CEO Pay & the Rise of Relative Performance Contracts: A Question of Governance?

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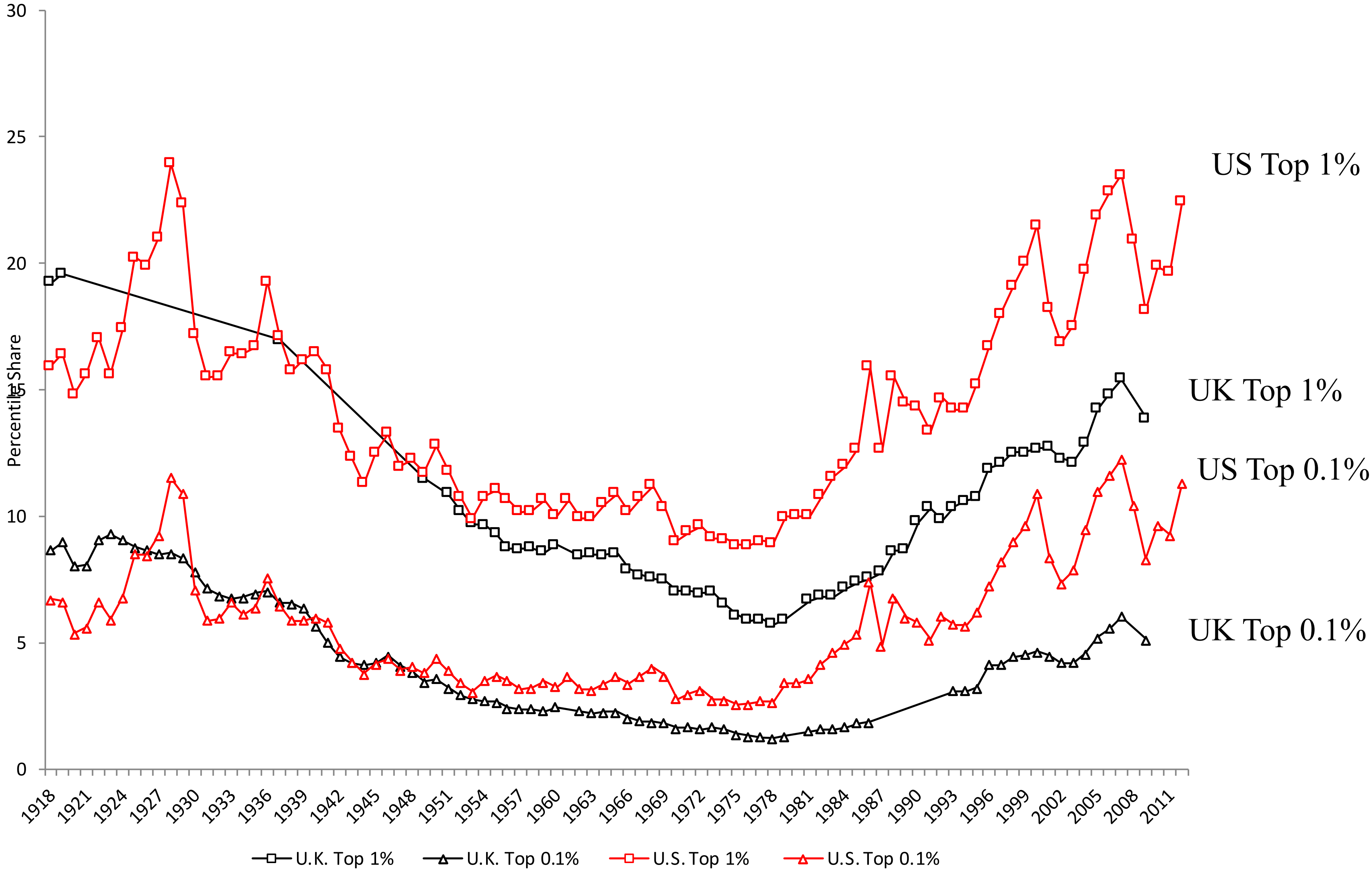
MOTIVATION

- Lots of discussion of inequality & especially income at the top. CEO pay often a focus of attention……..


ED FISCHER
Sir... more workers are being let go and thousands more are taking pay cuts...
not now! I'm counting my bonus!
CEO

