



Which firms benefit from bribes, and by how much? Evidence from corruption cases worldwide

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What do we do in the paper?

- **Who pays bribes?** Do firms that win government contracts by paying bribes differ from firms that do not pay bribes?
- **How much do they bribe?**
- **What do firms get from the bribes?**



Why should we care?

- Bribery is becoming an increasingly important concern, both for companies and governments
 - The UK Bribery Act in 2011
 - Dow Jones State of Anti-Corruption Survey, 2011
 - More than 55% of companies delay or avoid working with global business partners, due to bribery concerns
 - More than 40% of companies have lost business to competitors that won contracts unethically
 - 11% of OECD firms reported that “firms like theirs” bribe in other OECD countries, 26% of OECD firms reported bribery in poorly governed developing countries, and 50% of firms located in low-income countries reported bribery in their home country.



What does the prior literature say?

Very little:

- Most of the empirical literature has attempted to measure bribery indirectly:
 - By relying on questionnaires and/or by constructing indices at the country-level using survey evidence of corruption perceptions.
 - Also little analysis of direct firm-level data, with firm-level evidence also being largely derived from surveys.
 - Fisman and Svensson (2007), Cull and Xu (2005), Hellman and Schankerman (2000)
 - The few papers that use firm-level data from actual bribery incidents have only focused on the impact of the *revelation* of the bribery on firm characteristics or valuation.



Our approach

- We directly analyze the magnitude and valuation effects of a hand-collected sample of 166 prominent bribery cases, involving 107 publicly listed firms from 20 stock markets that have been reported to have bribed government officials in 52 countries worldwide, during 1971-2007.
- We analyze actual documented bribery incidents (rather than perceptions or self-reported survey evidence).
- We focus on the *initial date of award of the contract* for which the bribe was paid (rather than the date of revelation of the bribery).



Example to illustrate our methodology

Elf Aquitaine: A major French oil company, reported to have been involved in widespread bribery of government officials in Europe and Africa, resulting in jail terms for numerous executives in a 2002-2003 French court trial.

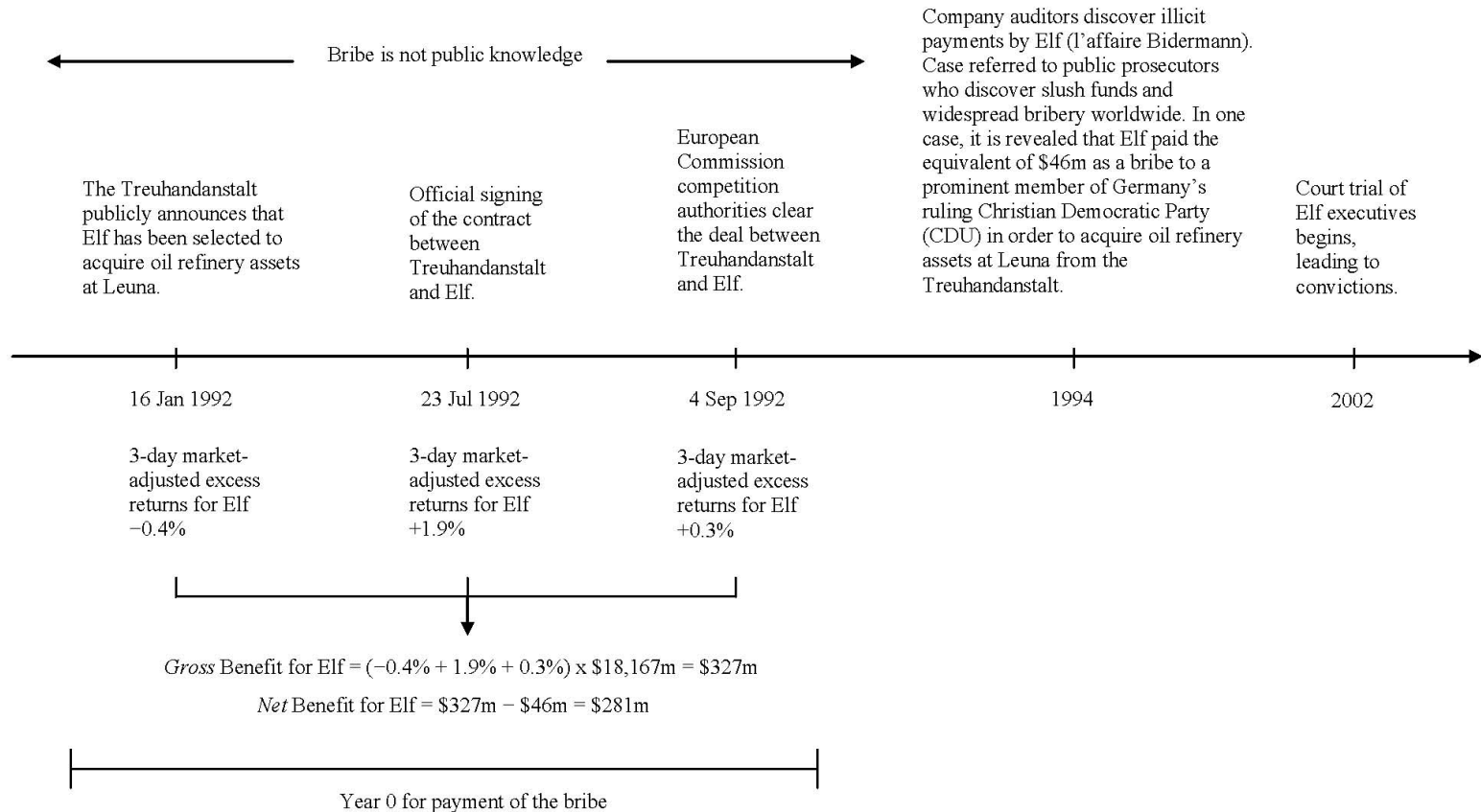
Elf paid the equivalent of US\$ **46,229,276** (in constant 2005 USD) as a bribe to a prominent member of Germany's ruling Christian Democratic Party (CDU) in order to acquire oil refinery assets at Leuna from the Treuhandanstalt (the German government agency that handled the privatization of East German state-owned assets following Germany's re-unification).

