Overview & Motivation
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Data & Methodology
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Results
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Sources of Returns Predictability
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Wealth Effects and Predictability of Firms' Government Sales Dependency

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Outline

- Motivation - Results Summary
- Data & Methodology
    - Controlling for Additional Risks, Self Selection Bias
- Results - Panel Regressions and Portfolio Alpha
- Source of Return Predictability
    - Change in Profitability - TFC and Information Asymmetry
    - Investors Inattention and Hard-to-Value Firms
- Conclusion

Corruption in Political System and Economic Growth

FAA's Reluctance to Call the Planes Unsafe

Motivation: Advantages and Disadvantages of Political Connections

- Advantages

  - Preferential access to credit *(Johnson and Mitton (2003))*

  - Likelihood of getting government contracts *(Goldman et al. (2013))*

  - Help when in financial trouble *(Faccio et al. (2006))*

  - Higher abnormal returns *(Cooper et al. (2010))*

  - Receive regulatory protection *(Kroszner and Stratman(1998))*

Motivation: Advantages and Disadvantages of Political Connections

- Disadvantages

  - Underperform on accounting basis *(Faccio (2010))*

  - Low accounting accuracy *(Chaney, Faccio Parsley (2010))*

  - Adverse effect on corporate information environment *(Chen et al. (2010))*

  - Ineffective in buying favorable policies *(Ansolabehere et al. (2003))*

  - No noticeably higher returns *(Ansolabehere et al. (2004))*

Definition of Political Connections

- Political connections engendered from two sources:

  - Connections established through contributions to politicians or to political parties

    - Cooper et al. (2010), Roberts (1990), Joh et al. (2004)

  - Connections established through the personal associations of top executives of the firms to political parties or politicians

    - Faccio (2006), Chaney et al. (2011), Goldman et al. (2009)

Research Question

- New channel of political connections: firms' government sales dependency

  - Relation established for financial gain

  - More widespread and bigger sample size

Research Question

How do the firms that are government sales dependent perform on market as well as accounting basis?

- Literature on government sales dependent firms

  - Firms' sales growth goes down and they spend less in physical an intellectual capital (Cohen and Malloy(2016))

  - Positively association between government sales and cost of debt, but firms offset with political connections (Houston et al. (2017))

  - Lower cost of equity for supplier to federal government (Dhaliwal et al. (2016))

  - Hold less cash (Cohen and Li(2016)

  - Less likely to receive going concern opinions or file for bankruptcy, delist from major stock exchange Burke et al. (2015))

Supplementary Research Quesions

Few Supplementary Research Questions

- How does their profitability get impacted by lower sales growth and less capital and intellectual spending?

- Does their lower cost of capital transfer into lower/higher returns?

- Since they are less likely to file for bankruptcy or are less likely to get ongoing concern opinion, are these firms less risky in the eyes of investors?

- Does the government sales dependency predicts future government sales?

- Is there any relation between a firm's government sales dependency and its PAC contributions?

Results Summary - Return Predictability

- Government depedency (GD) signigicantly predicts future returns

  - Fama-MacBeth Regressions - Up to 5.4%/Yr of abnormal returns

  - Portfolio alpha of about 50bps (CAPM, FF3, FF5, FFC4, FFC6, FFC6+Mispricing Factors)

  - GD weighted portfolios' annual Sharpe ratio up to 0.75

  - GD weighted portfolios increases the *Ex-Post* Sharpe ratio of optimum tangency portfolio by 18%, with asset allocation of 26%, only below quality factor

- Return predictability of PI variables of Cooper et al. (2010) only exists within politically connected (PAC contributors) and government dependent sub-sample

Results Summary - Source of Return Predictability

- Get bigger, more productive, more levered, and pay lower taxes
- Profit margin ratios increase significantly
  - Evidence of atypical structure of government contracts (e.g. TFC) and information asymmetry contributing to the increase
    - Operating margin negatively associated with asset redeployability and positively with asset irreversibility
    - Operating margin positively associated with bid-ask spread and less positively with annalyst count
  - More increase in industries with most government sales and highest government sales HHI
- A firm's probability to win future material government contracts goes up significantly
  - Having a material government contract 10 years back increases the probability by about 27.5%
  - Controlling for having a material contract in the past, size of the sale also predicts the probability significantly (One St.Dev=11.2%)

Results Summary - Robustness and Mispricing Effect

- Results stay strong among government dependent but not politically connected (PAC contributors) firms

- No return predictability of corporate dependency variables

- Evidence of investors inattention and higher valuation uncertainty (mispricing) contributing to the effect

  - Intuitive due to contract complexities and investors sluggish responses to 10-K information

  - Results stronger within younger firms with less analyst count

  - Results stronger within higher turnover, higher return and idiosyncratic volatility, and smaller firms

Overview & Motivation   **Data & Methodology**   Results   Sources of Returns Predictability
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Data

- Overview

  - Data: COMPUSTAT segment reporting information

  - Sample Period: January 1979 through December 2014

  - Typical government customers: US military, Medicare, State of Tennessee, New York City, Ministry of Communications in Columbia, Germany Department of Defense

  - Distribution: 87.81% - US domestic; 9.59% - foreign; 1.63% - US state; 0.96% US local

  - Largest Sale: General Dynamics to US domestic government in the amount of $45.65B

Government Sales Overtime

US Domestic Government & Other
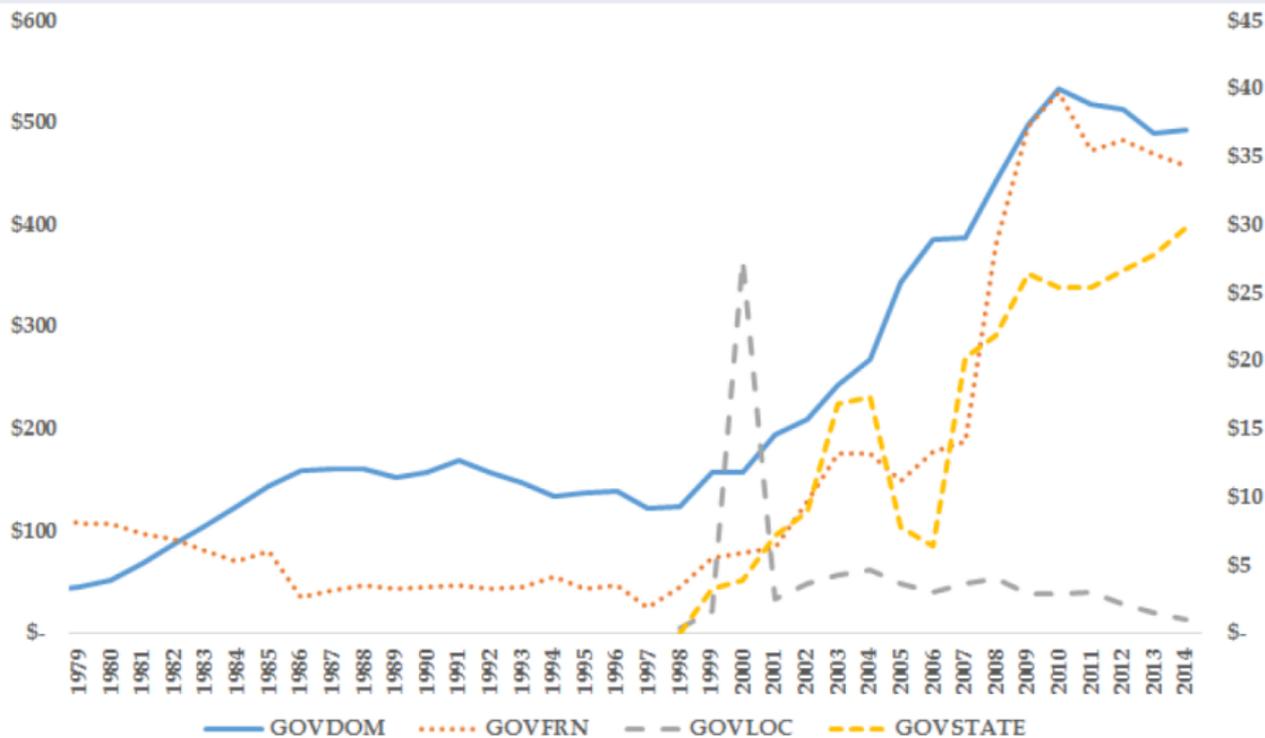
Government Sales Concentration

Government Sales Concentration within Fama-French 12 Industries

3 : Manufacturing, Machinery, Trucks, Planes, Office Furniture, Paper, and Printing
6 : Business Equipments, Computers, Software, and Electronic Equipments
10 : Health care, Medical Equipments and Drugs