INCOME SHARES AT THE VERY TOP IN US & UK

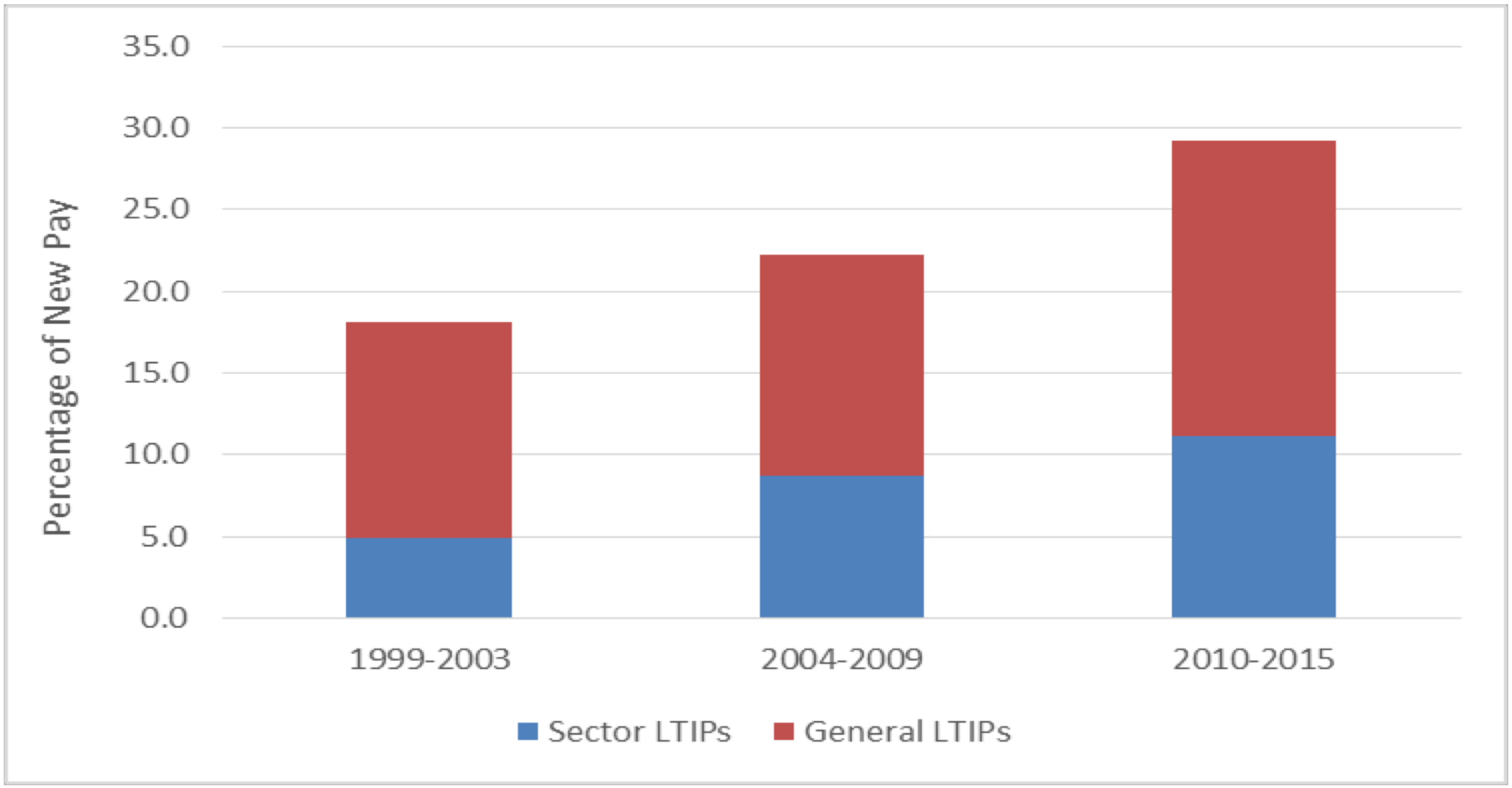


Source: Atkinson, Piketty & Saez; High Income Database

MOTIVATION

- Median CEO to median worker compensation: FTSE100 **11x** 1980; **96x** in 2014; S&P500 **26x** in 1970; **335x** in 2015
- How closely is pay tied to firm performance?
  - Puzzle over why relative compensation plans so rare (e.g. Gibbons & Murphy, 1992)
- New employer-employee matched panel dataset 1999-2015: 1,201 CEOs in 472 large UK publicly listed firms
- UK interesting because big increase of relative performance plans for CEOs (e.g. "sector LTIPS")
  - Shift from stock options to performance related equity incentives; CEO pay tied to firm performance relative to peers
  - Recommendation from high-level government commissioned reports in late 1990s (e.g. Greenbury Report)
  - US slower to adopt LTIPs. **2007: 30%** of S&P500 had CEO relative performance plans (de Angelis & Grinstein, 2016; Gong et al, 2011 using 2006 SEC mandate) cf. **75%** in our UK sample

SHARE OF CEO PAY IN LTIPS AND SHARE OF ALL LTIPS THAT HAVE A RELATIVE SECTOR COMPONENT ROSE SUBSTANTIALLY BETWEEN 2015 AND 1999



Notes: LTIPS are Long-Term Incentive Plans. Sector LTIP Share shows the percentage of all LTIPs that have a sector component in the performance evaluation (i.e. are benchmarked against an industry peer average).

SUMMARY OF FINDINGS

- Close link between CEO pay & firm performance
  - Elasticity is ~0.15 (larger than previous UK estimates, especially when pay more accurately measured)
- Aspects of CEO pay hard to rationalize with efficiency based models
  - CEO Pay does go **down** when firm performance is weak, but not as much as it goes **up** when performance is strong.
  - This asymmetry driven by firms with weaker governance
  - "Pay for industry luck" remains strong even with relative performance contracts (sector LTIPs)
    - Reason is that when CEO failing to reach relative performance benchmark, a "compensating" new pay increase is awarded & LTIP structure changed
    - Again, this effect is stronger when governance weaker

