Executive Compensation: A New View from a Long-Term Perspective, 1936-2005

Carola Frydman & Raven E. Saks (2010)

Discussion prepared by Christopher Saw

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Objectives

Research Questions:

- What are the long-run trends in executive compensation for the United States?
- Can the present literature about executive compensation explain the long-run trends?

Approach:

- Construct a long-run time series on executive compensation
- Valid explanations for high executive compensation should be able to explain the historical trends

Background

Why is this interesting?

- Comparing the long-run trends between executive compensation and economic fundamentals can contribute to our understanding of what drives high compensation
- History provides an additional source of evidence to evaluate potential explanations for executive compensation; valid theories should be able to account for historical patterns

What this paper does:

- Transparent and comprehensive discussion of data
- Careful and transparent examination of each theory
- Good descriptive analysis; not a structural model and offers no statistical test of parameters

A new dataset on executive compensation

- SEC filings (1936-1991) + Standard & Poor's ExecuComp dataset (1992-2005); both based on proxy (financial) statements
- 50 largest listed firms in 1940, 1960, 1990 (total: 101 firms)
- Annual compensations to the 3 highest-paid executives, with 3 components:
  1. Cash salaries
  2. Current bonuses from cash and/or stocks
  3. Stock holdings and stock options (long-term incentives + 'pay-to-performance')
- Compare (1) and (2) from 1970-2005 in the sample to similar-sized firms from other more representative datasets $\rightarrow$ sample reflects the largest 300 listed firms in each year
- **Key contributions**: long time-series + documenting (3)

So, what is the historical trend?