Example to illustrate our methodology

- Three relevant dates:
 - 16 January 1992 (the Treuhandanstalt announces the deal)
 - 23 July 1992 (official signing of the contract)
 - 4 September 1992 (the European Commission competition authorities clear the deal).
- Elf earned three-day market-adjusted excess returns of -0.4% , $+1.9\%$, and $+0.3\%$ respectively, which represent a total increase in stock market capitalization of US\$ 327,489,038 (in constant 2005 USD).
- Since the bribe amount was US\$ 46,229,276, the net benefit that Elf received from this bribe in net present value terms is US\$ 281,259,762
- Elf received 7 dollars of benefit per dollar of bribe it paid.



Timeline



Example to illustrate our methodology

- Bribe-paying country: France
- Bribe-taking country: Germany
- Bribery was at the party level.
- The year of the contract announcement, 1992, is year 0 for comparing the performance of Elf with that of its control sample before and after the bribery.

Hypotheses

- **Bribery greases the wheels of bureaucracy:**
 - The most efficient firms are the ones who can afford to pay the largest bribes
 - They will be awarded more contracts as a result
 - Hence, by paying bribes, efficient firms lower the transaction costs they would incur if they instead complied with bureaucratic regulations.
 - Leff (1964); Liu (1984)

Hypotheses

- **Bribery acts as “sand in the machine”** by inducing administrative delays (Ades and Di Tella, 1997 or Kaufmann and Wei, 2000)
 - Offers opportunities for rent extraction by politicians (Shleifer and Vishny, 1993, 1994, 1998)
 - Acts as an arbitrary tax limiting private investment (Murphy, Shleifer and Vishny, 1991; Mauro, 1995; Keefer and Knack, 1995; Mauro, 1997), and foreign direct investment (Wei, 2000; Lambsdorff, 1999).
 - Affects the size and composition of public expenditure while creating more opportunities for government officials to collect bribes (Arvind, 2001)
 - Distorts the allocation of entrepreneurial talent if rent-seeking sectors offer the ablest people higher returns than productive sectors do (Bhagwati, Brecher, and Srinivasan, 1984)
 - Influences the resource distribution between official and unofficial sectors of the economy.



Data

- **Search official documents that report corruption cases:**
 - Transparency International's OECD Anti-Bribery Convention Progress Reports 2007-2009
 - U.S. Securities and Exchange Commission (SEC) litigation, enforcement, and complaints releases
 - U.S. Department of Justice (DOJ) documents pertaining to violations of the Foreign Corrupt Practices Act (FCPA)
 - United Kingdom's Serious Fraud Office website.
- **Add additional corruption cases by conducting an international newspaper search on Factiva between 1971-2009:**
 - Allows us to extend our sample period backwards
 - Include in the sample prominent corruption scandals in Japan, Italy, and France during the early 1990s among others.



Data

- **We do not require convictions for bribery**
 - The zeal with which national authorities investigate and prosecute high ranking government officials varies from country to country.
 - In some cases the bribes were paid at a time that it was not illegal in the firm's country of origin to bribe foreign government officials (for example, in most European countries bribery abroad was made illegal only around 10 years ago).
 - Often these investigations may lead to charges not for the bribery itself but for other crimes that are easier to prosecute, such as accounting fraud and money laundering



Data

- Initial sample: 360 corruption cases.
- Three additional requirements
 - Firms must have stock return and financial statement information available in DATASTREAM.
 - We must be able to trace the public announcement of the award of the contract for which the bribe was paid.
 - In numerous corruption cases, firms bribe government officials in order to reduce their tax or customs liability or in order to obtain various permits, and these events are not subject to public announcements.
 - The award of numerous smaller contracts is also not subject to public announcements.
 - Third, we must be able to estimate the bribe amount that was paid to secure each specific contract.
- Final sample: 166 bribery cases involving 107 firms from 20 stock markets that have been reported to have bribed government officials in 52 countries worldwide during 1971-2007.



Data							
Country of the government official bribed		Country of origin of the bribing firm		Industry		Position of the government official bribed	
Japan	27	Japan	43	Construction	46	Head of State	22
South Korea	13	USA	41	Electrical & Electronic Equipment	21	Minister	29
Nigeria	10	France	23	Aircraft, Oil & Gas	17	Member of Parliament/ Party	20
Philippines	8	Germany	16	Machinery	9	Governor/Mayor	20
Indonesia, Lesotho	7	UK	10	Computers, Wholesale	6	Head of Government Agency	27
China, Singapore, South Africa	6	South Korea	8	Automobiles	5	Military	7
India, USA	5	Italy	5	Banking, Telecommunications, Trading, Transportation	4	Judge	3
Angola, Egypt, Greece	4	South Africa, Switzerland	3	Medical Equipment, Real Estate, Utilities	3	Other Official	20
Italy, Russia, Taiwan	3	Netherlands, Norway, Sweden	2	Business Services, Mining, Pharmaceuticals, Shipbuilding, Steel	2	Unidentified Official	45
Azerbaijan, Brazil, Costa Rica, Iran, Israel, Kazakhstan, Saudi Arabia, Slovakia, Spain, Venezuela	2	Argentina, China, Hong Kong, India, Philippines, Spain, Taiwan, Thailand	1	Entertainment, Food, Hotels, Rubber	1		
Argentina, Bahamas, Belgium, Benin, Congo D.R., East Timor, Gabon, Germany, Ghana, Iraq, Mexico, Mongolia, Oman, Pakistan, Peru, Poland, Romania, Serbia, Suriname, Tanzania, Thailand, Trinidad & Tobago, Uganda, Uzbekistan, Zambia	1						

