firms' product recognition, product leadership and product value for money

characteristics. We discover that there is a *flight to product quality and value*, particularly during economic downturns, and the market doesn't seem to price this flight fully. Reputable firms with the most recognized and preferred products are valued *less*, particularly during downturns. Nonetheless, reputable firms with such products end up outperforming disreputable firms without such products by up to 15.86% per year, and this outperformance rises all the way up to 19.19% during recessions. In short, once we incorporate product worth and quality, the valuation gap between reputable and disreputable firms narrows, but the return spread between them widens. Reputable firms with value for money products, in particular, are priced less during both expansions and recessions, yet they generate the strongest stock market performance and experience the largest earnings surprises. While doing so, they generate higher future profitability, and do not possess relatively higher risk or cash flow volatility.

In summary, consumer reputation is a significant determinant of firm intangible assets and valuations, and the market at least partially prices it. But it does not do so fully and buying high reputation and selling low reputation firms yields abnormal returns, particularly for firms with value for money products and during recessions and weak investor sentiment periods. These abnormal returns are mirrored in errors made by equity analysts in their earnings forecasts and the future profitability of firms, and retail investors are the ones who lose by selling during periods of mispricing.

These results are important in demonstrating a significant relation of consumer perceptions of firm attributes to the valuation of firms. Brands and company names may matter but underlying them are key attributes that influence their valuations. It is possible to identify some characteristics of companies and products that have important influences on their market valuations but the stock market does not always correctly reflect them. There are particular periods when these misvaluations are most pronounced, namely during recessions and weak investor sentiment periods, and certain investors are especially prone to misvalue the attributes, namely retail investors. As intangibles grow in significance relative to tangible assets in total company valuation, the relevance of the valuation of consumer perceptions of companies and products will most likely intensify.

REFERENCES

- Aaker, D. A., 1997. Dimensions of Brand Personality. *Journal of Marketing Research*, 34(3): 347-356.
- Aaker, D. A. and R. Jacobson, 2001. The Value Relevance of Brand Attitude in High-Technology Markets. *Journal of Marketing Research*, 38(4): 485-493.
- Aaker, D. A. and R. Jacobson, 1994. The Financial Information Content of Perceived Quality. *Journal of Marketing Research*, 31(2): 191-201.
- Acemoglu, D., S. Johnson, A. Kermani, J. Kwak and T. Mitton, 2016. The value of connections in turbulent times: Evidence from the United States. *Journal of Financial Economics*, 121(2): 368-391.
- Acconcia, A., G. Corsetti and S. Simonelli, 2014. Mafia and public spending: evidence on fiscal multiplier from a quasi-experiment. *American Economic Review*, 104(7): 2185-2209.
- Addoum, J. M. and A. Kumar, 2015. Political Sentiment and Predictable Returns. Working Paper.
- Akey, P., 2015. Valuing Changes in Political Networks: Evidence from Campaign Contributions to Close Congressional Elections. *Review of Financial Studies*, 28, 3188-223.
- Ang, A., J. Chen and Y. Xing, 2006. Downside Risk. *The Review of Financial Studies*, 19(4): 1191-1239.
- Bagwell, K., 2007. The economic analysis of advertising. In: M. Armstrong and R. Porter (eds.), *Handbook of Industrial Organization*, Vol. 3. Amsterdam: North Holland: 1701-1830.
- Baker, M., J. Wurgler and Y. Yuan, 2012. Global, local, and contagious investor sentiment. *Journal of Financial Economics*, 104, 272-287.
- Barberis, N., A. Shleifer and R. Vishny, 1998. A model of investor sentiment. *Journal of Financial Economics*, (49): 307-343.
- Bar-Isaac, H., 2003. Reputation and Survival: Learning in a Dynamic Signaling Model. *Review of Economic Studies*, 70, 231-251.

- Barrington, R., M. Macaulay and J. Scott, 2010. Corruption in the UK: Part one – National opinion survey. *Transparency International UK*. <www.transparency.org.uk/our-work/publications/91-corruption-in-the-uk-part-one-national-opinion-survey> Accessed on 12 July 2015.
- Barth, M. E. and G. Clinch, 1998. Revalued Financial, Tangible and Intangible Assets: Associations with Share Prices and Non-Market-Based Value Estimates. *Journal of Accounting Research*, 199-233.
- Barth, M. E., M. Clement, G. Foster and R. Kasznik, 1998. Brand Values and Capital Market Valuation. *Review of Accounting Studies*, (3): 41-68.
- Belo, F., V. Gala and J. Li, 2013. Government spending, political cycles, and the cross section of stock returns. *Journal of Financial Economics*, 107(2): 305-324.
- Belo, F., X. Lin and M. A. Vitorino, 2014. Brand capital and firm value. *Review of Economic Dynamics*, (17): 150-169.
- Blanchard, O. and R. Perotti, 2002. An empirical characterization of the dynamic effects of changes in government spending and taxes on output. *Quarterly Journal of Economics*, 117, 1329-68.
- Board, S., and M. Meyer-Ter-Vehn, 2013. Reputation for Quality. *Econometrica*, 34(3): 347-356.
- Boone, C., A. Dube and E. Kaplan, 2014. The Political Economy of Discretionary Spending: Evidence from the American Recovery and Reinvestment Act. *Brookings Papers on Economic Activity*, 375-428.
- Branstetter, J., 2005. Darleen Druyun: An Evolving Case Study in Corruption, Power, and Procurement. *Public Contract Law Journal*, 34(3): 443-468.
- Bronnenberg, B. J., S. K. Dhar and J. Dube, 2007. Consumer packaged goods in the United States national brands local branding. *Journal of Marketing Research*, XLIV, 4-13.
- Bronnenberg, B. J., S. K. Dhar and J. Dube, 2009. Brand History, Geography and the Persistence of Brand Shares. *Journal of Political Economy*, 117(1): 87-115.
- Bronnenberg, B. J., J. Dube and M. Gentzkow, 2012. The Evolution of Brand Preferences Evidence from Consumer Migration. *American Economic Review*, 117(1): 87-115.