◊ 3 ▦ 6 ⁑ 10 ▨ Rest
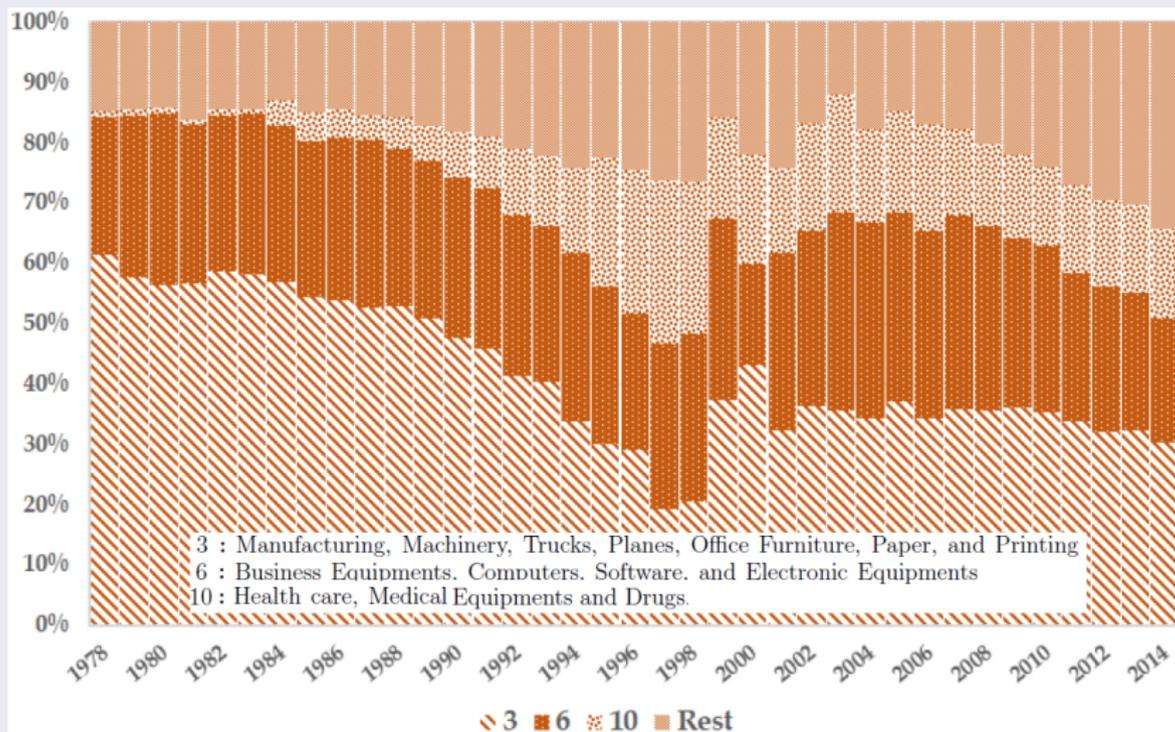
Variable Definitions

Report

$$GD^{Report}_{i,\, \{t-1\, <\, t\, <t+12\}} = 1 * I, \;\; I = \begin{cases} 1, & \text{if firm i reports Government as customer} \\ & \text{at month } t-1, \\ 0, & \text{otherwise.} \end{cases}$$

Strength

$$Report\_Count_{i,\, \{t-1\, <\, t\, <t+12\}} = Report\_Count_{i,t-1} + 1 * I,$$

$$Where, I = \begin{cases} 1, & \text{if firm i reports Government as customer} \\ & \text{at month } t-1, \\ 0, & \text{otherwise.} \end{cases}$$

$$Then, \;\; GD^{Strength}_{i,t} = \frac{Report\_Count_{i,t}}{Time\ Lapse\ Since\ First\ Ever\ Reporting}$$

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Variable Definitions

Surprise

$$Surprise\_Count_{i,\ \{t-1\ <\ t\ <t+12\}} = Surprise\_Count_{i,t-1} + 1 * I,$$

$$Where, I = \begin{cases} 1, & \text{if firm i reports Government as customer at month} \\ & \text{t-1 and (i) it does not report Government as customer} \\ & \text{at month t-13, or ii) if firm i is not in the sample in} \\ & \text{month } t-13 \text{ or before,} \\ 0, & \text{otherwise.} \end{cases}$$

$$Then,\ GD_{i,t}^{Surprise} = \frac{Surprise\_Count_{i,t}}{Time\ Lapse\ Since\ First\ Ever\ Reporting}$$

Sale

$$GD_{i,year}^{Sale} = \frac{Firm's\ Total\ Sale\ to\ Government_{i,year}}{Total\ Sale_{i,year}}$$

Correlation & Summary Statistics: GD Variables

Government Dependency (GD) Variables

Panel A: Correlations among Government Dependency Variables

	GD^{Report}	$GD^{Strength}$	$GD^{Surprise}$	GD^{Sale}
GD^{Report}	1			
$GD^{Strength}$	0.775	1		
$GD^{Surprise}$	0.391	0.243	1	
GD^{Sale}	0.606	0.526	0.153	1

Panel B: Summary Statistics (Unadjusted Variables)

Variables	Mean	Std. Dev	Min	25th Percentile	Median	75th Percentile	Max
No. of Govt. Reporting	5.959	6.177	1	1	3	9	37
No. of Surp. Reporting	1.137	0.408	1	1	1	1	6
GD^{Report}	1	0	1	1	1	1	1
$GD^{Strength}$	0.053	0.061	0.002	0.023	0.057	0.077	9.000
$GD^{Surprise}$	0.019	0.029	0.002	0.006	0.011	0.021	2.000
GD^{Sale}	28.370	25.930	10.000	10.000	13.560	40.000	100.000

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Summary Statistics: Firm Characteristics

Government Dependent and Non-Dependent Firms

| | All | Non_Govt | Govt | GD Quintiles ($GD^{Strength}$ Sorted) | | | | |
| | Firms | Dependent | Dependent | Qtl 1 | Qtl 2 | Qt3 | Qtl 4 | Qtl 5 |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MCAP_REAL	2435.82	2198.89	3188.49	3402.53	3810.36	4893.55	3770.06	2949.25
BM	0.6897	0.5684	0.9641	0.5874	1.0262	1.3714	1.5352	0.9723
AT_G	0.2068	0.2134	0.1911	0.1526	0.2162	0.1885	0.1423	0.1775
AT_REAL	9037.53	10563.96	5029.97	5631.67	6113.92	7153.37	5657.96	4929.95
SALE_REAL	3240.76	3224.9	3282.2	3119.38	3935.55	4688.43	3903.38	3117.71
EMP	9.3887	8.9951	10.3707	9.4306	11.1961	12.8933	13.2354	11.1348
LEV	0.2329	0.2294	0.2423	0.2449	0.245	0.2472	0.2457	0.2259
CF	0.0243	0.0229	0.0274	0.0441	0.0327	0.0349	0.0464	0.0387
M_SHARE	0.0023	0.0022	0.0028	0.0026	0.0034	0.0033	0.0037	0.0038
ROA	0.0885	0.0883	0.0888	0.1088	0.0945	0.0947	0.1032	0.0887
SALE_G	0.4624	0.4931	0.3861	0.1509	0.2638	0.2051	0.1547	0.1517
CAPX_SCALED	0.0646	0.0658	0.0616	0.0616	0.0571	0.0581	0.0566	0.0537
R&D_SCALED	0.0673	0.0661	0.0698	0.0646	0.0734	0.0711	0.0594	0.0586
GM	-1.0198	-1.0424	-0.961	-1.4488	-1.4286	-0.2561	0.0646	0.1012
NI_MARGIN	-1.74	-1.7734	-1.6531	-3.0589	-2.0112	-0.7876	-0.3427	-0.2513
TAX	0.2563	0.2522	0.267	0.2446	0.2448	0.1984	0.2505	0.2865
TAXFED	0.1318	0.1229	0.1506	0.1549	0.1262	0.1727	0.17	0.1651

Univariate Fama-MacBeth Cross-Sectional Regressions

Government Dependent and Non-Dependent Firms

	M_Ret (1)	M_Ret (2)	M_Ret (3)	M_Ret (4)	M_Ret (5)	M_Ret (6)	M_Ret (7)	M_Ret (8)	M_Ret (9)	M_Ret (10)	M_Ret (11)
GD^{Report}	0.00226*** (2.848)				-0.00239** (-2.093)	-0.00112 (-1.352)					
$GD^{Strength}$		0.0567*** (5.962)			0.0359** (2.477)		0.0246** (2.572)				
$GD^{Surprise}$			0.122*** (6.059)		0.0699** (2.343)	0.131*** (6.266)					
GD^{Sale}				0.0000568** (2.586)	0.0000346 (1.565)		0.0000263 (1.264)				
GD^{Report_T3}								0.00353*** (2.964)			
$GD^{Strength\_T3}$									0.0687*** (4.325)		
$GD^{Surprise\_T3}$										0.147*** (4.291)	
GD^{Sale_T3}											0.0000659** (2.551)
Constant	0.0164*** (6.778)	0.0160*** (6.627)	0.0161*** (6.697)	0.0140*** (6.020)	0.0138*** (5.986)	0.0163*** (6.763)	0.0138*** (5.970)	0.0164*** (6.778)	0.0161*** (6.662)	0.0162*** (6.688)	0.0140*** (5.984)
Months	432	432	432	432	432	432	432	432	432	432	432