Caveats

- The data sources are biased
 - For example, Argentina does not disclose identities of companies under investigation under OECD conventions. So perhaps we will not pick up Argentinian cases unless they result in a conviction.
 - Or perhaps newspapers are less reliable in bribing countries
- The detection of the bribing firms is endogeneous
 - Some firm characteristics are correlated with how the bribes are detected – for example, perhaps the authorities target only the firms that are capable of paying bribes (the largest, most profitable firms).
- We capture only ex post bribery effects, not ex ante bribery decisions by firms.
 - Suppose a firm will win a contract with an ex ante probability of 60% if it does not bribe. When it bribes, it wins it with an ex post probability of 100%.



Are the data sources biased?

- Perhaps there are differences in the way data enters into the public domain?
 - Analyze the frequency of observations from different countries in our sample to examine how representative our sample is and whether our selection criteria impose any obvious biases.
 - A priori, we might expect that firms from larger stock markets and firms from countries with more corruption will appear in our sample with higher frequency.

Countries in the sample

Are firms from these countries more (or less) likely to be included in our sample compared to an "expected" frequency?

Bribe-Paying Country	Actual Sample Frequency	Expected Sample Frequency (based on average market cap)	p-value (actual sample frequency differs from expected sample frequency)	Expected Sample Frequency (based on average market cap) - corruption adjusted	p-value (actual sample frequency differs from expected sample frequency)
Argentina	1	0	(0.317)	0	(0.317)
China	1	1	(1)	1	(1)
France	23	5	Over (0)***	18	(0.404)
Germany	16	6	Over (0.027)**	12	(0.43)
Hong Kong	1	3	(0.314)	2	(0.562)
India	1	1	(1)	1	(1)
Italy	5	3	(0.474)	3	(0.474)
Japan	43	39	(0.611)	46	(0.71)
Netherlands	2	3	(0.652)	0	(0.156)
Norway	2	0	(0.156)	0	(0.156)
Philippines	1	0	(0.317)	0	(0.317)
South Africa	3	1	(0.314)	2	(0.652)
South Korea	8	1	Over (0.018)**	2	Over (0.054)*
Spain	1	2	(0.562)	2	(0.562)
Sweden	2	1	(0.562)	0	(0.156)
Switzerland	3	3	(1)	0	Over (0.082)*
Taiwan	1	2	(0.562)	2	(0.562)
Thailand	1	0	(0.317)	0	(0.317)
UK	10	14	(0.397)	9	(0.813)
USA	41	68	Under (0.002)***	70	Under (0.001)***

Countries out of the sample

Are there firms from countries that should have been included but our methodology has missed them?

Bribe-Paying Country	Actual Sample Frequency	Expected Sample Frequency (based on average market cap)	p-value (actual sample frequency differs from expected sample frequency)	Expected Sample Frequency (based on average market cap) - corruption adjusted	p-value (actual sample frequency differs from expected sample frequency)
Australia	0	2	(0.156)	0	(1)
Austria	0	0	(1)	0	(1)
Belgium	0	1	(0.317)	1	(0.317)
Brazil	0	1	(0.317)	2	(0.156)
Bulgaria	0	0	(1)	0	(1)
Canada	0	4	Under (0.044)**	0	(1)
Chile	0	0	(1)	0	(1)
Colombia	0	0	(1)	0	(1)
Cyprus	0	0	(1)	0	(1)
Czech Republic	0	0	(1)	0	(1)
Denmark	0	1	(0.317)	1	(0.317)
Finland	0	1	(0.317)	1	(0.317)
Greece	0	0	(1)	0	(1)
Hungary	0	0	(1)	0	(1)
Indonesia	0	0	(1)	0	(1)
Ireland	0	0	(1)	0	(1)
Israel	0	0	(1)	0	(1)
Luxembourg	0	0	(1)	0	(1)
Malaysia	0	1	(0.317)	1	(0.317)
Mexico	0	1	(0.317)	1	(0.317)
New Zealand	0	0	(1)	0	(1)
Pakistan	0	0	(1)	0	(1)
Peru	0	0	(1)	0	(1)
Poland	0	0	(1)	0	(1)
Portugal	0	0	(1)	0	(1)
Romania	0	0	(1)	0	(1)
Russian Fed	0	0	(1)	0	(1)
Singapore	0	1	(0.317)	0	(1)
Slovenia	0	0	(1)	0	(1)
Sri Lanka	0	0	(1)	0	(1)
Turkey	0	0	(1)	0	(1)
Venezuela	0	0	(1)	0	(1)

Who bribes?