OUTLINE

1. **Data**
2. Empirical Model
3. Results
4. Extensions

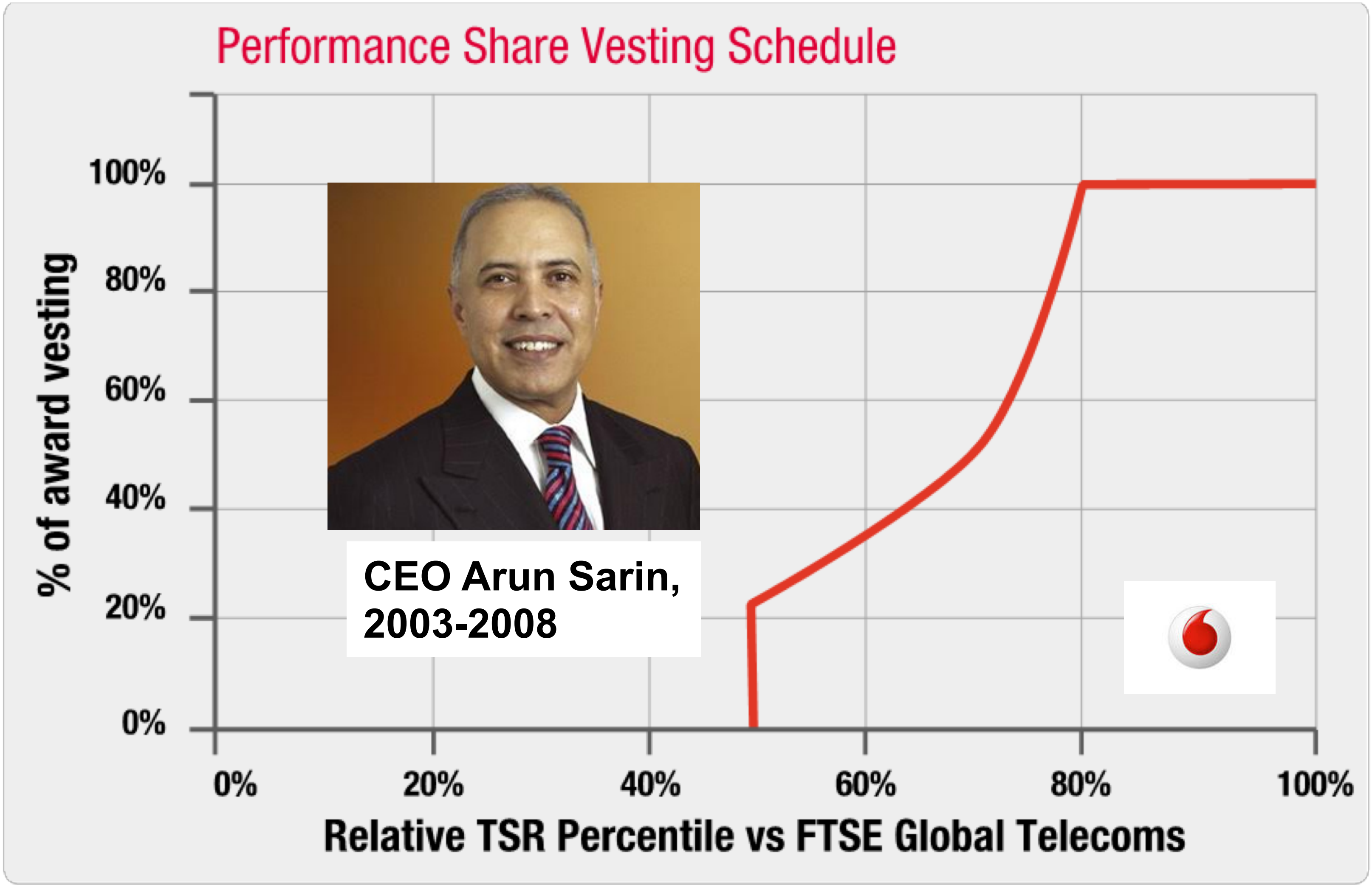
DATA

- Company accounts & shareholder returns any firm that was ever in top 300 on UK stock market between 1999 to 2015
- **Executive compensation**
  - Boardex (like ExecuComp) & own collection. 472 public firms; 1,201 CEOs (6,090 observations); 85% of UK stock market value
  - Details on options, shares, LTIPs, bonuses, etc. (do an *ex ante* calculation of their value)

CONSTRUCTION OF PAY VARIABLES

- **<u>Main outcome variable</u>: New Pay** = Cash + New Equity
- **Cash** = Salary + Bonus
- **New Equity**
  - Standard Options (valued via Black-Scholes)
  - **LTIPs (Long-Term Incentive Plans)**
    - Equity (or options) granted at a point in the future if CEO achieves an explicit & objective **performance benchmark**
    - Usually over multiple years (typically 3 years)
    - Performance usually in terms of Total Shareholder Return (TSR), but sometimes accounting measure (Earnings/Share)
    - Benchmark often a peer group (rather than absolute), usually other large firms in the same sector (**Sector LTIPs**), but also sometimes market index (like FTSE-100)
    - Typically get most shares if in top quartile; a fraction if median to top quartile and zero if below median

EXAMPLE OF SECTOR LTIP FROM VODAFONE



Notes: 2005 accounts relating to 2004 LTIP award to CEO on 7/28/04. % of shares (2m = £2.4m) granted to depends on Total Shareholder Return relative to basket of 29 "peers" in FT Global Telecom index between 7/27/04 and 7/28/07. In the event 28.6% vested (Vodafone was 53rd percentile).