- Bunkanwanicha, P. and Y. Wiwattanakantang, 2009. Big business owners in politics. *Review of Financial Studies*, 22(6): 2133-2168.
- Burnside, C. and M. Eichenbaum, 2004. Fiscal shocks and their consequences. Working paper. European Central Bank, Frankfurt.
- Cabral, L. M. B., 2000. Stretching Firm and Brand Reputation. *The RAND Journal of Economics*, 31(4): 658-673.
- Carhart, M. M., 1997. On persistence in mutual fund performance. *Journal of Finance*, 52(2): 57-82.
- Cavallo, M., 2005. Government employment expenditure and the effects of fiscal policy shocks. *Journal of Finance*, 52(2): 57-82.
- Chan, L. K. C., J. Lakonishok and T. Sougiannis, 2001. The Stock Market Valuation of Research and Development Expenditures. *Journal of Finance*, LVI(6): 2431-2456.
- Chari, V. V., L. E. Jones and R. Marimon, 1997. The economics of split-ticket voting in representative democracies. *The American Economic Review*, 87(5): 957-976.
- Chauvin, K. W. and M. Hirschey, 1994. Goodwill, profitability, and the market value of the firm. *Journal of Accounting and Public Policy*, 13(2): 159-180.
- Choi, J. P., 1998. Brand Extension as Informational Leverage. *Review of Economic Studies*, 65, 655-669.
- Cohen, J. E., 1986. The dynamics of the revolving door on the FCC. *American Journal of Political Science*, 30(4): 689-708.
- Cohen, L., J. Coval and C. Malloy, 2011. Do Powerful Politicians Cause Corporate Downsizing? *Journal of Political Economy*, 119(6): 1015-1060.
- Cohen, L., K. Diether and C. Malloy, 2013. Legislating stock prices. *Journal of Financial Economics*, 110(3): 574-595.
- Cohen, L., K. Diether and C. Malloy, 2013. Misvaluing Innovation. *Review of Financial Studies*, (26): 635-666.
- Cohen, L. and A. Frazzini, 2008. Economic Links and Predictable Returns. *Journal of Finance*, 63, 1977-2011.
- Cooper, M., H. Gulen and A. Ovtchinnikov, 2010. Corporate political contributions and stock returns. *Journal of Finance*, 65(2): 687-724.

- Cornaggia, J., K. J. Cornaggia and H. Xia, 2015. Revolving doors on Wall Street. *Journal of Financial Economics*, 120(2): 400-419.
- Coval, J. D. and T. J. Moskowitz, 1999. Home Bias at Home: Local Equity Preference in Domestic Portfolios. *Journal of Finance*, 54(6): 2045-2073.
- Coval, J. D. and T. J. Moskowitz, 2001. The geography of investment: Informed trading and asset prices. *Journal of Political Economy*, 109, 811-841.
- Cox, G. W. and M. D. McCubbins, 1991. *Legislative leviathan: Party government in the House*. Berkeley, University of California Press.
- Croce, M. M., H. Kung, N. G. Nguyen and L. Schmid, 2012. Fiscal policies and asset prices. *Review of Financial Studies*, 25(9): 2635-2672.
- Crook, S. B. and J. R. Hibbing, 1985. Congressional reform and party discipline: The effects of changes in the seniority system on party loyalty in the U.S. House of Representatives. *British Journal of Political Science*, 15(2): 207-226.
- Cullen, J. and P. Fishback, 2006. Did big government's largesse help the locals? The implications of WWII spending for local economic activity, 1939-1958. Working paper 12801. NBER.
- Dal Bo, E., 2006. Regulatory capture: A review. *Oxford Review of Economic Policy*, 22(2): 203-225.
- Daniel, K., M. Grinblatt, S. Titman and R. Wermers, 1997. Measuring mutual fund performance with characteristics-based benchmarks. *Journal of Finance*, 52(3): 1035-1058.
- Daniel, K. and S. Titman, 2006. Market Reactions to Tangible and Intangible. *Journal of Finance*, LXI(4) 1605-1643.
- David-Barrett, L., 2011. Cabs for hire? Fixing the revolving door between government and business. *Transparency International UK*. <www.transparency.org.uk/our-work/publications/132-cabs-for-hire?fixing-the-revolving-door-between-government-and-business> Accessed on 12 July 2015.
- Deng, Z., B. Lev and F. Narin, 1999. Science and Technology as Predictors of Stock Performance. *Financial Analysts Journal*, 55(3): 20-32.
- Drazen, A., 2000. The political business cycle after 25 years. *NBER Macroeconomics Annual 2000*, 15, 75-138.

- Edelberg, W. and M. Eichenbaum, 1999. Understanding the effects of a shock to government purchases. *Review of Economic Dynamics*, 2, 166-206.
- Edmans, A., 2011. Does the stock market fully value intangibles? Employee satisfaction and equity prices. *Journal of Financial Economics*, 101(3): 621-640.
- Edwards, K. and C. Stewart III, 2006. The value of committee assignments in congress since 1994. Working Paper. MIT.
- Eisfeldt, A. and D. Papanikolaou, 2013. Organization Capital and the Cross-Section of Expected Returns. *Journal of Finance*, LXVIII(4): 1365-1406.
- Ely, K. and G. Waymire, 1999. Intangible Assets and Stock Prices in the Pre-SEC Era. *Journal of Accounting Research*, 17-44.
- Engstrom, E. J. and G. Vanberg, 2010. Assessing the Allocation of Pork: Evidence From Congressional Earmarks. *American Politics Research*, 38(6): 959-985.
- Fabrigar, L. R., D. T. Wegener, R. C. MacCallum and E. J. Strahan, 1999. Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, 4(3), 272-299.
- Faccio, M., 2006. Politically connected firms. *American Economic Review*, 96(1): 369-386.
- Faccio, M. and D. C. Parsley, 2009. Sudden deaths: Taking stock of geographic ties. *Journal of Financial and Quantitative Analysis*, 33(3): 683-718.
- Fama, E. F. and K. R. French, 1993. Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, 33(1): 3-56.
- Fama, E. F. and K. R. French, 1997. Industry costs of equity. *Journal of Financial Economics*, 43(2): 153-193.
- Fama, E. F. and K. R. French, 2000. Forecasting profitability and earnings. *Journal of Business*, 73(2): 161-175.
- Fama, E. F. and K. R. French, 2015. A five-factor asset pricing model. *Journal of Financial Economics*, 116(1): 1-22.
- Fama, E.F. and J.D. MacBeth, 1973. Risk, return, and equilibrium: Empirical tests. *Journal of Political Economy*, 81(3): 607-636.
- Fehle, F., S. M. Fournier, T. J. Madden and D. G. Shrider, 2008. Brand Value and Asset Pricing. *Quarterly Journal of Finance and Accounting*, 7(1): 3-26.