- Compare our sample firms with the universe of firms in the market where they are listed.
- Compare them with the universe of firms in the same market that belong to the same industry.
- Compare (pair-wise) to a randomly selected control sample of firms without reported bribery incidents, matched by country, industry, firm size, and market-to-book ratio, four years before the award of the contract for which the bribe was paid (year 0).
- Measure:
 - Operating performance (asset turnover; operating profit margin; ROA; ROE; Annual sales growth, EBIT profit margin; net profit margin)
 - Leverage
 - Firm growth opportunities (M/B)
 - Prior 12 month stock performance relative to control firms



Why these control firms?

	Total assets (USD 2005, millions)	Market capitalization (USD 2005, millions)	Sales (USD 2005, millions)	Shareholders' Equity (USD 2005, millions)
(1) Bribing firms (median)	17,461	5,449	14,169	3,044
(1) Country (median)	262	116	192	85
(1) Industry (median)	271	99	266	105
Differences (p-values)				
(4) Bribing firm vs. country median (1 vs. 2)	(0.000)***	(0.000)***	(0.000)***	(0.000)***
(5) Bribing firm vs. industry median (1 vs. 3)	(0.000)***	(0.000)***	(0.000)***	(0.000)***



Methodology: How much do they bribe?

- Country-level data:
 - Scores for the public availability of the sources of income of members of parliament from Djankov, La Porta, Lopez de Silanes, and Shleifer (2010).
 - Dummy variables for democratic regimes, scores for political freedom (civil liberties, political rights, and overall status), scores for freedom of the press 1970-2008 from Freedom House (www.freedomhouse.org).
 - Democracy scores ranging from +10 (full democracy) to -10 (full autocracy) are obtained from the database maintained by the Polity IV project (www.systemicpeace.org).
 - World Development Indicators (GDP per capita, proportion of labour force in the armed forces, literacy rate of the total adult population, income share held by the top 20% of the population, and others) from the World Bank
 - Legal systems: The CIA World Factbook.
 - Ease of doing business and competitiveness proxies: Issues of Doing Business Report (World Bank), and the Global Competitiveness Report (World Economic Forum).



Methodology: What benefits do they get from bribes?

- Estimate the cumulative abnormal returns (CAR) over days $[-1, +1]$ relative to the initial contract announcement day (day 0) using event study methodology.
 - CARs are estimated as the difference between daily raw returns (with dividends re-invested) and the return of the stock market index of the country where the firm is listed.
 - If there is more than one announcement related to the same contract, for example as information about different steps in the tendering process becomes available, we sum the CARs across all relevant announcements.
 - We estimate the cumulative change in firm market capitalization ($\text{CAR} \times \text{firm market capitalization}$) summed over all relevant announcements pertaining to the same contract, and subtract the amount of the bribe.



Descriptive statistics on bribes

	Bribe characteristics				Project characteristics	Benefits			
	Bribe (USD, 2005)	Bribe / Assets	Bribe / Sales	Bribe / Project size	Project size (USD, 2005)	CAR [-1,+1] All announcements	Cumulative Change in Market Cap (USD, 2005)	Cumulative Change in Market Cap / Bribe	Net Benefit: Cumulative Change in Market Cap - Bribe
A. All bribes	\$2,535,584 (0.000)*** [N=155]	0.22% (0.000)*** [N=114]	0.16% (0.000)*** [N=113]	1.94% (0.000)*** [N=54]	\$194,000,000 (0.000)*** [N=55]	0.64% (0.068)* [N=148]	\$7,824,766 (0.025)** [N=133]	1.73 (0.016)** [N=133]	\$625,594 (0.213) [N=133]
B. Classification by location									
Foreign bribes	\$6,500,764 (0.000)*** [N=112]	0.45% (0.000)*** [N=88]	0.41% (0.000)*** [N=87]	1.32% (0.000)*** [N=50]	\$203,000,000 (0.000)*** [N=51]	0.76% (0.159) [N=112]	\$6,825,299 (0.064)* [N=97]	1.41 (0.055)* [N=97]	\$97,168 (0.390) [N=97]
Domestic bribes	\$193,588 (0.000)*** [N=43]	0.01% (0.000)*** [N=26]	0.01% (0.000)*** [N=26]	3.73% (0.100)* [N=4]	\$48,046,683 (0.100)* [N=4]	0.61% (0.218) [N=36]	\$26,852,125 (0.179) [N=36]	30.41 (0.212) [N=36]	\$24,338,938 (0.275) [N=36]
Difference (p-value)	(0.000)***	(0.000)***	(0.000)***	(0.298)	(0.263)	(0.966)	(0.982)	(0.298)	(0.687)
C. Classification by rank of government official bribed									
High rank	\$11,429,071 (0.000)*** [N=57]	1.06% (0.000)*** [N=41]	1.23% (0.000)*** [N=40]	4.42% (0.000)*** [N=19]	\$577,000,000 (0.000)*** [N=19]	0.35% (0.486) [N=54]	\$11,716,230 (0.195) [N=48]	0.81 (0.240) [N=48]	-\$3,309,096 (0.818) [N=48]
Low rank	\$1,063,049 (0.000)*** [N=98]	0.08% (0.000)*** [N=73]	0.10% (0.000)*** [N=73]	1.22% (0.000)*** [N=35]	\$132,000,000 (0.000)*** [N=36]	0.73% (0.065)* [N=94]	\$5,337,543 (0.070)* [N=85]	4.19 (0.033)** [N=85]	\$3,948,873 (0.168) [N=85]
Difference (p-value)	(0.000)***	(0.000)***	(0.000)***	(0.261)	(0.001)***	(0.733)	(0.916)	(0.343)	(0.435)

Who bribes?