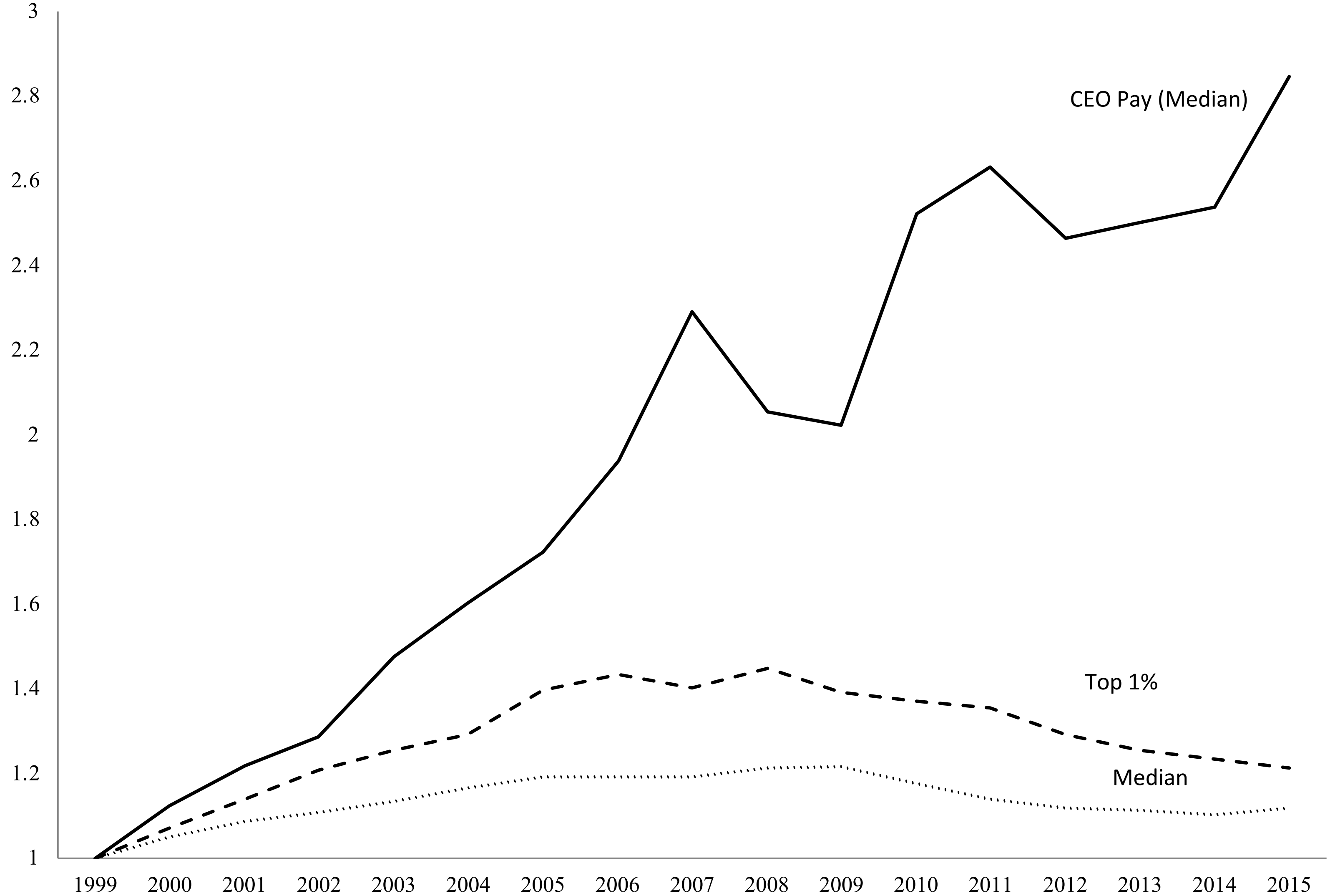
OTHER ASPECTS OF REMUNERATION

- **Total Pay** = New Pay + Change in value of previous LTIPS
  - Depends on change in share price, time until vesting & probability of vesting

- **CEO Wealth** = Voluntary holdings of firm stock (Hall and Leibman, 1988)

- We construct these measures & show results, but focus on new pay and its composition

PAY GROWTH: CEO, TOP 1% & MEDIAN WORKER



Notes: 2014 real prices, series based in 999=1; By 2015 CEO up by 2.85; 1% by 0.21; median by 0.12

OUTLINE

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EMPIRICAL MODEL

- Relate pay (*w*) to firm performance (*p*)

$$w = \alpha + \beta p$$

- β could be outcome of a constrained **optimal contract** (depends on risk aversion, volatility of firm performance, effort function, etc. as in Holmstrom & Milgrom, 1987)

- β could also represent ability of agent to **extract rents/skim** from the firm (Bertrand & Mullainathan, 2001)

- Or maybe just the market value of talent (e.g. *p* correlated with average firm size/value of talent – Gabaix & Landier, 2008)

PAY-PERFORMANCE LINK

- Pay of CEO *i* in firm *j* at time *t*

$$ln(pay)_{ijt} = \alpha_{ij} + \sum_{k=0}^{K} \beta_k \ln(\mathrm{PERF})_{\mathrm{jt-k}} + \tau_t + \varepsilon_{ijt}$$

- Show simple "impact" spec with K=0 & "long-run" K=2,etc.
- New Pay is total ex-ante expected compensation
- Firm performance (***PERF***)
  – Total Shareholder Returns (***TSR***)
- **Controls:** match-specific effects,α_{ij}; time dummies; with & without firm size (e.g. employment)