- Ferejohn, J. A, 1974, *Pork Barrel Politics: Rivers and Harbors Legislation, 1947-1968*. Stanford University Press.
- Ferson, W. E. and C. R. Harvey, 1999. Conditioning variables and the cross section of stock returns. *Journal of Finance*, 54(4): 1325-1360.
- Ferson, W. E. and R. W. Schadt, 1996. Measuring fund strategy and performance in changing economic conditions. *Journal of Finance*, 51(2): 425-461.
- Fishback, P. and V. Kachanovskaya, 2015. The Multiplier for Federal Spending in the States During the Great Depression. *The Journal of Economic History*, 75(1): 125-162.
- Fisman, R., 2001. Estimating the value of political connections. *American Economic Review*, 91(4): 1095-1102.
- Fisman, D., R. Fisman, J. Galef, R. Khurana and Y. Wang, 2012. Estimating the value of connections to Vice-President Cheney. B.E. *Journal of Economic Analysis & Policy*, 13(3): Article 5.
- Frieder, L. and A. Subrahmanyam, 2005. Brand Perceptions and the Market for Common Stock. *Journal of Financial and Quantitative Analysis*, 40(1): 56-85.
- Gijzenberg, M. J., H. J. van Heerde, M. G. Dekimpe and B. E. M. Steenkamp, 2013. Advertising and price effectiveness over the business cycle. *Journal of Marketing Research*, 50(2): 784-800.
- Goldman, E., J. Rocholl and J. So, 2009. Do politically connected boards affect firm value? *Review of Financial Studies*, 22(6): 2331-2360.
- Goldman, E., J. Rocholl and J. So, 2013. Political connections and the allocation of procurement contracts. *Review of Finance*, 13(5): 1617-1648.
- Gomes, F., A. Michaelides and V. Polkovnichenko, 2010. Fiscal policy in an incomplete market economy. Working paper.
- Gompers, P., Ishii, J. and A. Metrick, 2003. Corporate Governance and Equity Prices. *The Quarterly Journal of Economics*, 118(1): 107-156.
- Gormley, W.T., 1979. A test of the revolving door hypothesis at the FCC. *American Journal of Political Science*, 23(4): 665-683.
- Gourio, F. and L. Rudanko, 2014. Customer Capital. *Review of Economic Studies*, 81, 1102-1136.

- Grace, M. F. and R. D. Phillips, 2008. Regulator performance, regulatory environment and outcomes: An examination of insurance regulator career incentives on state insurance markets. *Journal of Banking and Finance*, 32(1): 116-133.
- Grullon, G., G. Kanatas and P. Kumar, 2006. The Impact of Capital Structure on Advertising Competition: An Empirical Study. Working Paper.
- Grullon, G., G. Kanatas and J. Weston, 2004. Advertising, Breadth of Ownership, and Liquidity. *Review of Financial Studies*, 17(2): 439-461.
- Gu, F. and B. Lev, 2003. Intangible Assets Measurements, Drivers, Usefulness. Working paper.
- Han, B. and D. Manry, 2004. The value-relevance of R&D and advertising expenditures: Evidence from Korea. *The International Journal of Accounting*, (39): 155-173.
- Heckman, J., H. Ichimura and P. Todd, 1997. Matching as an Econometric Evaluation Estimator: Evidence from Evaluating a Job Training Programme. *The Review of Economic Studies*, 64(4): 605-654.
- Heckman, J., H. Ichimura, J. Smith and P. Todd, 1998. Characterizing Selection Bias Using Experimental Data. *Econometrica*, 66(5): 1017-1098.
- Ho, C., 2016. Trump proposes five-year ban on executive branch officials and lawmakers who want to become lobbyists. The Washington Post, 17 October.
<<https://www.washingtonpost.com/news/powerpost/wp/2016/10/17/trump-proposes-five-year-ban-on-executive-branch-officials-and-lawmakers-who-want-to-become-lobbyists>> Accessed on 12 July 2015.
- Hochberg, Y. V., L. A. Lindsey and M. M. Westerfield, 2015. Resource accumulation through economic ties: Evidence from venture capital. *Journal of Financial Economics*, 118(2): 245-267.
- Hong, H., J. D. Kubik and J. C. Stein, 2008. The only game in town: stock-price consequences of local bias. *Journal of Financial Economics*, 90, 20-37.
- Horner, J., 2002. Reputation and Competition. *American Economic Review*, 92(3): 485-493.
- Hou, K. and D. T. Robinson, 2006. Industry concentration and average stock returns. *Journal of Finance*, 61(4): 1927-1956.

- Jayachandran, S., 2006. The Jeffords effect. *Journal of Law and Economics*, 49(2): 397-425.
- Jensen, M., 1968. The performance of mutual funds in the period 1945-1964. *Journal of Finance*, 23(2): 389-416.
- Johansson, J. K., C. V. Dimofte and S. K. Mazvancheryl, 2012. The performance of global brands in the 2008 financial crisis: A test of two brand value measures. *International Journal of Research in Marketing*, (29): 235-245.
- Johnson, S. and T. Mitton, 2003. Cronyism and capital controls: Evidence from Malaysia. *Journal of Financial Economics*, 67(2): 351-382.
- Kaimen, M. I. and L. Li, 1990. Subcontracting, coordination, flexibility, and production smoothing in aggregate planning. *Management Science*, 36(11): 1352-1363.
- Kallapur, S. and S. Y. S. Kwan, 2004. The Value Relevance and Reliability of Brand Assets Recognized by U.K. Firms. *The Accounting Review*, 79(1): 151-172.
- Kanodia, C., H. Sapra and R. Venugopalan, 2004. Should Intangibles Be Measured: What Are the Economic Trade-Offs? *Journal of Accounting Research*, 42(1): 89-119.
- Kaplan, S. N., M. M. Klebanov and M. Sorensen. Which CEO Characteristics and Abilities Matter? *Journal of Finance*, 67(3): 973-1007.
- Kellermann, M. and K. Shepsle, 2009. Congressional careers, committee assignments, and seniority randomization in the U.S. House of Representatives. *Quarterly Journal of Political Science*, 4(2): 87-101.
- Keloharju, M., S. Knuepfer and J. Linnainmaa, 2012. Do Investors Buy What They Know? Product Market Choices and Investment Decisions. *Review of Financial Studies*, 25(10): 2921-2958.
- Kempf, E., 2015. The Job Rating Game: The Effects of Revolving Doors on Analyst Incentives. Working paper.
- Kerin, R. A. and R. Sethuraman, 1998. Exploring the Brand Value-Shareholder Value Nexus for Customer Goods Companies. *Journal of the Academy of Marketing Science*, 26(4): 260-273.