	Year (-3)	Year (-2)	Year (-1)	Year (0)	Year (+1)	Year (+2)	Year (+3)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Operating performance							
Asset turnover	-0.121 (0.00)***	-0.118 (0.00)***	-0.097 (0.02)**	-0.142 (0.00)***	-0.106 (0.01)**	-0.066 (0.01)***	-0.024 (0.11)
Operating profit margin	-0.009 (0.08)*	-0.009 (0.04)**	-0.005 (0.16)	-0.004 (0.11)	-0.008 (0.06)*	-0.000 (0.56)	-0.003 (0.33)
ROA	-0.012 (0.08)*	-0.015 (0.02)**	-0.009 (0.03)**	-0.007 (0.01)**	-0.007 (0.04)**	-0.006 (0.08)*	-0.003 (0.08)*
ROE	0.004 (0.99)	-0.013 (0.41)	0.003 (0.84)	-0.005 (0.52)	-0.010 (0.48)	-0.001 (0.57)	0.003 (0.83)
Sales growth		0.027 (0.07)*	0.051 (0.00)***	0.032 (0.20)	0.009 (0.64)	0.023 (0.23)	0.014 (0.59)
Net profit margin	-0.000 (0.87)	-0.005 (0.25)	-0.001 (0.51)	-0.002 (0.37)	-0.004 (0.22)	-0.012 (0.03)**	-0.006 (0.06)*
B. Leverage							
Total debt / market value of equity	-0.011 (0.34)	0.014 (0.16)	0.078 (0.04)**	0.072 (0.05)*	0.04 (0.02)**	0.121 (0.00)***	0.083 (0.00)***
Total debt / total assets	-0.001 (0.92)	-0.010 (0.93)	0.003 (0.70)	0.002 (0.56)	-0.005 (0.49)	0.015 (0.04)**	0.029 (0.07)*
Long-term debt / market value of equity	0.013 (0.31)	-0.002 (0.33)	0.014 (0.09)*	0.000 (0.27)	0.065 (0.04)**	0.056 (0.02)**	0.077 (0.03)**
Long-term debt / total assets	0.001 (0.78)	-0.012 (0.73)	-0.005 (0.70)	-0.003 (0.95)	-0.001 (0.58)	0.012 (0.07)*	0.032 (0.06)*
C. Valuation multiples							
Market-to-book	0.027 (0.70)	-0.048 (0.54)	0.002 (0.96)	0.143 (0.21)	0.102 (0.35)	0.089 (0.35)	0.063 (0.24)
Price-earnings	3.782 (0.11)	2.33 (0.03)**	1.317 (0.33)	1.178 (0.18)	4.32 (0.01)**	1.683 (0.62)	0.992 (0.39)
Price-sales	0.021 (0.74)	0.011 (0.41)	-0.040 (0.05)**	-0.043 (0.35)	-0.003 (0.23)	-0.023 (0.02)**	-0.041 (0.01)**
D. Stock performance							
CAR	-0.029 (0.11)	0.005 (0.75)	-0.015 (0.82)	0.016 (0.57)	0.003 (0.96)	-0.046 (0.04)**	0.068 (0.01)***
BHAR	-0.031 (0.14)	-0.008 (0.54)	-0.003 (0.98)	0.022 (0.43)	-0.009 (0.91)	-0.026 (0.05)*	0.025 (0.05)*

An alternative explanation: Endogeneity

- Ok, so the bribing firms under-perform relative to non-bribing firms, have higher leverage, but do not appear to trade at higher valuations or to have higher growth opportunities.
- BUT ... perhaps the detection of bribery by authorities is not random, but related to firm characteristics.
 - For example, all firms might bribe but poorly performing firms are more likely to be detected because they are sloppier in hiding the bribery or authorities may be more likely to target firms based on their performance.

Is the detection of the bribery exogenous?

Performance measure	Abnormal performance of bribing firms for the year the bribe was revealed or investigation started
Asset turnover	-0.030 (0.25)
Operating profit margin	-0.003 (0.42)
ROA	0.001 (0.37)
ROE	0.005 (0.57)
Sales growth	-0.043 (0.08)*
Net profit margin	-0.005 (0.13)
CAR	-0.015 (0.23)
BHAR	-0.019 (0.22)

Performance measure	Abnormal performance of bribing firms for the year the bribe was revealed or investigation started
Total debt / market value of equity	0.050 (0.03)**
Total debt / total assets	-0.004 (0.94)
Long-term debt / market value of equity	0.098 (0.00)***
Long-term debt / total assets	0.018 (0.22)
Market-to-book	0.058 (0.10)*
Price-earnings	-1.062 (0.86)
Price-sales	-0.084 (0.03)**



How was the bribe actually detected?

Method of detection	Number of cases	(% of sample)
Investigations of politicians or government officials	58	(35%)
Spin-off from unrelated or third party investigation	39	(23%)
Whistleblowers	15	(9%)
Voluntary disclosure by company	15	(9%)
Exogenous change in enforcement	14	(8%)
Action by competitors or third parties	9	(5%)
Investigations by the press	7	(4%)
Unknown	9	(5%)
Total number of cases	166	



Example: Investigation of politicians

Regime change:

In 1986, the military government in Lesotho established the Lesotho Highlands Development Authority (LHDA) with the mandate to develop a huge infrastructure project aiming to provide electricity to Lesotho and water to South Africa. In 1993, the civilian government that followed the military regime conducted an audit of LHDA, which revealed irregularities in the conduct of its chief executive Masupha Sole. When his bank accounts were opened, they revealed links to accounts in South Africa and Switzerland. The latter revealed payments that could be linked to numerous European and Canadian firms that had won project contracts.