OUTLINE

1. Data
2. Empirical Model
3. **Results**
   - **Basic**
   - Interpretation
4. Extensions

ASSOCIATION OF PAY COMPONENTS WITH TSR

	Impact	Long-Run
ln(New Pay)	0.147 (0.020)	0.152 (0.023)
ln(Salary)	0.003 (0.012)	-0.004 (0.018)
ln(Bonus)	1.718 (0.157)	0.682 (0.212)
ln(LTIP)	0.375 (0.159)	0.702 (0.226)

OUTLINE

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SUMMARY OF BASIC RESULTS

- Strong pay-performance relationship
- Due to importance of flexible pay
- But is this all market forces?
  - **Asymmetry & Governance**
  - Pay for Luck
  - Sector LTIPs

ASYMMETRY, GOVERNANCE & CEO PAY

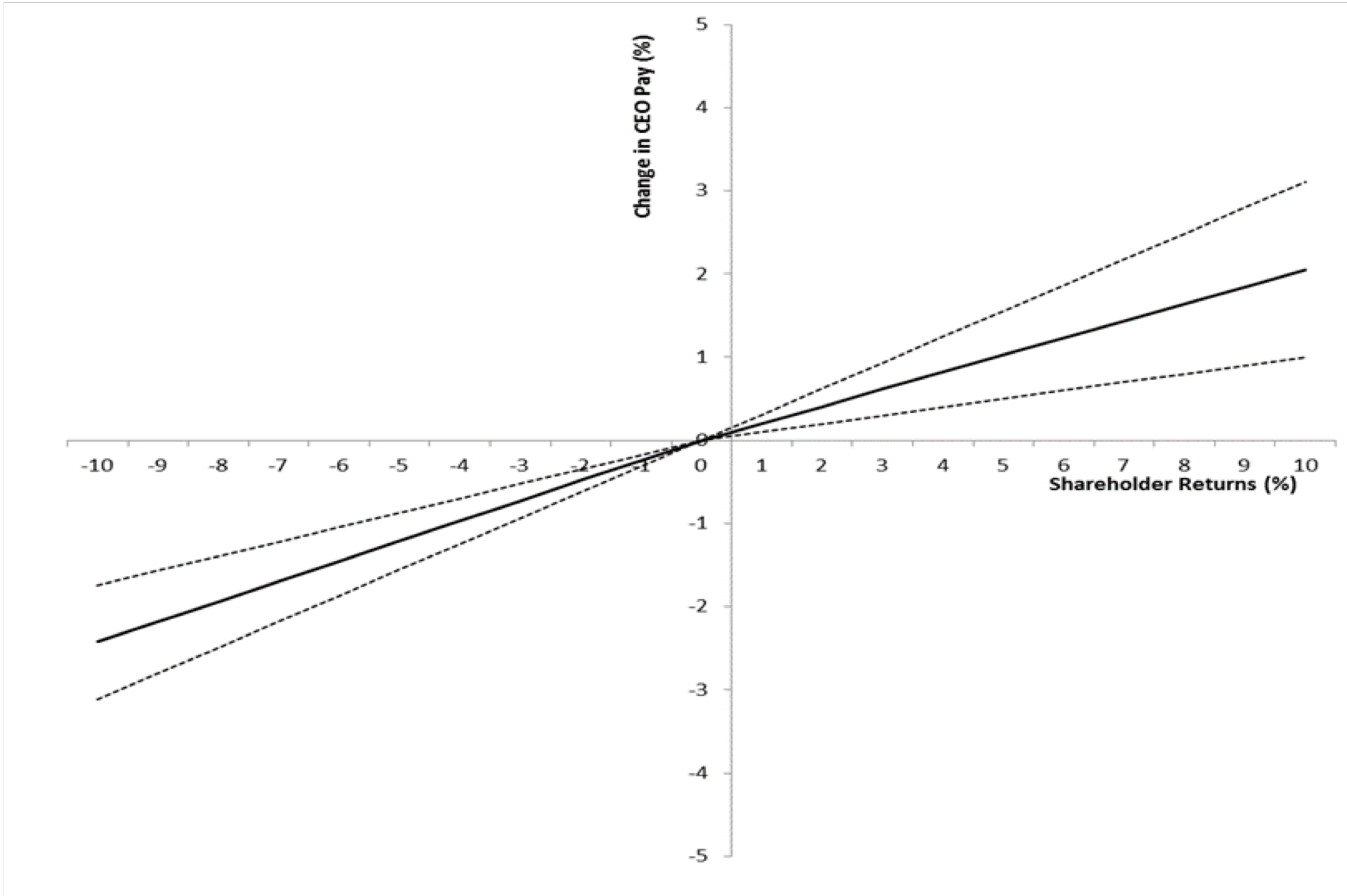
- Questions of asymmetry of rewards
  - Are CEOs rewarded more on upside (change in TSR positive, **Δln TSR (+)**), than on the downside (change in TSR negative)?
  - Is this asymmetry stronger when firms have governance problems? **Use two proxies:**
- Evidence that active **institutional investors** (II) like pension funds aid corporate governance (e.g. Aghion, Van Reenen & Zingales, 2013, AER)
  - Institutional Investors like have stronger incentives & ability to monitor than individuals
  - Split firms into "low II" (bottom quartile in previous year) vs. "high II" based on lagged II share
- Direct measure of corporate governance problems from **Institutional Voting Information Service** (IVIS)
  - Issue warnings (red/amber/blue) over Board votes.
- Note: Positive correlation of low II with IVIS measures (& IRRC/ABI corporate governance measures in US)