Controlling for Additional Risks

- Controlling for economic political & other Risks
  - Economic Political Uncertainty Index of (Baker Bloom Davis(2016)
    - First component quantifies newspaper coverage of policy-related economic uncertainty
    - Second component reflects the number of federal tax code provisions set to expire in future years
    - Third component uses disagreement among economic forecasters as a proxy for uncertainty
    - Requires policy terms (e.g. government shutdown) plus uncertainty
  - Government Spending Index (Baker Bloom Davis(2016)
    - Spending Key Words: entitlement spending, defense spending, military spending, fiscal stimulus
    - Other Key Words: federal debt, debt ceiling, Graham-Dudman

Controlling for Additional Risks

- Controlling for economic political & other risks contd...
    - Regulation Index (Baker Bloom Davis(2016)
        - Regulation Key Words: glass-steagall, tarp, dodd-frank, banking supervision, basel
        - Other Key Words: Sec, epa, energy tax, wages and hours, workers compensation
    - Geopolitical Risks Index (Caldara and Lacoviello, Federal Reserve)
    - US presidential election versus non-election years
    - Tail risks measure of (Kelly and Jiang(2014))
        - $\lambda_t^{Hill} = \frac{1}{K_t} \sum_{k=1}^{K_t} ln \frac{R_{k,t}}{u_t}$, where
        - $R_{k,t}$ is the kth daily return that falls below an extreme value threshold u_t during month t, and
        - K_t is the total number of such exceedences within month t.

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Controlling for Self Selection Bias

- Controlling for Self Selection Bias

  - Calculate Inverse Mills Ratio (IMR) in 1st state

  - Include IMR in 2nd stage FM regressions

  - Firms characteristics
    - Gross margin, EBITDA, BM, productivity, ROA, cash flow

  - Determinants of political connections

    - MCAP, Sale, Num. of Employees, No. of Business and Geographic Segments, leverage, Effective Tax Rate, Market Share, Market Share^2, Herfindahl Index, Regulation Indicator, Government Sales over Total Sales, No of Politically Active Firms

Multivariate Fama-MacBeth Cross-Sectional Regressions

Government Dependency Variables with Controls

	M_Ret (1)	M_Ret (2)	M_Ret (3)	M_Ret (4)	M_Ret (5)	M_Ret (6)	M_Ret (7)	M_Ret (8)
GD^{Report}	0.00332*** (3.555)							
$GD^{Strength}$		0.0341*** (2.987)						
$GD^{Surprise}$			0.0532 (1.535)					
GD^{Sale}				0.0000836*** (3.722)				
GD^{Report_T3}					0.00451*** (4.012)			
$GD^{Strength\_T3}$						0.0484*** (3.454)		
$GD^{Surprise\_T3}$							0.0473 (0.928)	
GD^{Sale_T3}								0.000106*** (4.090)
BM	-0.000276 (-0.380)	-0.000320 (-0.438)	-0.000289 (-0.398)	-0.0000355 (-0.051)	-0.000172 (-0.236)	-0.000301 (-0.408)	-0.000360 (-0.487)	0.0000146 (0.021)
MCAP	-0.00176*** (-5.367)	-0.00179*** (-5.401)	-0.00174*** (-5.319)	-0.00123*** (-3.835)	-0.00176*** (-5.291)	-0.00184*** (-5.460)	-0.00181*** (-5.410)	-0.00121*** (-3.753)
AG	-0.00312*** (-5.456)	-0.00307*** (-5.393)	-0.00307*** (-5.405)	-0.00306*** (-5.201)	-0.00329*** (-5.671)	-0.00367*** (-5.657)	-0.00370*** (-5.696)	-0.00324*** (-5.498)
BHR12M	0.000606 (0.448)	0.000604 (0.450)	0.000618 (0.459)	0.000586 (0.365)	0.000658 (0.473)	0.000840 (0.608)	0.000862 (0.624)	0.000715 (0.434)
ROA	0.000696 (0.197)	0.000837 (0.238)	0.000419 (0.119)	0.00236 (0.641)	0.000862 (0.241)	0.00147 (0.390)	0.000958 (0.255)	0.00232 (0.621)
IMR	0.00374*** (4.567)	0.00374*** (4.466)	0.00305*** (3.790)	0.00399*** (4.869)	0.00408*** (5.029)	0.00406*** (4.860)	0.00307*** (3.741)	0.00417*** (5.106)
β_{EPU}	1.183 (0.624)	1.096 (0.578)	1.088 (0.574)	2.041 (1.094)	1.450 (0.751)	1.722 (0.907)	1.669 (0.880)	2.373 (1.245)
β_{GPR}	-3.454** (-2.540)	-3.421** (-2.523)	-3.482** (-2.579)	-3.840*** (-2.733)	-3.473** (-2.528)	-3.730*** (-2.645)	-3.754*** (-2.684)	-3.810*** (-2.703)
β_{GS}	-0.340 (-0.126)	-0.244 (-0.090)	-0.243 (-0.090)	-0.591 (-0.214)	-0.957 (-0.345)	-0.971 (-0.354)	-0.968 (-0.353)	-1.403 (-0.494)
β_{REGL}	-0.253 (-0.133)	-0.196 (-0.103)	-0.196 (-0.103)	-0.389 (-0.200)	-0.394 (-0.204)	-0.523 (-0.268)	-0.504 (-0.257)	-0.536 (-0.268)
$\beta_{Tail\ Risk}$	0.00165 (1.237)	0.00166 (1.255)	0.00160 (1.200)	0.00174 (1.285)	0.00172 (1.277)	0.00179 (1.359)	0.00175 (1.321)	0.00182 (1.327)
Election Yrs	0.00693*** (2.648)	0.00661*** (2.495)	0.00768*** (2.896)	0.00430* (1.737)	0.00654** (2.541)	0.00663** (2.570)	0.00811*** (3.022)	0.00396 (1.586)
Constant	0.00602*** (2.841)	0.00633*** (2.925)	0.00674*** (3.188)	0.00400* (1.950)	0.00562*** (2.627)	0.00586*** (2.621)	0.00651*** (2.920)	0.00377* (1.786)
Months	300	300	300	300	300	300	300	300