- Kim, C. F., C. Pantzalis and J. C. Park, 2012. Political geography and stock returns: The value and risk implications of proximity to political power. *Journal of Financial Economics*, 106(1): 196-228.
- Kim, H., W. G. Kim and J. A. An, 2003. The effect of consumer-based brand equity on firms' financial performance. *The Journal of Consumer Marketing*, 20, 335-351.
- Korniotis, G. M. and A. Kumar, 2013. State-level business cycles and local return predictability. *Journal of Finance*, 68(3): 1037-1096.
- Kuziemko, I. and E. D. Werker, 2006. How much is a seat on the Security Council worth? Foreign aid and bribery at the United Nations. *Journal of Political Economy*, 114(5): 905-930.
- Kwoka, J. E., 1993. The Sales and Competitive Effects of Styling and Advertising Practices in the U.S. Auto Industry. *Review of Economic Studies*, 75(4): 649-656.
- Landes, E. M. and A. M. Rosenfield, 1994. The Durability of Advertising Revisited. *Journal of Industrial Economics*, 42(3): 263-276.
- Larkin, Y., 2013. Brand perception, cash flow stability, and financial policy. *Journal of Financial Economics*, (110): 232-253.
- Lee, F. E., 2003. Geographic Politics in the U.S. House of Representatives: Coalition Building and Distribution of Benefits. *American Journal of Political Science*, 47(4): 714-728.
- Lev, B., 2005. Intangible Assets Concepts and Measurements. *Encyclopaedia of Social Measurement*, 2, 299-305.
- Lev, B. and T. Sougiannis, 1996. The capitalization amortization and value relevance of R&D. *Journal of Accounting and Economics*, 21, 107-138.
- Lins, K. V., H. Servaes and A. Tamayo, 2015. Social Capital, Trust, and Firm Performance during the Financial Crisis. Working Paper.
- Ljungqvist, A., C. Malloy and F. Marston, 2009. Rewriting history. *Journal of Finance*, 64(4): 1935-1960.
- Loughran, T. and P. H. Schultz, 2005. Liquidity: Urban versus rural firms. *Journal of Financial Economics*, 78, 341-374.
- Lucca, D., A. Serum and F. Trebbi, 2014. The revolving door and worker flows in banking regulation. *Journal of Monetary Economics*, 65, 17-32.

- Madden, T. J., F. Fehle and S. Fournier, 2006. Brands Matter an Empirical Demonstration of the Creation of Shareholder Value through Branding. *Journal of the Academy of Marketing Science*, 34(2): 224-235.
- Madison, J., 1788 [1961]. *The Federalist Papers: A Collection of Essays in Support of the Constitution of the United States*. New York: Doubleday.
- Mailanth, G. J. and L. Samuelson, 2001. Who Wants a Good Reputation? *Review of Economic Studies*, 68, 415-441.
- Maskell, J., 2014. Post-Employment, “Revolving Door”, Laws for Federal Personnel. Washington, DC: Congressional Research Service.
- McAlister, L., R. Srinivasan and M. Kim, 2007. Advertising, Research and Development, and Systematic Risk of the Firm. *Journal of Marketing*, 71(1): 35-48.
- McKelvey, R. D. and R. Riezman, 1992. Seniority in Legislatures. *American Political Science Review*, 86(4): 951-965.
- Menzly, L. and O. Ozbas, 2010. Market segmentation and cross-predictability of returns. *Journal of Finance*, 65, 1555-1580.
- Meyer, K. E., 2004. Perspectives on multinational enterprises in emerging economies. *Journal of International Business Studies*, 35(4): 259-276.
- Milesi-Ferretti, G. M., R. Perotti and M. Rostagno, 2002. Electoral systems and public spending. *The Quarterly Journal of Economics*, 117(2): 609-657.
- Mizik, N. and R. Jacobson, 2005. How Brand Attributes Drive Financial Performance. Working Paper.
- Mizik, N., J. Knowles and I. Dinner, 2011. Value Implications of Corporate Branding in Mergers. Working Paper.
- Nakamura, E. and J. Steinsson, 2014. Fiscal stimulus in a monetary union: Evidence from US regions. *American Economic Review*, 104(3): 753-792.
- Nakamura, L., 2009. Intangible Assets and National Income Accounting Measuring a Scientific Revolution. Working paper.
- Nelson, P., 1974. Advertising as Information. *Journal of Political Economy*, 82(4) 729-754.
- Newey, W. K. and K. D. West, 1987. A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica*, 55(3): 703-708.

- Noe, T., 2012. A Survey of the Economic Theory of Reputation: Its Logic and Limits. In: T. G. Pollock and M. L. Barnett (eds.), *The Oxford Handbook of Corporate Reputation*, Oxford University Press: 114-139.
- Ocean Tomo, 2015. Annual Study of Intangible Asset Market Value from Ocean Tomo, LLC. <<http://www.oceantomo.com/2015/03/04/2015-intangible-asset-market-value-study/opinion-survey>> Accessed on 12 July 2015.
- Pastor, L. and P. Veronesi, 2012. Uncertainty about government policy and stock prices. *Journal of Finance*, 64(4): 1219-1264.
- Pastor, L. and P. Veronesi, 2013. Political uncertainty and risk premia. *Journal of Financial Economics*, 110(3): 520-545.
- Petersen, M. A., 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies*, 22(1): 435-480.
- Petersen, R. E., 2012. Roles and duties of a member of congress: Brief overview. *Congressional Research Service Report for Congress*, # 7-5700.
- Petkova, R., and L. Zhang, 2005. Is Value Riskier Than Growth? *Journal of Financial Economics*, 78, 187-202.
- Pigou, A. C., 1938. *The Economics of Welfare*, 4th Ed., London: Macmillan and Co.
- Pirinsky, C. and Q. Wang, 2006. Does corporate headquarters location matter for stock returns? *Journal of Finance*, 61, 1991-2015.
- Pitkin, H. F., 1972. *The concept of representation*. University of California Press.
- Polsby, N. W., M. Gallagher and B. S. Rundquist, 1969. The growth of the seniority system in the U.S. House of Representatives. *American Review of Political Science*, 63(3): 787-807.
- Qui, L. X. and I. Welch, 2006. Investor Sentiment Measures. Working Paper.
- Revolving Door Working Group, 2005. A matter of trust: How the revolving door undermines public confidence in government – and what to do about it. <www.cleanupwashington.org/documents/RevovDoor.pdf> Accessed on 12 July 2015.
- Rego, L. L., M. T. Billett and N. A. Morgan, 2009. Consumer-Based Brand Equity and Firm Risk. *Journal of Marketing*, (73): 47-60.
- Roberts, B. E., 1990. A Dead Senator Tells No Lies: Seniority and the Distribution of Federal Benefits. *American Journal of Political Science*, 34(1): 31-58.