CEO GETS MORE ON UPSIDE WHEN GOVERNANCE WEAK

Method:	Within Groups	First Differences	First Differences	First Differences
ln TSR	**0.149**** (0.020)			
Δln TSR		**0.162**** (0.028)	**0.107**** (0.048)	
Δln TSR (+) Positive TSR growth			0.135* (0.077)	
Δln TSR * High II (strong governance)				**0.242**** (0.035)
Δln TSR(+) * High II (strong governance)				-0.037 (0.071)
Δln TSR * Low II (weak governance)				-0.132 (0.092)
Δln TSR(+) * Low II (weak governance)				**0.430**** (0.141)
# obs	5,038	5,038	5,038	5,038

Notes: Dependent variable is Δ*ln*(New Pay). Asymmetry allowed for by including Δ*ln*TSR when positive as an additional regressor (Δ*ln*TSR+). All regressions include time dummies (interacted with II in col (1) and (2)). SE clustered at firm level. Coefficients in bold significant at the 5% level. 455 firms in col (1); 451 firms in columns (2)-(4) & 472 in column (5).

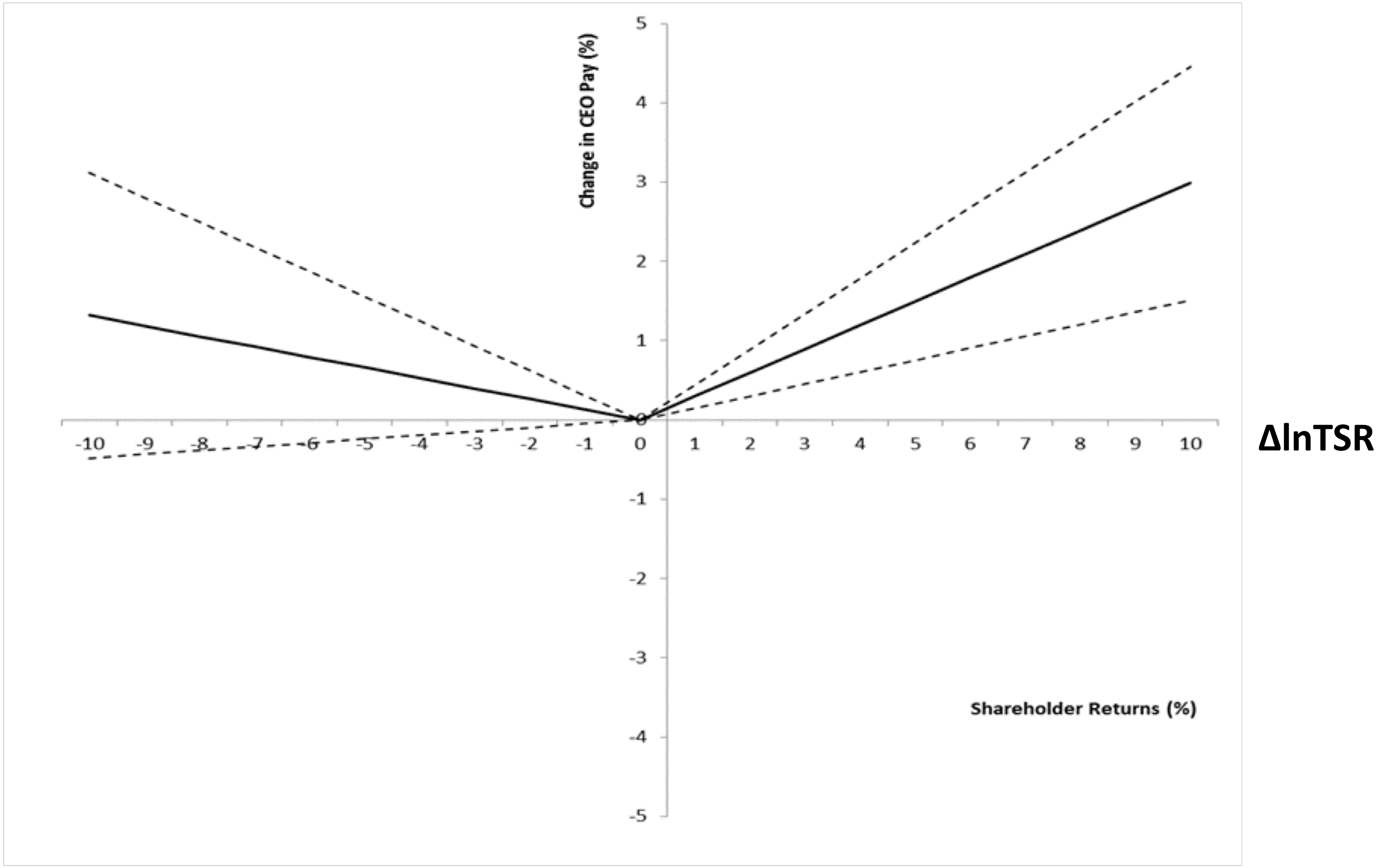
SYMMETRY IN CEO PAY-PERFORMANCE FOR FIRMS WITH STRONG GOVERNANCE (HIGH II)



ΔlnTSR

Notes: These are the implied elasticities between CEO pay & TSR for firms where Institutional Investors have a high (outside bottom quartile) share of equity (“II high”). 95% confidence intervals shown.