Multivariate Fama-MacBeth Cross-Sectional Regressions

FF 49 Industry Median Adjusted Variables

	M_Ret (1)	M_Ret (2)	M_Ret (3)	M_Ret (4)	M_Ret (5)	M_Ret (6)	M_Ret (7)	M_Ret (8)
GD^{Report}	0.00259***							
	(2.722)							
$GD^{Strength}$		0.0255**						
		(2.224)						
$GD^{Surprise}$			0.0368					
			(1.084)					
GD^{Sale}				0.0000693***				
				(2.853)				
GD^{Report_T3}					0.00399***			
					(3.337)			
$GD^{Strength\_T3}$						0.0395**		
						(2.347)		
$GD^{Surprise\_T3}$							0.0415	
							(0.735)	
GD^{Sale_T3}								0.0000896***
								(3.089)
BM	0.000915*	0.000884	0.000906	0.00105**	0.00103*	0.000961*	0.000963*	0.00113**
	(1.651)	(1.588)	(1.633)	(2.022)	(1.844)	(1.722)	(1.723)	(2.171)
MCAP	-0.00186***	-0.00187***	-0.00185***	-0.00132***	-0.00186***	-0.00193***	-0.00191***	-0.00131***
	(-6.159)	(-6.160)	(-6.131)	(-4.552)	(-6.059)	(-6.122)	(-6.098)	(-4.439)
AG	-0.00320***	-0.00321***	-0.00321***	-0.00310***	-0.00336***	-0.00377***	-0.00380***	-0.00326***
	(-5.466)	(-5.475)	(-5.479)	(-5.188)	(-5.696)	(-5.738)	(-5.780)	(-5.485)
BHR12M	0.00128	0.00127	0.00130	0.00122	0.00133	0.00144	0.00151	0.00136
	(0.956)	(0.945)	(0.968)	(0.771)	(0.962)	(1.045)	(1.100)	(0.830)
ROA	0.00432	0.00435	0.00406	0.00627*	0.00434	0.00454	0.00418	0.00604*
	(1.352)	(1.370)	(1.270)	(1.906)	(1.336)	(1.310)	(1.197)	(1.807)
IMR	0.00712***	0.00694***	0.00684***	0.00705***	0.00753***	0.00788***	0.00769***	0.00714***
	(4.672)	(4.547)	(4.485)	(4.618)	(5.118)	(5.285)	(5.245)	(4.896)
β_{EPU}	-0.240	-0.306	-0.333	0.618	-0.143	-0.313	-0.361	0.861
	(-0.117)	(-0.149)	(-0.163)	(0.299)	(-0.070)	(-0.155)	(-0.179)	(0.414)
β_{GPR}	-3.983***	-4.010***	-4.095***	-4.311***	-4.041***	-4.172***	-4.245***	-4.373***
	(-2.619)	(-2.635)	(-2.686)	(-2.685)	(-2.622)	(-2.717)	(-2.771)	(-2.699)
β_{GS}	0.456	0.554	0.549	0.0802	0.0541	0.226	0.267	-0.504
	(0.158)	(0.191)	(0.190)	(0.027)	(0.019)	(0.079)	(0.093)	(-0.170)
β_{REGL}	0.351	0.401	0.427	0.127	0.367	0.442	0.487	0.149
	(0.175)	(0.199)	(0.212)	(0.061)	(0.181)	(0.212)	(0.233)	(0.070)
$\beta_{Tail\ Risk}$	0.000873	0.000844	0.000800	0.00101	0.000925	0.000928	0.000850	0.00107
	(0.767)	(0.739)	(0.702)	(0.888)	(0.798)	(0.801)	(0.732)	(0.918)
Election Yrs	0.00527***	0.00519***	0.00531***	0.00463***	0.00521***	0.00514***	0.00535***	0.00461***
	(3.129)	(3.118)	(3.185)	(2.819)	(3.095)	(3.123)	(3.178)	(2.792)
Constant	0.00566***	0.00570***	0.00577***	0.00495***	0.00554***	0.00562***	0.00566***	0.00483***
	(3.031)	(3.072)	(3.101)	(2.718)	(2.958)	(2.944)	(2.955)	(2.616)
Months	300	300	300	300	300	300	300	300

Return Predictability of Government Dependency

Government Dependent but not PAC Contributions

	M_Ret (1)	M_Ret (2)	M_Ret (3)	M_Ret (4)	M_Ret (5)	M_Ret (6)	M_Ret (7)	M_Ret (8)
GD^{Report}	0.00321*** (3.310)				0.00342*** (2.968)			
$GD^{Strength}$		0.0737*** (5.801)				0.0332** (2.537)		
$GD^{Surprise}$			0.126*** (5.748)				0.0276 (0.791)	
GD^{Sale}				0.0000682*** (2.594)				0.0000919*** (3.319)
BM					-0.000690 (-0.899)	-0.000693 (-0.903)	-0.000718 (-0.934)	-0.000325 (-0.450)
MCAP					-0.00245*** (-6.661)	-0.00245*** (-6.643)	-0.00245*** (-6.674)	-0.00170*** (-4.711)
AG					-0.00347*** (-5.526)	-0.00347*** (-5.533)	-0.00344*** (-5.477)	-0.00347*** (-5.214)
BHR12M					0.000825 (0.657)	0.000809 (0.645)	0.000825 (0.659)	0.000932 (0.618)
ROA					0.00121 (0.334)	0.00129 (0.360)	0.000986 (0.273)	0.00250 (0.662)
IMR					0.00423*** (4.163)	0.00426*** (4.181)	0.00372*** (3.622)	0.00449*** (4.519)
β_{EPU}					0.619 (0.317)	0.523 (0.268)	0.495 (0.253)	1.358 (0.708)
β_{GPR}					-3.068** (-2.334)	-3.041** (-2.322)	-3.030** (-2.321)	-3.387** (-2.443)
β_{GS}					0.559 (0.202)	0.680 (0.246)	0.671 (0.243)	0.530 (0.187)
β_{REGL}					-0.335 (-0.171)	-0.268 (-0.137)	-0.287 (-0.147)	-0.447 (-0.221)
$\beta_{Tail\ Risk}$					0.00163 (1.308)	0.00161 (1.291)	0.00160 (1.287)	0.00161 (1.266)
Election Yrs					0.00829*** (2.916)	0.00797*** (2.812)	0.00899*** (3.114)	0.00512* (1.921)
Constant	0.0167*** (6.788)	0.0163*** (6.671)	0.0165*** (6.713)	0.0140*** (5.941)	0.00655*** (2.877)	0.00675*** (2.955)	0.00713*** (3.182)	0.00433** (1.970)
Months	300	300	300	300	300	300	300	300

Return Predictability of Government Dependency

Government Dependency with PAC Contributions

	M_Ret	M_Ret	M_Ret	M_Ret	M_Ret	M_Ret	M_Ret	M_Ret
GD^{Report}	0.00178**				0.00318***			
	(2.227)				(3.316)			
$GD^{Strength}$		0.0274***				0.0321***		
		(2.623)				(2.818)		
$GD^{Surprise}$			0.0716**				0.0385	
			(2.579)				(1.115)	
GD^{Sale}				0.0000511**				0.0000784***
				(2.232)				(3.314)
(1) PI^{Candidates}	-0.00529	-0.00513	-0.00469	-0.00557	0.0104***	0.0101**	0.0119***	0.0103***
	(-1.043)	(-1.069)	(-0.978)	(-1.089)	(2.648)	(2.502)	(3.183)	(2.628)
GD^{Var} X (1)	-0.00120	-0.0418	-0.212	-0.0000486	0.00118	0.0347	-0.00471	-0.0000190
	(-0.341)	(-0.714)	(-0.919)	(-0.594)	(0.251)	(0.509)	(-0.020)	(-0.151)
BM					-0.000117	-0.000162	-0.000147	-0.000107
					(-0.170)	(-0.235)	(-0.214)	(-0.156)
MCAP					-0.00140***	-0.00144***	-0.00141***	-0.00139***
					(-4.244)	(-4.319)	(-4.247)	(-4.206)
AG					-0.00300***	-0.00296***	-0.00298***	-0.00302***
					(-5.126)	(-5.077)	(-5.101)	(-5.168)
BHR12M					0.000550	0.000550	0.000561	0.000549
					(0.345)	(0.347)	(0.353)	(0.342)
ROA					0.00252	0.00266	0.00224	0.00255
					(0.681)	(0.722)	(0.607)	(0.689)
IMR					0.00411***	0.00409***	0.00339***	0.00408***
					(4.982)	(4.874)	(4.091)	(4.868)
β_{EPU}					2.014	1.960	1.957	2.040
					(1.082)	(1.054)	(1.053)	(1.097)
β_{GPR}					-3.797***	-3.787***	-3.856***	-3.800***
					(-2.711)	(-2.711)	(-2.768)	(-2.713)
β_{GS}					-0.470	-0.450	-0.449	-0.506
					(-0.171)	(-0.163)	(-0.163)	(-0.183)
β_{REGL}					-0.414	-0.370	-0.359	-0.415
					(-0.212)	(-0.190)	(-0.184)	(-0.213)
$\beta_{Tail\ Risk}$					0.00183	0.00186	0.00179	0.00181
					(1.358)	(1.387)	(1.334)	(1.344)
Election Yrs					0.00426*	0.00402	0.00517***	0.00454*
					(1.722)	(1.611)	(2.102)	(1.810)
Constant	0.0136***	0.0135***	0.0135***	0.0137***	0.00449**	0.00478**	0.00519**	0.00427**
	(5.772)	(5.753)	(5.798)	(5.797)	(2.174)	(2.275)	(2.512)	(2.104)
Months	300	300	300	300	300	300	300	300

Return Predictability of Political Connections (PAC Based)