Tax evasion by head of party:

During 1993-1994 in Japan, the investigation for tax evasion of Shin Kanemaru, former head of Japan's ruling Liberal Democratic Party (LDP) led to a series of other investigations that uncovered massive corruption among construction companies. Numerous other politicians were investigated in the following years, resulting in the revelation of numerous bribery cases.

Example: Spin-off from unrelated or third-party investigation

In 2004, the Swiss Prosecutor General conducted an investigation of a Swiss banker who was suspected of laundering money for a Colombian drug cartel. No such links were discovered and the investigation ended in failure. However, the documents seized from the banker's office revealed that he acted as middleman for the French engineering company Alstom (maker of trains, subways, and power plant turbines) to secure contracts through bribes in South America and Southeast Asia.

In 1994, the auditors of the major French oil company Elf Aquitaine (now part of Total) discovered a small investment by the company to a textile business. Since the textile sector was outside the scope of an oil company, the matter was investigated further, and it was discovered that the payment represented an unofficial divorce settlement to the ex-wife of the company's chief executive Le Floch-Prigent ("l'affaire Bidermann"). The matter was referred to the office of the prosecutor general for investigation of misuse of company funds. It was only then that further investigations discovered slush funds that were being used to pay bribes in Africa and elsewhere.

During the course of the Elf affair a captain of the Navy of Taiwan – who was believed to be ready to act as whistle-blower – was found murdered. The ensuing investigation discovered that Elf and Thomson CSF paid bribes to secure the sale of frigates to the Taiwanese Navy in 1991.



How much do they bribe?

Firm characteristics

	Log(Bribe)	Bribe/Sales	Bribe/Assets	Bribe/Project
	(1)	(2)	(3)	(4)
Asset turnover _{year(-1)}	-0.590 (0.145)	-0.079 (0.964)	1.003 (0.568)	-2.4300 (0.437)
Total debt/book equity _{year(-1)}	-0.005 (0.329)	0.250 (0.009)***	0.530 (0.000)***	0.0809 (0.558)
ROA _{year(-1)}	-1.205 (0.641)	-30.775 (0.300)	-61.68 (0.200)	13.3240 (0.495)
Sales growth _{year(-1)}	0.574 (0.000)***	39.700 (0.000)***	99.500 (0.000)***	12.090 (0.006)***
Market-to-book _{year(-1)}	-0.005 (0.900)	-2.03 (0.004)***	-4.25 (0.000)***	-2.2595 (0.243)
CAR _{year(-1)}	-0.622 (0.348)	-2.448 (0.238)	-7.223 (0.174)	-2.4605 (0.397)
Country fixed effects	Yes	Yes	Yes	Yes
Adjusted R²	0.34	0.72	0.91	-0.14
Observations	106	96	96	38



How much do they bribe? (Univariate)

Government official characteristics

	Bribe (USD 2005)	Bribe/Sales	Bribe/Assets	Bribe/Project
	(1)	(2)	(3)	(4)
A. High rank				
Head of State [N=20]	\$16,765,467 (0.000)***	1.44% (0.007)***	1.48% (0.008)***	4.71% (0.199)
Minister [N=29]	\$7,627,935 (0.051)*	1.19% (0.063)*	0.75% (0.033)**	2.01% (0.959)
Member of Parliament [N=20]	\$13,774,211 (0.001)***	1.50% (0.011)**	1.27% (0.007)***	4.42% (0.293)
High rank median	\$11,429,071 (0.000)***	1.06% (0.000)***	1.23% (0.000)***	4.42% (0.000)***
B. Low rank				
Military Officer [N=7]	\$5,315,002 (0.734)	0.29% (0.910)	0.34% (0.915)	0.44% (0.125)
Judge [N=3]	\$5,002,708 (0.851)	3.15% (0.939)	1.69% (0.871)	
Head of State Agency [N=26]	\$502,104 (0.108)	0.10% (0.456)	0.06% (0.756)	0.38% (0.121)
Governor/Mayor [N=20]	\$194,148 (0.000)***	0.01% (0.000)***	0.01% (0.000)***	2.96% (0.428)
Low rank median	\$1,063,049 (0.000)***	0.08% (0.000)***	0.10% (0.000)***	1.22% (0.000)***
Differences (High rank vs Low rank p-values)	(0.000)***	(0.000)***	(0.000)***	(0.261)

How much do they bribe? (OLS)

Government official characteristics

	Log(Bribe)	Bribe/Sales	Bribe/Assets	Bribe/Project
	(1)	(2)	(3)	(4)
Specific government official rank				
Head of State	2.692 (0.089)*	54.023 (0.100)*	50.823 (0.095)*	10.347 (0.000)***
Minister	0.983 (0.273)	-0.148 (0.989)	-1.251 (0.892)	-3.9228 (0.000)***
Member of Parliament	1.500 (0.009)***	8.529 (0.368)	6.403 (0.176)	-2.2872 (0.000)***
Governor/Mayor	0.271 (0.742)	2.454 (0.813)	0.193 (0.981)	7.5250 (0.001)***
Military Officer	0.603 (0.604)	15.411 (0.177)	12.396 (0.133)	-2.7186 (0.007)***
Judge	-2.558 (0.003)***	17.281 (0.195)	14.076 (0.225)	
Head of State Agency	-0.587 (0.687)	16.694 (0.263)	11.229 (0.177)	4.0871 (0.000)***
Other Official	-0.304 (0.790)	6.009 (0.372)	4.441 (0.342)	-0.4625 (0.657)
Unidentified Official	1.418 (0.269)	10.861 (0.350)	9.546 (0.330)	-0.3544 (0.674)
Country fixed effects	Yes	Yes	Yes	Yes
Adjusted R ²	0.47	0.65	0.93	0.92
Observations	155	113	114	54