ASYMMETRY IN CEO PAY-PERFORMANCE FOR FIRMS WITH STRONG GOVERNANCE (LOW II)



Notes: These are the implied elasticities between CEO pay & TSR for firms where Institutional Investors have a low (bottom quartile) share of equity ("II high"). 95% confidence intervals shown.

CEO GETS MORE ON UPSIDE WHEN GOVERNANCE WEAK

Method:	Within Groups	First Differences	First Differences	First Differences	First Differences
ln TSR	**0.149** (0.020)				
Δln TSR		**0.162** (0.028)	**0.107** (0.048)		
Δln TSR (+) Positive TSR growth			0.135* (0.077)		
Δln TSR * High II (strong governance)				**0.242** (0.035)	**0.239** (0.034)
Δln TSR(+) * High II (strong governance)				-0.037 (0.071)	-0.093 (0.067)
Δln TSR * Low II (weak governance)				-0.132 (0.092)	0.103 (0.056)
Δln TSR(+) * Low II (weak governance)				**0.430** (0.141)	**0.249** (0.094)
#Firms	449	449	449	449	466
# obs	5,038	5,038	5,038	5,038	4,959

Notes: Dependent variable is Δ*ln*(New Pay). Asymmetry allowed for by including Δ*ln*TSR when positive as an additional regressor (Δ*ln*TSR+). All regressions include time dummies (interacted with II in col (1) and (2)). SE clustered at firm level. Coefficients in bold significant at the 5% level.

SUMMARY OF BASIC RESULTS

- But is CEO Pay-performance all market forces?
  - Asymmetry & Governance
  - **Pay for Luck**
  - Sector LTIPs

PAY FOR LUCK? IV RESULTS

- A component of firm performance driven by exogenous shocks (e.g. oil price for Exxon). Are CEOs rewarded for this kind of “luck”? (Bertrand & Mullainathan, 2001)
  - Use only firm *PERF* predicted from industry *PERF*

- Instrument firm-level shareholder returns with the returns in the global industry (excluding the UK). For 471 firms, we have 92 industries

TABLE 5: EVIDENCE OF PAY FOR LUCK? INSTRUMENTING FIRM TSR WITH (EX-UK) GLOBAL INDUSTRY TSR GIVES SIMILAR RESULTS TO OLS

Dependent variable:	OLS	IV
Ln(Cash)	**0.132**** (0.017)	**0.139**** (0.041)
Ln(New Pay)	**0.146**** (0.020)	**0.207**** (0.043)
Ln(Total Pay)	**0.886**** (0.071)	**1.070**** (0.120)
Observations	6,070	6,070

Notes: Cash is salary plus bonus; New Pay is cash + value of newly awarded equity; Total Pay is New Pay + estimated change in value of previously awarded but still held equity awards. All regressions include CEO-firm match fixed-effects, size & time dummies. Standard errors clustered at the industry level (92 clusters). Coefficients in bold are significant at the 5% level. **F-Stat in first stage = 167**

WHY STILL SOME PAY FOR LUCK?

- Why have UK's relative performance LTIPS ("sector LTIPs") not dealt with asymmetry & pay for luck?
  - Sector LTIPs still not prevalent enough?
  - Perform a *plan-level* analysis of probability & amount of vesting
  - Is there *less* pay for luck when CEOs subject to sector LTIPs? Dependent variables:
    - Vesting probability
    - Amount of pay

PLAN LEVEL ANALYSIS - SECTOR LTIPS DO REDUCE PROBABILITY OF VESTING (& AMOUNT PAID OUT) WHEN FIRM TSR RISES DUE TO INDUSTRY SHOCK

	Relative Sector LTIP		No Relative Sector LTIPS	
	OLS	IV	OLS	IV
A. Dependent variable: Vesting Percentage				
ΔLn(TSR)	**0.233****	0.077*	**0.160****	**0.169****
	(0.023)	(0.041)	(0.018)	(0.040)

Notes: Standard errors are clustered at the firm level. Coefficients in bold are significant at the 10% level. Long differences between grant date and potential vest date (usually 3 years). 1038 observations in columns (1) and (2) and 932 observations in columns (3) and (4)

PLAN LEVEL ANALYSIS - SECTOR LTIPS DO REDUCE PROBABILITY OF VESTING (& AMOUNT PAID OUT) WHEN PERFORMANCE IS POOR (3 YEAR DIFF OF TSR)

	Relative Sector LTIP		No Relative Sector LTIPS	
	OLS	**IV**	**OLS**	**IV**
A. Dependent variable: Vesting Percentage				
ΔLn(TSR)	**0.233** (0.023)	0.077 (0.041)	**0.160** (0.018)	**0.169** (0.040)
B. Dependent variable: Change in value of LTIP pay				
ΔLn(TSR)	**535.98**** (27.07)	**388.29**** (64.71)	**449.45**** (36.25)	**493.02**** (102.71)
Observations	2,054	2,054	3,780	3,780
First stage F		59		36

Notes: Standard errors are clustered at the industry level. Coefficients in bold are significant at the 5% level. Long differences between grant date and potential vest date (usually 3 years)

WHY STILL SOME PAY FOR LUCK?