PI Vars within Gov. Dep. & Non-Dep. Firms

	Politically Connected & Government Dependent				Politically Connected but not Government Dependent			
	M_Ret (1)	M_Ret (2)	M_Ret (3)	M_Ret (4)	M_Ret (5)	M_Ret (6)	M_Ret (7)	M_Ret (8)
$PI^{Candidates}$	0.0152** (2.316)				0.00617 (1.274)			
$PI^{Strength}$		0.000413*** (2.710)				0.000119 (1.062)		
PI^{Power}			0.00417** (2.358)				0.00143 (1.057)	
$PI^{Ability}$				0.126* (1.779)				0.0312 (0.468)
BM	0.000528 (0.360)	0.000619 (0.422)	0.000554 (0.377)	0.000510 (0.347)	-0.000149 (-0.126)	-0.000137 (-0.115)	-0.0000947 (-0.080)	-0.0000234 (-0.020)
MCAP	-0.00240*** (-3.433)	-0.00241*** (-3.490)	-0.00240*** (-3.480)	-0.00205*** (-3.271)	-0.00199*** (-3.651)	-0.00192*** (-3.583)	-0.00195*** (-3.582)	-0.00184*** (-3.533)
AG	-0.00460** (-2.066)	-0.00466** (-2.086)	-0.00462** (-2.076)	-0.00486** (-2.169)	-0.00159 (-0.855)	-0.00172 (-0.926)	-0.00162 (-0.869)	-0.00204 (-1.098)
BHR12M	0.000888 (0.301)	0.000908 (0.309)	0.000891 (0.302)	0.000989 (0.339)	0.00592* (1.952)	0.00590* (1.940)	0.00592* (1.951)	0.00592* (1.953)
ROA	0.0286 (1.576)	0.0291 (1.596)	0.0287 (1.586)	0.0272 (1.517)	-0.00211 (-0.267)	-0.00221 (-0.278)	-0.00197 (-0.249)	-0.00250 (-0.314)
IMR	0.00217 (1.616)	0.00245* (1.754)	0.00223 (1.638)	0.00205 (1.618)	0.00749*** (3.088)	0.00739*** (3.036)	0.00751*** (3.098)	0.00766*** (3.209)
β_{EPU}	-0.502 (-0.160)	-0.265 (-0.083)	-0.562 (-0.179)	-0.579 (-0.186)	3.879 (1.088)	3.955 (1.112)	3.933 (1.103)	3.749 (1.056)
β_{GPR}	-9.443* (-1.661)	-9.610* (-1.687)	-9.445* (-1.663)	-8.724 (-1.546)	-1.154 (-0.215)	-1.256 (-0.235)	-1.152 (-0.215)	-1.418 (-0.266)
β_{GS}	7.823 (1.177)	7.718 (1.159)	7.930 (1.192)	7.014 (1.052)	-4.942 (-0.866)	-5.296 (-0.927)	-5.178 (-0.906)	-5.230 (-0.919)
β_{REGL}	4.159 (1.362)	3.947 (1.289)	4.183 (1.370)	4.043 (1.324)	-1.600 (-0.586)	-1.531 (-0.562)	-1.611 (-0.591)	-1.307 (-0.480)
$\beta_{Tail Risk}$	0.00719*** (2.866)	0.00725*** (2.894)	0.00716*** (2.856)	0.00724*** (2.896)	0.00400 (1.647)	0.00395 (1.621)	0.00394 (1.624)	0.00396 (1.635)
Election Yrs	0.00919** (2.235)	0.00953** (2.298)	0.00922** (2.234)	0.00841** (2.020)	0.00182 (0.385)	0.00181 (0.383)	0.00183 (0.386)	0.00199 (0.423)
Constant	0.00824* (1.725)	0.00769 (1.621)	0.00813* (1.711)	0.00724 (1.510)	0.00509 (1.155)	0.00499 (1.145)	0.00485 (1.103)	0.00396 (0.922)
Months	192	192	192	192	192	192	192	192

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Sources of Returns Predictability
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Robustness Check - Concern of Customer Concentration

Return Predictability of Corporate Dependency

	M_Ret	M_Ret	M_Ret	M_Ret	M_Ret	M_Ret	M_Ret	M_Ret	M_Ret	M_Ret
CD^{Report}	0.000326				-0.00144*	-0.000223				-0.000431
	(0.323)				(-1.884)	(-0.366)				(-0.488)
$CD^{Strength}$		-0.000158			0.00279***		-0.0000239			0.000490
		(-0.375)			(4.358)		(-0.083)			(0.643)
$CD^{Surprise}$			-0.000798**		-0.00266***			-0.000205		-0.000413
			(-2.227)		(-4.999)			(-0.623)		(-0.608)
CD^{Sale}				-0.0000220	-0.000393				-0.000295	-0.000425
				(-0.053)	(-1.231)				(-1.027)	(-1.288)
BM						-0.000383	-0.000378	-0.000385	-0.000398	-0.000407
						(-0.566)	(-0.558)	(-0.569)	(-0.589)	(-0.604)
MCAP						-0.00361***	-0.00362***	-0.00362***	-0.00362***	-0.00362***
						(-11.449)	(-11.439)	(-11.430)	(-11.445)	(-11.525)
AG						-0.00442***	-0.00443***	-0.00447***	-0.00447***	-0.00452***
						(-8.918)	(-8.948)	(-9.030)	(-9.024)	(-9.191)
BHR12M						-0.00133	-0.00130	-0.00132	-0.00130	-0.00132
						(-0.942)	(-0.926)	(-0.934)	(-0.922)	(-0.937)
ROA						-0.0203***	-0.0203***	-0.0204***	-0.0202***	-0.0203***
						(-5.168)	(-5.181)	(-5.215)	(-5.180)	(-5.199)
IMR						0.00169**	0.00170**	0.00170**	0.00169**	0.00168*
						(1.974)	(1.978)	(2.001)	(1.985)	(1.950)
Constant	0.0118***	0.0119***	0.0120***	0.0119***	0.0121***	0.0353***	0.0354***	0.0354***	0.0354***	0.0353***
	(4.836)	(4.632)	(4.631)	(4.630)	(4.745)	(9.080)	(8.928)	(8.923)	(8.974)	(8.984)
Months	432	432	432	432	432	431	431	431	431	431

Other Robustness Checks

- Are the results basically capturing the results of political connections?

- Do the results depend on the types of returns used?
    - Excess returns over t-bill
    - Daniel, Grinblatt, Titman, Wermers (1997) adjusted returns

- Do the results depend on the government-dependency variable used in the analysis?
    - Government dependency portfolios have alpha significant at 1% level regardless GD variables used for weighting

- Are the results robust to changing the definition of government dependency variables?
    - Government dependency variables as plain count variables

Government Dependency Weighted Portfolios

- Beginning of each month, following the methodology similar to that of Cooper et al.(2010), I form a government dependency weighted portfolios of government dependent firms

- Each stock i's weight in the portfolio is,

$$Stock\ i's\ Weight_{i,t} = \frac{GD_{i,t-12}^{Variable}}{\sum_i^N GD_{i,t-12}^{Variable}}$$

- Include several risk and mispricing factors

  - CAPM, Fama-French 3 & 5, Fama-French-Carhart 4 & 6

  - UMO (undervalued minus overvalued) - Financing based mispricing factor (UMO) of Hirshleifer and Jiang (2010)

  - MGMT (net stock issues, composite equity issues etc.) and,

  - PERF (Momentum, ROA, distress etc.) factors of Stambaugh and Yuan (2016)

Results - Government Dependency Weighted Portfolios

FF Portfolio Alphas: Government Dependency Weighted Portfolios

Stock $i's$ weight in a portfolio is given by, $Weight_{i,t} = \dfrac{GD_{i,t-12}^{Variable}}{\sum_i^N GD_{i,t-12}^{Variable}}$

| Models | Portfolio Weightings | | | | $GD^{Strength}$ Weighted | | | $GD^{Strength}$ Weighted | | |
	GD^{Report} Weighted	$GD^{Strength}$ Weighted	$GD^{Surprise}$ Weighted	GD^{Sale} Weighted	Small	Medium	Large	1979-1992	1993-2003	2004-2014
CAPM α	0.00502**	0.00406**	0.00443**	0.00573**	0.00488**	0.00274	0.00369**	0.00208	0.00787	0.00319*
	(2.459)	(2.302)	(2.435)	(2.346)	(2.052)	(1.172)	(2.631)	(1.101)	(1.597)	(1.906)
FF-3 α	0.00461***	0.00401***	0.00443***	0.00554***	0.00424**	0.00247	0.00372***	0.00350***	0.00581***	0.00323***
	(3.641)	(4.429)	(4.774)	(3.381)	(2.652)	(1.627)	(4.094)	(3.085)	(2.596)	(3.267)
FFC-4 α	0.00493***	0.00493***	0.00532***	0.00602***	0.00527***	0.00353**	0.00466***	0.00324***	0.00805***	0.00343***
	(3.986)	(4.995)	(5.239)	(3.73)	(3.134)	(2.193)	(4.737)	(3.223)	(3.873)	(4.262)
FF-5 α	0.00397***	0.00441***	0.00488***	0.00503***	0.00426***	0.00235	0.00384***	0.00474***	0.00684*	0.00392***
	(3.42)	(4.213)	(4.642)	(3.703)	(2.746)	(1.334)	(3.747)	(3.912)	(2.141)	(3.904)
FFC-6 α	0.00425***	0.00498***	0.00542***	0.00540***	0.00495***	0.00306	0.00444***	0.00456***	0.00839***	0.00392***
	(3.862)	(5.091)	(5.473)	(4.056)	(3.124)	(1.867)	(4.757)	(3.791)	(3.355)	(5.138)
FFC-6 & MISP α	0.00472***	0.00549***	0.00600***	0.00578***	0.00536***	0.00418***	0.00528***	0.00445**	0.00920***	0.00409***
	(4.490)	(5.772)	(6.414)	(4.301)	(3.200)	(3.090)	(5.079)	(2.989)	(3.361)	(5.559)
Months	420	420	420	420	420	420	420	420	420	420