- Roberts, P. W. and G. R. Dowling, 2002. Corporate Reputation and Sustained Superior Financial Performance. *Strategic Management Journal*, 23, 1077-1093.
- Rotemberg, J. and M. Woodford, 1992. Oligopolistic pricing and the effects of aggregate demand on economic activity. *Journal of Political Economy*, 100, 1153-1207.
- Santa-Clara, P. and R. Valkanov, 2003. The presidential puzzle: Political cycles and the stock market. *Journal of Finance*, 58(5): 1841-1872.
- Schoenherr, D., 2016. Political connections and allocative distortions. Working paper.
- Schultz, M., M. J. Hatch and N. Adams, 2012. Managing Corporate Reputation through Corporate Branding. In: T. G. Pollock and M. L. Barnett (eds.), *The Oxford Handbook of Corporate Reputation*, Oxford University Press: 420-445.
- Serrato, J. and P. Wingender, 2011. Local fiscal multipliers. Working paper. UC-Berkeley.
- Shah, S. Z., A. W. Stark and S. Akbar, 2009. The value relevance of major media advertising expenditures: Some U.K. evidence. *The International Journal of Accounting*, (44): 187-206.
- Sharpe, W., 1964. Capital asset prices: A theory of market equilibrium under conditions of risk. *Journal of Finance*, 19(3): 425-442.
- Snyder, J. and I. Welch, Forthcoming. Do powerful politicians really cause corporate downsizing? *Journal of Political Economy*.
- Spiller, P.T., 1990. Politicians, interest groups, and regulators: A multiple-principals agency theory of regulation, or let them be bribed. *Journal of Law and Economics*, 33(1): 65-101.
- Srinivasan, R., G. L. Lilien and S. Sridhar, 2011. Should Firms Spend More on Research and Development and Advertising During Recessions? *Journal of Marketing*, (75): 49-65.
- Srinivasan, S., K. Pauwels, J. Silva-Risso and D. M. Hanssens, 2008. Product Innovations, Advertising and Stock Returns. Working paper.

- Stahl, F., M. Heitmann, D. R. Lehmann and S. A. Neslin, 2011. The Impact of Brand Equity on Customer Acquisition, Retention, and Profit Margin. Working paper.
- Stambaugh, R. F. and Y. Yuan, Forthcoming. Mispricing Factors. *Review of Financial Studies*.
- Tadelis, S., 2002. The Market for Reputations as an Incentive Mechanism. *Journal of Political Economy*, 110(4): 854-882.
- Tahoun, A., 2014. The role of stock ownership by US Members of Congress on the market for political favours. *Journal of Financial Economics*, 111(1): 86-110.
- Thomas, L. G., 1989. Advertising in Consumer Goods Industries: Durability, Economies of Scale, and Heterogeneity. *Journal of Law Economics*, 32(1): 163-193.
- Vidal, J. B. i, M. Draca and C. Fons-Rosen, 2012. Revolving door lobbyists. *American Economic Review*, 102(7): 3731-3748.
- Vuolteenaho, T., 2002. What drives firm-level stock returns? *Journal of Finance*, 57(1): 233-264.
- Wang, J. Y. and M. Blomstrom, 1992. Foreign investment and technology transfer: A simple model. *European Economic Review*, 36(1): 137-155.
- Wermers, R., 2003. Is money really smart? New evidence on the relation between mutual fund flows, manager behaviour, and performance persistence. Working paper. University of Maryland.
- Zeleny, J., 2007. Obama says new rules would guide his administration. *New York Times*, 23 June. www.nytimes.com/2007/06/23/us/politics/23campaign.html Accessed on 12 July 2015.
- Zingales, L., 2000. In Search of New Foundations. *Journal of Finance*, LV(4): 1623-1653.

APPENDIX

A. Appendix for Chapter 3

A.1 General firm characteristics data

I use yearly COMPUSTAT data to compute firm-level controls. Tobin's Q is assets total (at) plus market value of equity (ME) minus book value of equity (BE), all deflated by assets total. ME is end of year stock price times shares outstanding. BE is common/ordinary equity (CEQ) plus deferred taxes (TXDB) plus investment tax credit (ITCB) minus preferred stock (PSTKRV). I use liquidation value of common equity if common equity is missing. Likewise, I use liquidating value of preferred stock (PSTKL) or preferred/preference stock (capital) (PSTK) if preferred stock (PSTKRV) is missing. Market Capitalization is end of calendar year price times shares outstanding. Market to Book is end of year market capitalization over book value of equity (BE). Debt to Book Value of Assets is sum of debt in current liabilities and long term debt divided by book value of assets. R&D Expenses to Book Value of Assets is research and development expenses divided by book value of assets. HHI is Herfindahl-Hirschmann Index using 2-digit SIC codes and book value of assets. Number of distinct industries is computed using 2-digit SIC codes. Market Capitalization Share is to total market cap of each portfolio from last year-end divided by total market capitalization of all stocks. Government Contracts Share is total government contracts allocated to a portfolio divided by all government contracts allocated to publicly traded corporations. Government Contracts to sales is total value of government contracts

allocated to a given firm in a given year, deflated by that firm's lagged sales (SALE). For all firm characteristics I take yearly averages of portfolio medians.