The share of rents received by government officials

Rank of government official	Share of the rents received by the government official
Head of State	70.6% (0.000)***
Minister	50.3% (0.000)***
Member of Parliament	41.5% (0.001)***
High rank government official median	55.5% (0.000)***
Difference (High rank vs Low rank p-value)	(0.157)



The share of rents received by government officials

Rank of government official	Share of the rents received by the government official
Military Officer	79.6% (0.034)**
Judge	1.8% (0.181)
Head of State Agency	36.1% (0.000)***
Governor/Mayor	22.5% (0.000)***
Low rank government official median	19.3% (0.000)***



How much do they bribe?

Bribe-paying country characteristics

	Log(Bribe)	Bribe/Sales	Bribe/Assets	Bribe/Project
	(1)	(2)	(3)	(4)
(Lack of) Director Liability	-0.0271 (0.811)	1.8273 (0.096)*	5.5831 (0.000)***	0.0894 (0.652)
(Lack of) Disclosure	0.0288 (0.878)	-3.5086 (0.224)	-2.5532 (0.333)	0.2652 (0.293)
(Lack of) Shareholder Lawsuits	0.7898 (0.527)	-5.7558 (0.566)	-12.1293 (0.183)	-2.8299 (0.187)
(Lack of) Legal Efficiency	0.1657 (0.768)	-6.3104 (0.376)	-0.0051 (0.999)	0.8046 (0.340)
(Lack of) Firm Ethics	-0.2007 (0.647)	0.4865 (0.929)	-7.2346 (0.128)	-0.7240 (0.539)
(Lack of) Competition	-0.1361 (0.746)	5.5775 (0.336)	3.8163 (0.391)	-1.8423 (0.007)***
Daily newspapers	-0.6629 (0.000)***	-1.1603 (0.536)	-1.7555 (0.389)	-1.4324 (0.000)***
Country fixed effects	No	No	No	No
Adjusted R ²	0.14	-0.05	-0.04	-0.05
Observations	139	103	104	53



How much do they bribe?

Bribe-taking country characteristics

Coefficients from univariate regressions

	Log(Bribe)	Bribe/Sales	Bribe/Assets	Bribe/Project
	(1)	(2)	(3)	(4)
GDP per capita (USD 2005)	-0.6128 (0.000)***	-3.1846 (0.049)**	-5.1418 (0.148)	-0.0459 (0.935)
Armed Forces (%)	0.3752 (0.071)*	-2.8332 (0.128)	-4.8895 (0.228)	-0.6140 (0.456)
Customs Burden	0.2206 (0.099)*	1.5142 (0.027)**	1.4384 (0.022)**	0.3251 (0.425)
Public Disclosure of Politicians' Income	-1.6921 (0.066)*	-6.0263 (0.497)	-17.3301 (0.370)	1.2537 (0.641)
Income Inequality	0.1207 (0.055)*	0.2733 (0.294)	0.3760 (0.392)	-0.0743 (0.557)
(Lack of) Police Reliability	0.2755 (0.093)*	1.2528 (0.045)**	1.1490 (0.044)**	0.0399 (0.936)
(Lack of) Civil Liberties	0.4257 (0.085)*	1.9933 (0.197)	2.5106 (0.238)	-0.4494 (0.359)
(Lack of) Political Rights	0.3263 (0.152)	0.9202 (0.497)	0.5377 (0.733)	-0.4650 (0.289)
(Lack of) Press Freedom	0.9332 (0.106)	9.3683 (0.166)	18.1776 (0.246)	-0.7400 (0.492)
Democracy score	-0.0864 (0.212)	-0.4574 (0.281)	-0.6376 (0.262)	0.1678 (0.249)
Literacy	-2.097 (0.245)	-63.4486 (0.188)	-132.7920 (0.266)	-1.0237 (0.876)
(Lack of) Legal Efficiency	0.1727 (0.385)	0.5111 (0.446)	0.4037 (0.521)	-0.0948 (0.829)
Country fixed effects	No	No	No	No

How much do they bribe?