Sources of Abnormal Returns: Change in Business Environment & Firm Characteristics

- Probability of winning a material government contract in future goes up significantly
  - Having a government contract 10 years back increases the probability by 26%
  - Size of the past government contract has significantly positive incremental effect (One St.Dev.=11.23%)
- Firms get bigger, acquire more assets, increase productivity and pay lower taxes
- Profit margin ratio accross the borad increase significantly
  - Atypical feature of government contract (e.g. TFC) may be the reason
  - Information asymmetry between contractor and contractee may also be the reason

Probability of Winning Material Contracts

Probit Regression Controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$MCAP_{t-12}$	-0.0468***	-0.0454***	-0.0476***	-0.0470***	-0.0487***	-0.0166	-0.0439***
	(-6.228)	(-5.952)	(-6.304)	(-6.183)	(-6.498)	(-1.284)	(-4.240)
$Sale_{t-12}$	-0.182***	-0.182***	-0.182***	-0.185***	-0.184***	-0.129***	-0.0882**
	(-11.880)	(-11.917)	(-11.834)	(-11.859)	(-11.885)	(-3.528)	(-2.239)
$Employees_{t-12}$	0.210***	0.212***	0.210***	0.210***	0.210***	0.149***	0.114***
	(12.886)	(13.100)	(12.800)	(12.808)	(12.845)	(4.774)	(3.170)
$No.\ Bus.\ Segments_{t-12}$	0.0459***	0.0462***	0.0455***	0.0476***	0.0461***	-0.00575	-0.00750
	(7.067)	(7.073)	(6.928)	(7.445)	(7.034)	(-0.556)	(-0.712)
$No.\ Geo.\ Segments_{t-12}$	-0.0480***	-0.0485***	-0.0478***	-0.0483***	-0.0477***	-0.00938	-0.0158***
	(-9.463)	(-9.511)	(-9.393)	(-9.432)	(-9.234)	(-1.450)	(-3.140)
BM_{t-12}	-0.000641	-0.000562	-0.000640	-0.000762	-0.000721	-0.00118	-0.0493**
	(-0.498)	(-0.433)	(-0.497)	(-0.587)	(-0.555)	(-0.999)	(-2.292)
$Leverage_{t-12}$	-0.225***	-0.226***	-0.225***	-0.226***	-0.226***	-0.0511	-0.124**
	(-5.158)	(-5.156)	(-5.147)	(-5.177)	(-5.152)	(-0.874)	(-2.069)
$Cash\ Flow_{t-12}$	0.177	0.158	0.170	0.167	0.158	-0.281	0.111
	(1.150)	(1.047)	(1.108)	(1.092)	(1.037)	(-1.633)	(0.494)
$Market\ Share_{t-12}$	2.374**	2.255**	1.956**	3.567***	2.362**	1.200	1.832
	(2.511)	(2.326)	(2.019)	(3.737)	(2.440)	(0.672)	(1.410)
$(Market\ Share)^2_{t-12}$	-1.434	-2.733	-0.00452	-4.360	-0.538	11.50	6.123
	(-0.218)	(-0.398)	(-0.001)	(-0.667)	(-0.084)	(1.195)	(0.658)
$Herfindahl\ Index_{t-12}$	20.20***	20.36***	20.16***	20.08***	20.05***	14.91***	17.20***
	(9.674)	(9.639)	(9.679)	(9.640)	(9.675)	(8.525)	(8.331)
$Regul.\ Indicator_{t-12}$	0.205***	0.204**	0.206**	0.197**	0.201**	0.121**	0.00551
	(2.584)	(2.558)	(2.589)	(2.459)	(2.513)	(2.523)	(0.111)
$No.\ PActive\ Firms_{t-12}$	0.0104***	0.0106***	0.0104***	0.00986***	0.00993***	0.00925***	0.0105***
	(6.490)	(6.598)	(6.413)	(6.019)	(6.060)	(4.717)	(4.476)
$Productivity_{t-12}$	-0.0569*	-0.0569*	-0.0571*	-0.0559*	-0.0566*	-0.119**	-0.262***
	(-1.743)	(-1.742)	(-1.748)	(-1.715)	(-1.729)	(-2.428)	(-3.380)
$Gross\ Margin_{t-12}$	0.00196**	0.00196**	0.00196**	0.00197**	0.00197**	0.0104*	0.0514*
	(2.005)	(2.004)	(2.006)	(2.012)	(2.011)	(1.809)	(1.926)
$Overall\ Tax\ Rate_{t-12}$	0.000681	0.000692	0.000683	0.000692	0.000689	0.000946**	-0.0000766
	(1.317)	(1.329)	(1.313)	(1.351)	(1.329)	(2.243)	(-0.235)
ROA_{t-12}	0.0259	0.0383	0.0341	0.0396	0.0493	0.409***	-0.0117
	(0.154)	(0.231)	(0.203)	(0.238)	(0.298)	(2.871)	(-0.075)
Constant	-0.203**	-0.209**	-0.198**	-0.191**	-0.186**	-1.137***	-0.863***
	(-2.478)	(-2.543)	(-2.430)	(-2.372)	(-2.303)	(-10.420)	(-7.299)
Obs.	1,149,819	1,149,819	1,149,819	1,149,819	1,149,819	579,149	407,023

Overview & Motivation
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Sources of Returns Predictability
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Probability of Winning Material Contracts

Probit Regression Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
			1 if a Firm Reports Government as Major Customer in Current Year; 0 otherwise				
GOV_REP$_{t-76}$						1.566*** (14.060)	
GD_{t-76}^{Sale}						0.0229*** (11.314)	
GOV_REP$_{t-120}$							1.128*** (10.256)
GD_{t-120}^{Sale}							0.0239*** (11.548)
PI^{Candidates}	0.00145*** (11.170)				-0.00214*** (-2.597)	0.00107 (1.190)	0.000695 (0.500)
PI^{Strength}		0.0000381*** (15.643)			-0.00000469 (-0.744)	-0.00000953 (-0.818)	0.00000793 (1.038)
PI^{Power}			0.000460*** (13.163)		0.000904*** (3.690)	-0.0000982 (-0.408)	-0.000179 (-0.491)
PI^{Ability}				0.0215*** (12.744)	0.0134*** (7.245)	-0.00319 (-1.254)	0.00169 (0.505)

Overview & Motivation
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Sources of Returns Predictability
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Change in Firm Characteristics

Pre vs Post Government Dependency

	(1 = Government Dependent Firms Pre) (0 = Government Non-dependent Firms)	(1 = Government Dependent Firm Post) (0 = Government Dependent Firm Pre		
		All FF12 Industries	Top 3 Ind. by Sales	Top 3 Ind. by HHI
	(1)	(2)	(3)	(4)
Log Assets	-0.0487*** (-2.878)	0.154*** (10.650)	0.149*** (7.333)	0.144*** (9.679)
Log Market Capital	0.0678*** (3.872)	0.0650*** (4.107)	0.0341 (1.473)	0.0681*** (3.924)
Gross Margin	-0.0384*** (-4.365)	0.0241*** (3.476)	0.0434***(4.241)	0.0375*** (3.339)
EBIT Margin	-0.0746*** (-4.986)	0.0475*** (3.337)	0.0772*** (4.659)	0.0810***(3.456)
Op. Profit Margin	-0.0687*** (-4.862)	0.0476*** (3.561)	0.0737***(4.725)	0.0717*** (3.501)
Net Income Margin	-0.0578*** (-4.091)	0.0418*** (2.931)	0.0736*** (4.053)	0.0676***(3.127)
Leverage	0.00363** (2.582)	0.0126*** (5.847)	0.00502* (1.776)	0.00633** (2.084)
Overall Tax Rate	-0.00314 (-1.590)	-0.0112** (-2.144)	-0.0160** (-2.645)	-0.0165*** (-3.098)
Federal Tax Rate	0.000317 (0.136)	0.00519 (1.307)	-0.00228 (-0.390)	-0.00342 (-0.644)
Productivity	-0.0358*** (-4.917)	0.0137*** (3.528)	0.0152** (2.134)	0.0157** (2.628)
Sales Growth	0.0214*** (4.718)	-0.0527*** (-4.986)	-0.0683*** (-5.007)	-0.0425*** (-3.549)
Capex Scaled	-0.00183*** (-3.093)	-0.00419*** (-5.200)	-0.00447*** (-4.592)	-0.00398***(-3.198)
R&D Scaled	0.00570*** (5.023)	0.00273* (1.971)	0.00304** (2.538)	0.00400**(2.025)
Firm FE	NO	YES	YES	YES
Year * FFI49 FE	YES	YES	YES	YES
Avg Obs	1,458,861	521,149	267,197	242,557