A.2 Government contract allocation data

I obtain data on government contract allocation from Bloomberg Government (BGOV) database. BGOV provides data on government contracts that firms receive along with a description of the government agencies that awarded these contracts. BGOV gathers its contract data from the Federal Procurement Data System - Next Generation (FPDS-NG). The FPDS-NG, administered by the US General Services Administration, is the central repository of information on procurement contracts awarded by the US government. If contracts are awarded to subsidiaries of a given corporation, BGOV identifies the parent corporation and assigns contracts accordingly. Specifically, for each government contract, BGOV provides information about the contract-allocating government agency, Bloomberg ticker of the firm that received the contract, the total dollar amount of the contract, and the date the contract was allocated. Bloomberg has a linking table between Bloomberg tickers and CUSIP numbers -- this enables me to identify the firms by PERMNO after linking CUSIPs and PERMNOs. I match the BGOV data with the CRSP/COMPUSTAT data using PERMNOs. After matching the samples, I compute the total dollar amount of government contracts allocated to each electoral district or firm for every year. If no contracts are allocated, I set the value to zero. During our sample period, 1,221 different publicly traded firms (by PERMNO)

obtained at least one government contract (out of a total of 12,044 distinct publicly traded firms).

A.3 Congressional district-level data

I collect congressional district-level data from US Census webpage.¹⁰⁷ I define district-level population using data item B01003, district-level per capita income (in 2001 inflation-adjusted dollars) using data item B19301, district-level per capita income using data item B19301, district-level unemployment figures using data item S2301. I compute district-level percent unemployment using S2301 and B01003, and I compute income growth using B01003. As in Cohen, Coval, and Malloy (2012) I log the district-level population, take last six year average district-level per capita income. To merge district-level data and firm-level data, I use zip codes of firm headquarters from COMPUSTAT dataset and map them to electoral districts using Census Bureau relationship files.¹⁰⁸

A.4 Data used in firm-level investment spillovers regressions

I also use COMPUSTAT data in order to compute capital expenditures to total assets, percent change in number of employees, Tobin's Q, cash flow to assets and debt to assets ratios. Tobin's Q is assets total (AT) plus market value of equity (ME) minus book value of equity (BE), all deflated by assets total. ME is end of year stock price times shares outstanding. BE is common/ordinary equity (CEQ)

¹⁰⁷ This data can be reached on <http://ftp2.census.gov/> or individually on <http://factfinder.census.gov/>

¹⁰⁸ Census Bureau provides linking tables for 109th, 110th, and 113th congress. I update my linking table after 109th congress, and for before 109th congress I use the linking table for 109th congress. Tables can be found at: <https://www.census.gov/geo/maps-data/data/>

plus deferred taxes (TXDB) plus investment tax credit (ITCB) minus preferred stock (PSTKRV). I use liquidation value of common equity if common equity is missing. Likewise, I use liquidating value of preferred stock (PSTKL) or preferred/preference stock (capital) (PSTK) if preferred stock (PSTKRV) is missing. Finally, cash flow to total assets is CAPEX divided by AT, and percent change in number of employees is computed using EMP. I drop firms with significant (i.e. 10% or more) seasonal or part-time employees to concentrate on more permanent effects.

A.5 Data used in profitability regressions

I follow Belo, Gala, and Li (2013) and Fama and French (1993) to define the book value of equity as the Compustat book value of common equity (CEQ) plus balance sheet deferred taxes (TXDB) and investment tax credits (ITCB), minus book value of preferred stock. Depending on the availability, I use the redemption (PSTKRV), liquidation (PSTKL), or carrying value of preferred stock (PSTK). When CEQ is unavailable, I use the liquidation value of common equity (CEQL). I define profitability (return on equity, ROE) as Compustat net income divided by lagged book value of equity. Following Hou and Robinson (2006), VA is the ratio of market value of assets market equity plus total assets minus book equity, all divided by book value of assets. DB is the ratio of dividends (DVC) to lagged book equity. DD is a dummy for nondividend-paying firm (i.e. one if DVC is zero, zero otherwise). I follow Fama and French (2008) and drop firms in the bottom 20th

percentile of the cross-sectional distribution of market capitalization (micro-cap firms). I winsorize both tails by 2% to reduce the impact of illiquid stocks and outliers.

A.6 Further robustness tests

My results show that firms located in lottery-winner districts outperform firms located in lottery-loser districts, and this outperformance is related to a cash flow channel that is fuelled by shifts in federal government contracts. In this subsection I delve deeper into the asset pricing implications of the seniority lottery.

[Table A.1 about here]

Table A.1 presents results from my robustness tests. First row of Table A.1 compares portfolio returns of luckiest and unluckiest districts. Luckiest (unluckiest) districts are districts, the representatives of which are allocated the most (least) senior positions within their randomization group.¹⁰⁹ Fama-French-Carhart four factor alpha difference between luckiest and unluckiest districts is a statistically and economically significant 7.70% per year. This value is noticeably higher than the four factor alpha difference of 4.14% that is presented in Table 3.5.

Second and third rows of Table A.1 presents winner minus loser portfolio returns from comparing districts of senior and junior legislators that take a part in the seniority lottery. Senior (junior) legislators are those with higher (lower)

¹⁰⁹ If a group of legislators in Committee X were allocated 4th, 5th, 6th, 7th and 8th committee ranks, I would compare the districts of 4th and 8th as those would be the luckiest and the unluckiest districts in this randomization group.

chamber seniority than the median legislator in our sample.¹¹⁰ I find no abnormal return difference between lottery-winner and lottery-loser portfolios when I compare districts of junior legislators. There is, however, a significant abnormal return difference between lottery-winner and lottery-loser portfolios once I compare districts of senior legislators. The firms that are represented by senior legislators outperform loser firms by an annual four factor alpha of 4.37%. This result shows that seniority plays a huge role in the effectiveness of legislators.

Fourth and fifth rows of Table A.1 present results from examining top committees in Democratic majority and minority years in the House of Representatives. As expected, the four factor alpha difference between lottery-winner and lottery-loser portfolios reach 6.18% per annum during Democratic majority years. This finding is in line with the notion that democrats have more influence during majority years. During Democratic minority years in the House (still including the years when Democrats had majority in the Senate) I also find an abnormal return difference between lottery-winner and lottery-loser portfolios. This difference is a statistically and economically significant 4.10% per year.

Last two columns of Table A.1 report results from examining all House committees during majority and minority years. I find that the effect of having a lottery-winner representative fades away once I look at all House committees during Democratic minority years in the House. However, during Democratic

¹¹⁰ Median chamber seniority is 4 years in my sample.

majority years in the House having a lottery-winner representative from any of the House committees generates abnormal returns. Lottery-winner portfolio outperforms the lottery-loser portfolio by a statistically and economically significant %7.48 per year once I examine all House committees in Democratic majority years.