Bribe-taking country characteristics

Coefficients from multivariate regressions

	Log(Bribe)	Bribe/Sales	Bribe/Assets	Bribe/Project
	(1)	(2)	(3)	(4)
GDP per capita (USD 2005)	-0.548 (0.032)**	-5.3897 (0.067)*	-5.2906 (0.055)*	-0.6518 (0.796)
Armed Forces (%)	0.5851 (0.047)**	-0.8919 (0.683)	-1.1827 (0.571)	-2.0682 (0.391)
Customs Burden	0.8162 (0.007)***	3.9395 (0.165)	3.3311 (0.21)	1.8728 (0.407)
Public Disclosure of Politicians' Income	0.1093 (0.878)	12.1847 (0.119)	10.3828 (0.158)	-4.4688 (0.456)
Income Inequality	0.0603 (0.355)	-0.2922 (0.453)	-0.2424 (0.516)	-0.3543 (0.459)
(Lack of) Police Reliability	-0.4837 (0.16)	-2.9543 (0.216)	-2.5836 (0.252)	-0.3126 (0.921)
(Lack of) Civil Liberties	0.0403 (0.937)	6.1161 (0.169)	4.5949 (0.201)	1.1036 (0.517)
(Lack of) Political Rights	-0.0899 (0.886)	-5.4262 (0.345)	-4.5168 (0.372)	-5.2509 (0.294)
(Lack of) Press Freedom	0.4138 (0.698)	5.7014 (0.308)	4.8807 (0.319)	7.0665 (0.281)
Democracy score	0.0285 (0.778)	-0.2656 (0.786)	-0.3105 (0.753)	-0.5668 (0.576)
Literacy	0.3645 (0.886)	-4.5657 (0.864)	-4.5858 (0.857)	11.5319 (0.454)
(Lack of) Legal Efficiency	-0.1398 (0.555)	-2.0131 (0.209)	-2.1502 (0.18)	-1.6459 (0.311)
Country fixed effects	No	No	No	No
Adjusted R ²	0.30	-0.05	-0.05	-0.17
Observations	114	81	82	47

How much do they bribe?

Rule of law

	Log(Bribe)	Log(Bribe)	Log(Bribe)	Log(Bribe)
	(1)	(2)	(3)	(4)
Common Law	0.6753 (0.128)			0.8769 (0.194)
Civil Law		-0.6007 (0.176)		0.5437 (0.433)
Islamic Law			2.0507 (0.000)***	2.0958 (0.000)***
Adjusted R ²	0.01	0.00	0.06	0.06
Observations	155	155	155	155



Ex-ante vs. ex-post bribe payments

- We measure ex-post bribe payments. But firms consider ex-ante probabilities of winning contracts subject to paying bribes.
- The ex-ante decision to pay a bribe is based on if $PV(CF) * (1 - \text{prob of success without bribe}) > \text{bribe amount}$.
- We assume the probability of success without a bribe = 0, which means that the benefits we calculate represent an upper bound on the benefits the firm earns.



What benefits do firms get from paying bribes?

	All Bribes	All Bribes	Foreign Bribes	Bribes to High-Rank Politicians	Foreign Bribes to High-Rank Politicians
	Gross benefit (USD 2005)	Gross benefit (USD 2005)	Gross benefit (USD 2005)	Gross benefit (USD 2005)	Gross benefit (USD 2005)
	(1)	(2)	(3)	(4)	(5)
Bribe (USD 2005)	10.1840 (0.056)*	11.4613 (0.049)**	9.3131 (0.007)***	4.4145 (0.382)	4.1854 (0.479)
Sales (USD 2005)		16.2097 (0.361)	17.7845 (0.415)	16.6537 (0.328)	20.6807 (0.319)
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	-0.32	-0.36	-0.38	-0.15	-0.28
Observations	133	115	86	42	34



What benefits do firms get from paying bribes?

	Net benefit to firm (USD 2005)	Gross benefit to firm / Bribe	Share of rents received by government official		Net benefit to firm (USD 2005)	Gross benefit to firm / Bribe	Share of rents received by government official
	(1)	(2)	(3)		(4)	(5)	(6)
Bribe-paying firm abnormal performance							
Asset turnover	4.5200 (0.019)**	1455.2 (0.301)	-0.3125 (0.021)**				
Total debt / book equity	-0.0371 (0.440)	-47.61 (0.001)***	-0.0025 (0.298)				
ROA	11.6000 (0.389)	1383.7 (0.801)	-0.2058 (0.819)				
Sales growth	-0.6210 (0.271)	-432.04 (0.493)	0.4114 (0.100)*				
Market-to-book	0.1152 (0.809)	92.930 (0.605)	-0.0466 (0.069)*				
Annual CAR	0.8602 (0.855)	-1304.2 (0.447)	-0.2712 (0.008)***				
Bribe-taking government official rank							
Head of State					3.9500 (0.566)	2122.4 (0.318)	0.3264 (0.002)***
Minister					-0.8623 (0.835)	-825.14 (0.890)	0.1461(0.412)
Member of Parliament					2.7100 (0.433)	3838.3 (0.368)	-0.0802 (0.396)
Governor/Mayor					-15.800 (0.001)***	-3858.5 (0.029)**	0.2291 (0.063)*
Military Officer					0.3199 (0.956)	3537.8 (0.291)	0.2737 (0.140)
Judge					-12.6000 (0.380)	-5767.9 (0.359)	0.5378 (0.004)***
Head of State Agency					2.0100 (0.710)	11969.6 (0.192)	-0.1521 (0.301)
Sales (USD 2005)	18.2068 (0.146)				12.9576 (0.135)		
Log (Sales)		531.8 (0.100)*				-691.3 (0.470)	
Country fixed effects	Yes	Yes	Yes		Yes	Yes	Yes
Adjusted R2	-0.02	-0.22	0.07		0.00	-0.59	-0.01
Observations	98	98	98		115	115	133

Conclusions

- **Who pays bribes?** Poorly performing firms that focus on sales growth rather than NPV bribe.
- **How much do they pay?** Depends on firm performance, the rank of the politicians bribed, as well as bribe-paying and bribe-taking country characteristics
- **What do firms get from the bribes?** Some benefits but these disappear the higher up you go.



Policy implications

- From a shareholder perspective:
 - May be good but benefits disappear depending on who you have to bribe.
- From a societal perspective:
 - The worst firms get the contracts which is not economically efficient.
 - We don't even need to make the assumption that poor firms deliver poor results.