"Termination for Convenience" (TFC) Clause - A Material Risk

- Words of clause "whenever the Contracting Officer shall determine in the best interest of the Government"
- Congressional Research Service Report for Congress (R43055)
  - TFC is implied on all government contracts
  - Court cases have been given the right to the Government even when the contract expressly disclaims the right
  - Since the government is assumed to be acting on public's interest, as a rule, the government cannot be held liable for breach
- Perlman and Goodrich (1978)
  - TFC has been used to avoid a bad business deal, wrongfully terminate a contract for default
  - The contractor will be in a substantially worse position than would have been the case had the contract no be awarded
- Contractors generally cannot recover consequential damages (Manuel 2015)

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Example: Termination for Convenience (TFC) Concern

Teledyne 2014 10-K Excerpts

TELEDYNE TECHNOLOGIES INCORPORATED

Approximately 25%, 27% and 32% of our total sales for 2014, 2013 and 2012, respectively, were derived from contracts with agencies of, and prime contractors to, the U.S. Government. Information on our sales to the U.S. Government, including direct sales as a prime contractor and indirect sales as a subcontractor, is as follows (in millions):

	2014	2013	2012
Instrumentation	$ 38.6	$ 40.6	$ 39.9
Digital Imaging	102.2	120.2	128.8
Aerospace and Defense Electronics	245.3	260.2	269.9
Engineered Systems	221.8	209.2	245.4
Total U.S. Government sales	$607.9	$630.2	$684.0

As described under risk factors, there are risks associated with doing business with the U.S. Government. In 2014, approximately 58% of our U.S. Government prime contracts and subcontracts were fixed-price type contracts, compared to 60% in 2013 and 59% in 2012. Under these types of contracts, we bear the inherent risk that actual performance cost may exceed the fixed contract price. Such contracts are typically not subject to renegotiation of profits if we fail to anticipate technical problems, estimate costs accurately or control costs during performance. Additionally, U.S. Government contracts are subject to termination by the U.S. Government at its convenience, without identification of any default. When contracts are terminated for convenience, we typically recover costs incurred or committed, settlement expenses and profit on work completed prior to termination. We had three U.S. Government contracts terminated for convenience in 2014, compared with four in 2013 and six in 2012.

Measures of Investment Irreversibility / Asset Specificity

- Capital intensity ratio: net PPE divided by total assets
  - Do not account for asset specificity, mobility, or adjustment costs
- Asset Redeployability Score of Kim Kung (2016)

$$Redeployability\ Score_{a,t} = \frac{\sum_{j=1}^{123} I_{a,j}\ (use)\ x\ Value_{j,t}}{\sum_{j=1}^{123} Value_{j,t}}$$

  - Captures both asset specificity and liquidity
  - Based on BEA capital flow table that breaks down expenditures on new equipment, software and structure by 180 assets for 123 industries
  - $I_{a,j}(use)$: Dummy equal to 1 if asset a is used by industry j
  - $Value_{j,t}$ either:
    - 1 - equal weight for each industry
    - $N_{j,t}$ - Number of public industry firms over total public firms
    - $MCAP_{j,t}$ - Sum of industry MCAP over total market MCAP

Information Asymmetry between Contractor & Contractee

- Classical regulation theory in early 80s assumed regulator and manager to be equally informed

- In reality, a regulating body is less informed about the industry let alone a firm's cost function

- Laffont and Tirole (1993) introduces information asymmetry between the firm managers and regulators

    - Information asymmetry allows the contractor firm to enjoy a rent
    - In the presence of asymmetry, the contractor firm also exert less effort

- Two measures: Bid-ask spread, and number of analysts covering the firm (Armstrong, Core, Taylor, and Verrecchia (2011))

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Operating Margin, Asset Redeployability, and Information Asymmetry

Fama MacBeth Regression: Two Sub-Samples

	Government Non-Dependent Firms				Government Dependent Firms Post			
	OP Margin (1)	OP Margin (2)	OP Margin (3)	OP Margin (4)	OP Margin (5)	OP Margin (6)	OP Margin (7)	OP Margin (8)
Asset Redeployability	0.0178 (0.202)				-0.355* (-1.925)			
Asset Irreversibility		0.264*** (3.718)				0.351*** (3.412)		
Bid-Ask Spread			-0.231 (-1.341)				0.369* (1.937)	
Analst Count				0.0356*** (4.831)				0.0137 (0.981)
BM	-0.00967 (-0.934)	-0.0131 (-1.386)	-0.0114 (-1.218)	-0.0264*** (-3.113)	-0.0189* (-1.714)	-0.0216** (-2.223)	-0.0188* (-1.948)	-0.0333** (-2.635)
MCAP	0.0346*** (4.769)	0.0351*** (5.369)	0.0317*** (4.797)	0.0323*** (3.778)	0.0556*** (7.762)	0.0484*** (7.376)	0.0488*** (7.189)	0.0435*** (4.874)
Sales Growth	0.00104* (1.722)	0.00105* (1.723)	0.00105* (1.717)	0.000681* (1.796)	0.0407 (1.525)	0.0412 (1.562)	0.0412 (1.558)	0.0901*** (4.369)
Capex Scaled	0.278*** (3.478)	0.0968 (1.651)	0.269*** (3.851)	0.242*** (3.017)	0.415 (1.653)	-0.00104 (-0.006)	0.288 (1.515)	0.334 (1.039)
R&D Scaled	-2.445*** (-9.358)	-2.449*** (-9.798)	-2.420*** (-9.719)	-1.908*** (-6.295)	-1.884*** (-4.609)	-2.058*** (-5.142)	-2.017*** (-5.095)	-1.644*** (-3.233)
AG	-0.00214 (-0.504)	-0.000574 (-0.145)	-0.00199 (-0.485)	0.0293* (1.971)	-0.0227*** (-2.988)	-0.0203*** (-2.757)	-0.0224*** (-3.110)	-0.00820 (-0.904)
Constant	-0.130** (-2.053)	-0.168*** (-4.540)	-0.0864** (-2.321)	-0.234*** (-3.800)	-0.138 (-1.688)	-0.260*** (-5.628)	-0.206*** (-4.784)	-0.255*** (-2.997)
Obs.	386,490	442,393	443,405	266,509	158,912	184,160	184,279	108,072

Mispricing and Abnormal Returns to Government Dependent Firms

- High Sharpe ratio suggests that mispricing plays an important role
- High alpha after controlling for UMO, MGMT, PERF implies mispricing effect is incremental
- Investors inattention and valuation uncertainty may be at play (Hirshleifer et al. (2013))
    - Valuation uncertainties due to atypical structure of government contracts (e.g., TFC clause)
    - Firms have exposure to future government policies, secret usually (e.g., US defense policies)
    - Investors do not response to 10-K filing, but response to few days late *WSJ* announcements (Stice (1991))
    - Investors reaction to 10-K information is sluggish (You and Zhang (2009))
    - Government contract information is informed through 8-K or buried in 10-K

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Example: Valuation Uncertainties

Vectrus 2014 10-K Excerpts

Vectrus, Inc.

Customers

We attribute the strength of our relationship with the DoD and other branches of the U.S. government to our focus on program performance, global responsiveness and operational excellence, as well as our core values of integrity, respect and responsibility. Our primary customer is the DoD. Our revenue from the U.S. government for the periods presented below was as follows:

(In thousands)	Year Ending December 31,		
	2014	2013	2012
DoD	$ 1,172,018	$ 1,473,830	$ 1,790,020
Other U.S. government[1]	31,251	37,808	38,344
Total Revenue	$ 1,203,269	$ 1,511,638	$ 1,828,364

Risks Relating to Our Business

We face the following risks in connection with the general conditions and trends of the industry in which we operate:

We are dependent on the U.S. government's presence and operations in Afghanistan for a material portion of our revenue and operating income, and the announced withdrawal of military personnel and suspension or removal of funding for security and training activities in the region by the U.S. government may have an adverse effect on our revenue and operating income prospects.