- What happens to pay negotiations when LTIPs fail?
- Look at the response to new pay deals when CEO doesn't meet performance standards as specified in LTIPs
- "Lagged LTIP fail"
  - Look at CEO's portfolio of lagged LTIPs and calculate what proportion of face value CEO is likely to receive (simplest measure of failure is if below 100%)
  - Do CEOs get "compensated" when their LTIPs are doing badly?

IN WEAKLY GOVERNED FIRMS CEO GET COMPENSATED WHEN THEIR LTIP VALUE FAILS

Dependent Variable:	**Ln(New Pay)**	**New Equity Awards**	**Ln(New Pay)**	**New Equity Awards**
Lagged LTIP Fails	-0.004 (0.015)	40,490 (29,972)	-0.022 (0.016)	9,363 (34,944)
Lagged LTIP Fails *Low II (weak governance)			**0.092**** (0.038)	**134,123**** (67,312)
Lagged lnTSR	**0.185**** (0.018)	**116,948**** (51,535)	**0.187**** (0.021)	116,625* (62,363)
# obs	5,070	5,070	5,070	5,070

Notes: SE clustered at firm level. Coefficients in bold significant at the 5% level. All columns include controls for CEO-firm match fixed-effects, lagged TSR and time dummies. Final two columns also have interactions between II and time dummies

IN WEAKLY GOVERNED FIRMS CEO GET LTIPS CHANGED WHEN THEIR LTIP VALUE FAILS

Dependent Variable:	= 1 if number of perf scales > 1	
Lagged LTIP Fails	**0.178**** (0.045)	0.031 (0.073)
Lagged LTIP Fails *Low II (weak governance)		$\boxed{\textbf{0.200** (0.080)}}$
Lagged lnTSR	**0.255**** (0.037)	**0.257**** (0.037)
# obs	577	545

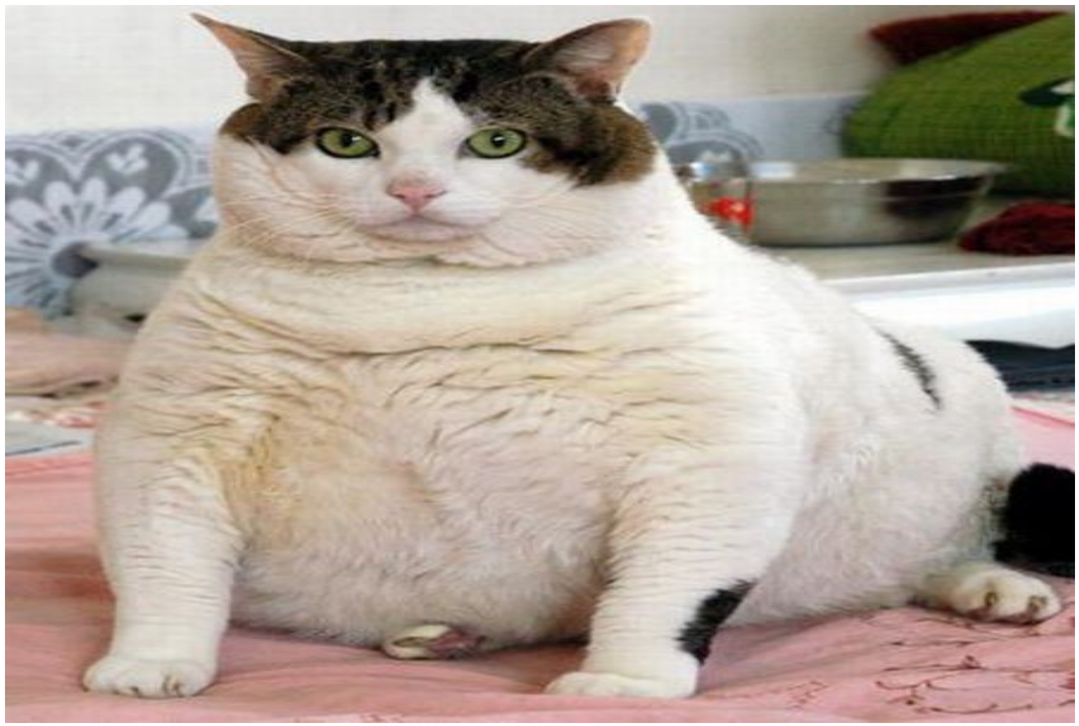
MAIN INTERPRETATION

- Not simply because firm is doing badly because we control (flexibly) for overall performance and interactions with II, etc.
- When LTIPs look like they will not pay out CEO able to negotiate especially generous rewards via new LTIPs and change the structure
- Generosity of these new awards may not be transparent to shareholders and/or governance may be too weak to change
- Suggests that push for sector LTIPs/relative pay may be futile unless strong corporate governance

CONCLUSIONS

- Pay-performance link strong for CEOs
- CEO pay-performance link asymmetric: stronger on upside than downside & this more pronounced when governance weak (II low and/or IVIS index)
- "Pay for luck" (industry shocks) remains strong & has not been much weakened by sector LTIPs
  - This is because CEOs obtain more generous incentive pay awards when existing LTIPs fail & more pronounced when governance weak
- Together suggest governance improvements matter more than rather than regulating formal pay structures
- **Future:** looking at details of sector LTIPS to examine impact of CEO contracts on firm performance

THANK YOU!



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