The results in this subsection are in line with earlier findings. Lottery-winner minus lottery-loser portfolio generates higher abnormal returns if I compare the luckiest and the unluckiest districts. Representative seniority and Democratic majority years also play a role in the stock market performance difference between lottery-winner and lottery-loser districts.

A.7 Within-district subcontracting

Previous analysis provides evidence on the performance difference between firms that are located in lottery-winner districts and firms that are located in lottery-loser districts. However, the outperformance may derive from latent firm- or industry-characteristics that are not captured by Fama-French-Carhart four factors and time-varying betas. I therefore run a Fama-Macbeth regression of:

In this subsection I delve deeper into explaining the within district investment spillovers. I start by analysing how government contracting fuels within district subcontracting activity. I use district-level government subcontract data, which is publicly available on a U.S. Department of the Treasury website under the

Freedom of Information Act.¹¹¹ The dataset includes subcontracts allocated to private firms in addition to those allocated to publicly traded firms since 2010. Unlike the BGOV data, the firm subsidiary contracts are not linked to parent companies and the contract amounts are not aggregated in yearly or monthly periods.¹¹² Nonetheless, for the purposes of this subsection these do not cause any first order issues. I aggregate all government subcontracts allocated to a given district in a given year to compute district-level yearly subcontracts. Then, I analyse whether primary government contracts increase within district-level government subcontracts in lottery-winner and lottery-loser districts.¹¹³ I run Tobit regressions on the below model:

$$Subcontract_{i,t} = \alpha_0 + \alpha_1 Z_{i,t} + \alpha_2 X_{i,t-1} + \gamma_i + \eta_t + \varepsilon_{i,t}, (A.1)$$

where $Subcontract_{i,t}$ denotes the log of total government subcontracts allocated to congressional district i in year t , and $X_{i,t-1}$ contains controls including congressional district level log per capita income over the past six years, along with lagged values of congressional-district level per capita income growth, log of congressional district population and unemployment rate in congressional district i . $Z_{i,t}$ is either $Contract_{i,t}$, or $Contracts IV_{i,t}$. Lastly, γ_i and η_t denote congressional district and year dummies.

¹¹¹ The data use in this paper is downloaded on May 25th, 2016 directly from <https://www.usaspending.gov/DownloadCenter/Pages/DataDownload.aspx>

¹¹² BGOV uses unique firm identifiers and different contract identifiers than Usaspending.gov. I was therefore not able to match these two datasets on the contract-level.

¹¹³ Usaspending.gov subcontracting dataset provides information on the congressional district of each subcontracted firm (subawardee_congressionaldistrict, subawardee_state), subcontract year (subcontract_year) and the subcontract amount (subaward_amount).

[Table A.2 about here]

I present the results from my district-level subcontract allocation regressions in Columns 1 and 2 of Table A.2. I find that one standard deviation increase in instrumented district-level total government contracts causes a 0.14¹¹⁴ standard deviations increase in district-level subcontracts. Similarly, a standard deviation increase in the instrumented district-level total government contracts ($Contracts\ IV_{i,t}$) causes a 0.12¹¹⁵ standard deviations increase in district-level subcontracts. These results are supportive of the notion that at least a part of the cash flow channel can be explained by government subcontracting activity within each district.

A.8 Government contract allocation to previous districts

Do political representatives shift government contracts to their districts, because they are better informed about these districts? To provide empirical evidence on this question, I identify lottery-winner and lottery-loser legislators that used to serve other districts before being elected in their current districts. I compare the previous districts of these lottery-winner and lottery-loser legislators in terms of government contract allocation. To that end, I run Tobit regressions on the below model:

$$Contract_{i,t} = \alpha_0 + \alpha_1 Placebo\ lottery - winner\ district_{i,t} + \alpha_2 X_{i,t-1} + \gamma_i + \eta_t + \varepsilon_{i,t}, (A.2)$$

¹¹⁴ $sd(Contracts_{i,t}) * coef / sd(Subcontract_{i,t}) = 7.098119 * 0.084575 / 4.420319 = 0.14$.

¹¹⁵ $sd(Contracts\ IV_{i,t}) * coef / sd(Subcontract_{i,t}) = 27.24649 * .1204738 / 4.420319 = 0.12$.

where $Contract_{i,t}$ denotes the log of total government contracts allocated to formerly-represented congressional district i in year t , $Placebo\ lottery - winner\ district_{i,t}$ is equal to one for previous districts of lottery-winner legislators, and zero for the previous districts of lottery-loser legislators. $X_{i,t-1}$ contains controls including congressional district level log per capita income over the past six years, along with lagged values of congressional-district level per capita income growth, log of congressional district population and unemployment rate in congressional district i . Lastly, γ_i and η_t denote congressional district and year dummies.

I present the results in Column 3 of Table A.2. I find no difference between former districts of lottery-winners and lottery-losers in terms of government contract allocation. This result is not supportive of the hypothesis that political representatives shift contracts to their districts due to information advantage.

Table A.1 Robustness tests

This table shows results from monthly regressions of Wi-Lo portfolio abnormal returns. Wi-Lo portfolio abnormal returns denote abnormal returns from longing lottery-winner districts and shorting lottery-loser districts. To adjust for risk, I compute four-factor alphas using Fama-French-Carhart model from Carhart (1997). Luckiest and unluckiest districts are districts of highest and lowest ranked representatives in matching randomization groups. Senior (junior) representatives have more (less) chamber seniority than the median representative in the sample. Democratic majority years are the years when Democrats had majority in the House. All committees denote all committees in the House of Representatives. Top committees are as in Cohen et al. (2011). Returns are annualized and presented in percentages. P-values are based on standard errors, robust to conditional heteroscedasticity and serial correlation as in Newey and West (1987), and they are reported in parentheses. Sample period is 2001m1 to 2012m12. ***, **, and * denote statistical significance at 1%, 5% and 10% levels respectively.