A decline in the U.S. government defense budget, changes in spending or budgetary priorities or delays in contract awards may significantly and adversely affect our future revenue and limit our growth prospects. Further, because we depend on U.S. government contracts, a delay in the completion of the U.S. government's budget process could delay procurement of the services and solutions we provide and have an adverse effect on our future revenue.

We may not be successful in winning new contracts, which will have an adverse impact on our business and prospects.

Psychological Constraints of Investors and Abnormal Returns to Government Dependent Firms

- Furthers tests following Hirshleifer, Hsu, and Li (2013)

    - ***Hypothesis:*** *If abnormal returns are due to some psychological constraints, higher return predictability among stocks with low investor attention and among hard-to-value firms*

    - Proxies for attention: firm size, analyst coverage, and residual analyst coverage (Hong et al. (2000))

    - Proxies for valuation uncertainty: firm age, turnover, and idiosyncratic volatility (IVOL) (Kumar (2009)), return volatility

    - Smaller size, younger in age, covered by few analysts, higher turnover, high IVOL, and high return volatility $\rightarrow$ Low attention & Higher valuation uncertainties

    - *Tests:* Split the sample into below and above median groups based on previous year's values and run analysis separately in two sub-samples

Investor Inattention and Valuation Uncertainty

<u>Low</u> Attention & <u>High</u> Valuation Uncertainty Sub-Sample

	Firm_Age (1)	Anlst (2)	Anlst_Res (3)	TO (4)	IVOL (5)	Vlty (6)	Res_MV (7)
$GD^{Strength}$	0.0467*	0.0292*	0.0296*	0.0374**	0.0451***	0.0354*	0.0358**
	(1.716)	(1.924)	(1.948)	(2.482)	(2.696)	(1.793)	(2.251)
BM	-0.000209	-0.000605	-0.00105	-0.000315	0.000366	-0.000372	0.00114
	(-0.222)	(-0.739)	(-1.242)	(-0.358)	(0.410)	(-0.434)	(1.547)
MCAP	-0.00305***	-0.00305***	-0.00212***	-0.00316***	-0.00374***	-0.00374***	-0.0144***
	(-6.283)	(-5.886)	(-5.082)	(-7.149)	(-7.494)	(-7.659)	(-19.885)
AG	-0.00447***	-0.00576***	-0.00557***	-0.00546***	-0.00510***	-0.00546***	-0.00681***
	(-4.051)	(-4.758)	(-4.610)	(-6.928)	(-6.200)	(-5.548)	(-6.782)
BHR12M	0.00224	0.000603	0.000766	-0.00145	-0.000395	-0.000383	-0.00607***
	(1.479)	(0.413)	(0.513)	(-0.945)	(-0.293)	(-0.291)	(-4.560)
ROA	-0.00327	-0.000171	-0.000910	-0.00118	-0.000771	0.00192	0.00509
	(-0.641)	(-0.032)	(-0.169)	(-0.281)	(-0.202)	(0.499)	(1.411)
IMR	0.00583***	0.00296**	0.00287**	0.00495***	0.00691***	0.00570***	0.00376***
	(3.045)	(2.219)	(2.150)	(4.439)	(5.238)	(4.286)	(3.015)
β_{EPU}	1.520	1.837	1.721	2.512	0.591	1.031	1.224
	(0.548)	(0.823)	(0.786)	(1.101)	(0.261)	(0.486)	(0.545)
β_{GPR}	-2.617	-5.951***	-5.814***	-3.697**	-3.606**	-2.772*	-4.649***
	(-1.434)	(-3.292)	(-3.050)	(-2.220)	(-2.187)	(-1.914)	(-3.039)
β_{GS}	3.342	2.038	1.911	-1.582	0.112	0.0433	1.073
	(0.826)	(0.529)	(0.478)	(-0.489)	(0.038)	(0.016)	(0.340)
β_{REGL}	-2.951	-2.205	-2.525	0.225	0.0132	-0.536	-0.167
	(-1.092)	(-1.096)	(-1.258)	(0.091)	(0.006)	(-0.229)	(-0.081)
$\beta_{Tail\ Risk}$	0.00322**	0.00339***	0.00354***	0.000833	0.00211*	0.00151	0.00262**
	(2.197)	(2.618)	(2.730)	(0.606)	(1.730)	(1.358)	(2.446)
Election Yrs	0.00747**	0.0101***	0.00824**	0.0124***	0.0109***	0.0106***	0.0307***
	(2.173)	(2.842)	(2.495)	(3.295)	(3.418)	(3.200)	(9.319)
Constant	0.00916**	0.00965***	0.00699**	0.0111***	0.0115***	0.0107***	0.0281***
	(2.397)	(3.061)	(2.316)	(3.194)	(3.727)	(3.594)	(9.128)

Investor Inattention and Valuation Uncertainty

High Attention & Low Valuation Uncertainty Sub-Sample

	Firm_Age (8)	Anlst (9)	Anlst_Res (11)	TO (11)	IVOL 1(3)	Vlty 1(3)	Res_MV (14)
$GD^{Strength}$	0.0317***	0.0135	0.0134	0.0264**	0.000858	0.0182*	0.0289**
	(2.716)	(1.031)	(0.993)	(2.333)	(0.094)	(1.764)	(2.309)
BM	-0.000361	-0.000638	-0.000320	0.00125**	0.00102**	0.000559	-0.00135
	(-0.494)	(-0.637)	(-0.339)	(2.254)	(2.156)	(1.046)	(-1.531)
MCAP	-0.00161***	-0.00106**	-0.00101**	-0.000909***	0.00128***	-0.0000201	-0.00540***
	(-4.871)	(-2.215)	(-2.084)	(-3.075)	(4.442)	(-0.080)	(-11.341)
AG	-0.00362***	-0.00577***	-0.00576***	-0.00155*	-0.000899	-0.00104	-0.00292***
	(-4.962)	(-5.143)	(-5.005)	(-1.745)	(-0.780)	(-1.114)	(-4.385)
BHR12M	-0.000111	0.00118	0.00122	0.00511***	0.00633***	0.00998***	0.000185
	(-0.074)	(0.507)	(0.527)	(3.581)	(4.638)	(5.431)	(0.106)
ROA	0.00268	-0.00369	-0.00302	0.0124***	0.0286***	0.0138***	-0.0105**
	(0.742)	(-0.621)	(-0.524)	(4.145)	(10.360)	(4.039)	(-2.113)
IMR	0.00364***	0.00317***	0.00334***	0.00252***	0.000504	0.00219***	0.00413***
	(4.228)	(2.812)	(2.933)	(3.046)	(0.624)	(2.946)	(4.286)
β_{EPU}	1.326	5.031**	4.901*	-0.0389	3.361*	5.660**	-0.427
	(0.644)	(2.052)	(1.952)	(-0.019)	(1.816)	(2.312)	(-0.182)
β_{GPR}	-4.148**	-1.720	-1.925	-4.652***	-4.430***	-8.180***	-2.564
	(-2.591)	(-0.738)	(-0.864)	(-2.849)	(-2.911)	(-4.240)	(-1.341)
β_{GS}l	-1.717	-4.933	-4.201	0.732	-3.320	-1.809	-1.152
	(-0.567)	(-1.269)	(-1.097)	(0.233)	(-0.950)	(-0.540)	(-0.368)
β_{REGL}	0.363	-2.203	-2.107	-1.714	-2.845	-4.093*	1.306
	(0.177)	(-0.789)	(-0.765)	(-0.983)	(-1.496)	(-1.656)	(0.520)
$\beta_{Tail\ Risk}$	0.00111	0.00103	0.00101	0.00165	-0.00166	0.00220	0.00159
	(0.816)	(0.591)	(0.586)	(1.422)	(-1.065)	(1.530)	(1.006)
Election Yrs	0.00586**	0.00453	0.00353	0.00271	-0.00264	-0.00131	0.0215***
	(2.269)	(1.110)	(0.877)	(1.305)	(-1.487)	(-0.783)	(5.337)
Constant	0.00590***	0.00543	0.00557	0.00431**	-0.00303*	0.00219	0.0211***
	(2.795)	(1.571)	(1.592)	(2.359)	(-1.908)	(1.331)	(6.076)

Conclusion

- Government dependency (GD) significantly predicts future returns
  - Earns up to 5.4% of abnormal returns per year
  - Can increase the *Ex-Post* Sharpe ratio of tangency portfolio by 18%
- Firms get bigger, more productive and profitable, highly levered, and pay lower taxes
  - Atypical Structure of government contract and/or information asymmetry between contractor and contractee may be contributing
- Firms probability of winning future material contracts goes up
  - Having a material government contract 10 years back increases the probability by about 26%
- Investor inattention and valuation uncertainties may be contributing to the effect
  - Results are stronger within "Low attention & Higher valuation uncertainty" sub-sample

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