	Wi – Lo AR
Luckiest districts vs. unluckiest districts	7.70*** (0.00)
Districts of junior political representatives	2.79 (0.46)
Districts of senior political representatives	4.37** (0.03)
Districts of political representatives that are in top House committees <i>during Democratic minority years in the House</i>	4.10** (0.03)
Districts of political representatives that are in top House committees <i>during Democratic majority years in the House</i>	6.18* (0.05)
Districts of political representatives that are in any of the House committees <i>during Democratic minority years in the House</i>	1.78 (0.30)
Districts of political representatives that are in any of the House committees <i>during Democratic majority years in the House</i>	7.48** (0.03)

Table A.2 Within-district subcontracting and previous districts

This table explores within district subcontracting activity and government contract allocation to previous districts. In Column 1 and Column 2, I run Tobit regressions on $Subcontract_{i,t} = \alpha_0 + \alpha_1 Z_{i,t} + \alpha_2 X_{i,t-1} + \gamma_i + \eta_t + \varepsilon_{i,t}$, where $Subcontract_{i,t}$ denotes the log of total government subcontracts allocated to congressional district i in year t , and $X_{i,t-1}$ contains controls including congressional district level log per capita income over the past six years, along with lagged values of congressional-district level per capita income growth, log of congressional district population and unemployment rate in congressional district i . $Z_{i,t}$ is $Contracts_{i,t}$ and $Contracts IV_{i,t}$ in Columns 1 and 2 respectively. Lastly, γ_i and η_t denote congressional district and year dummies. Column 3 follows the same models as Table 3.2, but compares the former districts of lottery-winner and lottery-loser legislators. Therefore, Placebo lottery-winner district dummy is equal to one for previous districts of lottery-winner legislators, and zero for the previous districts of lottery-loser legislators. P-values are based on standard errors that are clustered in district years, and they are reported in parentheses. Sample periods for Column 1 and Column 2 are 2010 to 2012. ***, **, * denotes statistical significance at 1%, 5% and 10% levels respectively.

	Within district government subcontracts	Within district government subcontracts	District-level Government Contracts (Previous district)
District-level government contracts	0.08** (0.03)		
District-level government contracts (Instrumented)		0.02* (0.08)	
Placebo lottery-winner district			0.17 (0.29)
Controls [Population, Per-capita income, Income growth, Unemployment rate]	Y	Y	Y
Intercept	-99.74*** (0.00)	-106.78*** (0.00)	-2,016.62*** (0.00)
District dummies and year dummies	Y	Y	Y
Observations	159	159	100
R-squared	0.02	0.02	0.37

B. Appendix for Chapter 4

Table B.1: Conditional risk-adjusted returns using the remaining factors

This table shows results from monthly regressions on returns to each consumer reputation quintile along with the difference between top and bottom quintiles. Portfolios are formed using factor 2-5 firm scores from previous quarters. The quintile returns are value-weighted. Abnormal returns are measured according to the four-factor model with time-varying betas as in Ferson and Harvey (1999). The conditioning variables used in the top row are dividend-price ratio, default spread, term spread and risk-free rate. The middle and bottom rows use institutional market crash expectation index and individual market crash expectation index, respectively, as additional conditioning variables. T-statistics are based on standard errors that are robust to conditional heteroscedasticity and serial correlation as in Newey and West (1987), and they are reported in parentheses. Sample period is 2001 to 2014. ***, **, * denotes statistical significance at 1%, 5% and 10% levels respectively

<u>Firms are sorted</u> <u>by:</u>	Low	2	3	4	High	High - Low
<i>Firm fanciness</i>	5.06*** (3.34)	-3.91** (-2.00)	0.38 (0.21)	2.96 (0.95)	3.29 (1.35)	-1.78 (-0.62)
<i>Firm scienciness</i>	7.38*** (3.59)	1.39 (0.58)	1.21 (0.59)	-0.81 (-0.49)	3.82* (1.69)	-3.56 (-0.96)
<i>Firm socialness</i>	0.03 (0.02)	0.91 (0.62)	2.65* (1.84)	1.09 (0.71)	0.57 (0.36)	0.54 (0.19)
<i>Firm distance</i>	8.13*** (5.63)	1.41 (1.05)	-1.04 (-0.51)	-0.40 (-0.32)	0.85 (0.47)	-7.28*** (-3.73)

Table B.2: Conditional alphas after two-way sorting

This table shows results from monthly regressions on returns to each consumer reputation quintile along with the difference between top and bottom quintiles. Bivariate sorting is done by initially sorting firms with respect to factor 1 scores from previous quarter, and then sorting with respect to factor 2-5 scores from previous quarter. Abnormal returns are value-weighted and are measured according to the four-factor model with time-varying betas as in Ferson and Harvey (1999). The conditioning variables used in the top row are dividend-price ratio, default spread, term spread and risk-free rate. The middle and bottom rows use institutional market crash expectation index and individual market crash expectation index, respectively, as additional conditioning variables. T-statistics are based on standard errors that are robust to conditional heteroscedasticity and serial correlation as in Newey and West (1987), and they are reported in parentheses. Sample period is 2001 to 2014. ***, **, * denotes statistical significance at 1%, 5% and 10% levels respectively

<u>Two-way sorting</u> <u>by:</u>		<i>Firm reputation</i>					
		Low	2	3	4	High	High - Low
<i>Firm fanciness</i>	Low	-8.30***	3.06*	6.22***	0.22	2.59*	10.89***
		(-4.36)	(1.83)	(3.53)	(0.10)	(1.73)	(5.61)
	High	-3.24	0.50	1.72	3.18	5.32***	8.56***
		(-1.34)	(0.15)	(0.60)	(1.34)	(3.29)	(3.18)
<i>Firm scienciness</i>	Low	-2.48	-3.27	5.97***	4.65***	5.44**	7.92*
		(-0.85)	(-1.01)	(2.63)	(2.61)	(2.43)	(1.67)
	High	-4.94***	5.33*	2.61	2.35	3.31*	8.25***
		(-2.72)	(1.83)	(0.78)	(1.22)	(1.93)	(3.88)
<i>Firm socialness</i>	Low	-3.45	3.47	7.89**	5.23**	-0.87	2.58
		(-1.35)	(1.26)	(2.18)	(2.43)	(-0.60)	(0.77)
	High	-7.87**	-0.78	0.91	0.84	7.00***	14.87***
		(-1.99)	(-0.32)	(0.27)	(0.38)	(3.81)	(3.30)
<i>Firm distance</i>	Low	-6.28***	3.02	9.20***	2.71*	5.01***	11.30***
		(-2.61)	(1.40)	(3.19)	(1.72)	(3.88)	(4.33)
	High	-7.13***	1.95	0.23	2.58	1.67	8.79***
		(-2.61)	(0.74)	(0.09)	(1.23)	(0.94)	(3.92)