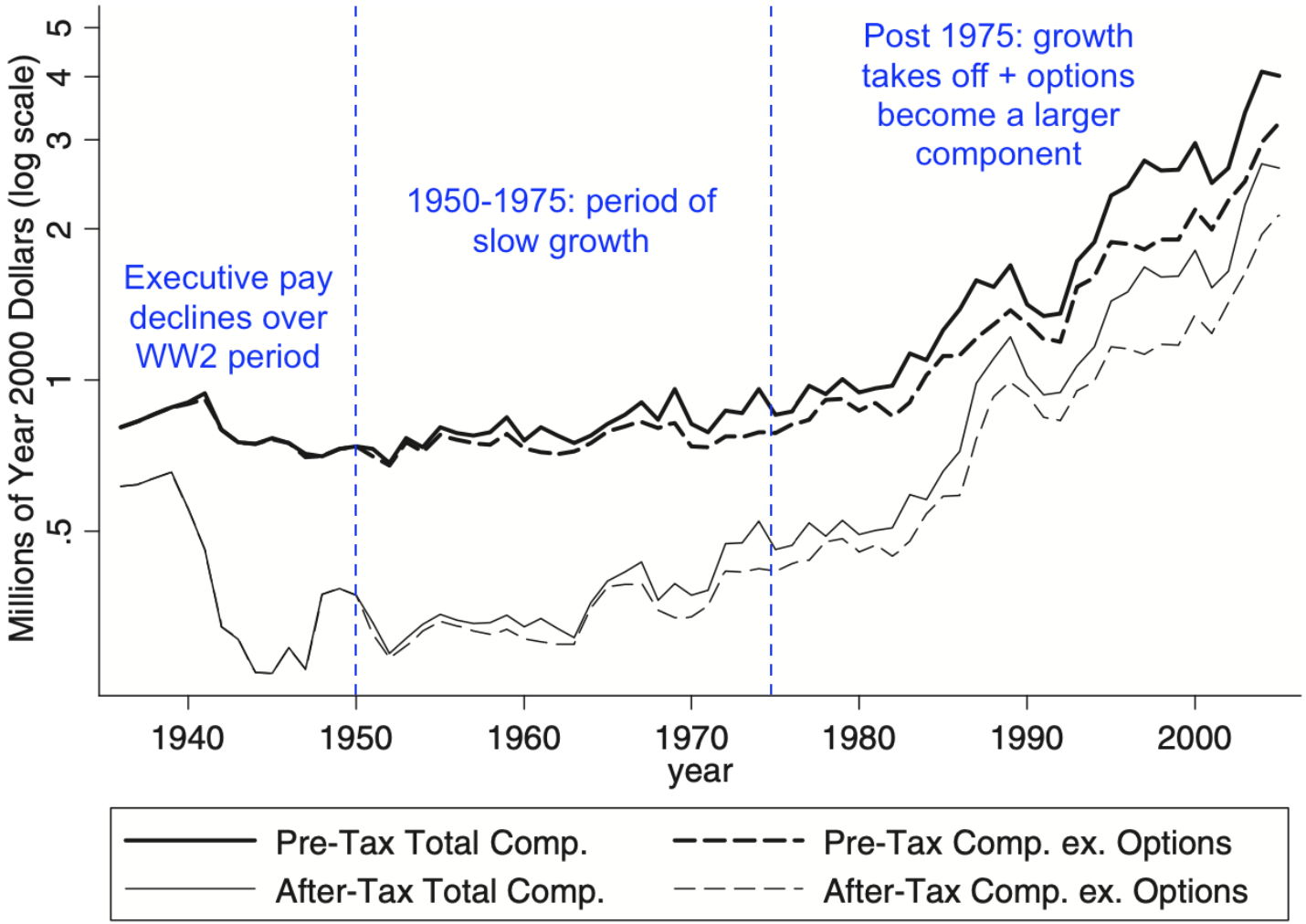

Figure 1: Pre- & After-Tax Total Compensation (Median, 1936-2005)

And what determines executive compensation?

(1) Growth in aggregate firm size and increased competition for managerial talent

(2) Increased use of stock options for managerial incentives + risk-averse executives

(3) Poor corporate governance + rent-seeking executives

(4) Increased return to general managerial skills

- The paper examines (1) and (2) in close detail, leveraging the long-run time series to examine how well each explanation performs

The relationship between aggregate firm size and executive compensation has changed

	Firm Size = Ln(Market Value)		
	1936–1975 (1)	1946–1975 (2)	1976–2005 (3)
Panel 1: DV = Ln($Comp_{ift}$)			
Average Size in Year $t-1$	.088**	.137**	.935**
	(.026)	(.025)	(.035)
	[.010]	[.020]	[.332]
Average Firm Size	.208**	.212**	.292**
	(.033)	(.032)	(.032)
	[.145]	[.164]	[.135]
Size – Firm Avg. – Year Avg.	.182**	.199**	.264**
	(.038)	(.041)	(.032)
	[.039]	[.036]	[.043]

Figure 2: Correlation between compensation and firm size

However this positive relationship could be spurious — driven by upward trends in both variables

	Firm Size = Ln(Market Value)			Firm Size = Ln(Sales)	
	1936–1975 (1)	1946–1975 (2)	1976–2005 (3)	1946–1975 (4)	1976–2005 (5)
Panel 1: DV = Ln(Comp$_{ift}$)					
Average Size in Year $t-1$	.088**	.137**	.935**	.157**	2.65**
	(.026)	(.025)	(.035)	(.032)	(0.11)
	[.010]	[.020]	[.332]	[.017]	[.259]
Average Firm Size	.208**	.212**	.292**	.305**	.358**
	(.033)	(.032)	(.032)	(.037)	(.041)
	[.145]	[.164]	[.135]	[.220]	[.113]
Size – Firm Avg. – Year Avg.	.182**	.199**	.264**	.240**	.346**
	(.038)	(.041)	(.032)	(.052)	(.048)
	[.039]	[.036]	[.043]	[.041]	[.032]
Panel 2: With Firm Fixed Effects					
Average Size in Year $t-1$		.135**	.969**	.149**	2.63**
		(.024)	(.037)	(.031)	(0.11)
Size – Year Avg.		.218**	.313**	.277**	.389**
		(.040)	(.028)	(.046)	(.046)
Panel 3: Including Lagged Size and Firm FE					
Average Size in Year $t-1$		−.019	.622**	.240**	2.31**
		(.037)	(.086)	(.074)	(0.23)
Average Size in Year $t-2$		.152**	.378**	−.088	.362*
		(.041)	(.083)	(.063)	(.210)
(Size – Year Avg.) in Year $t-1$		.183**	.369**	.203**	.401**
		(.040)	(.038)	(.045)	(.067)
(Size – Year Avg.) in Year $t-2$		.020	−.064**	.084**	−.040
		(.041)	(.029)	(.030)	(.043)
Panel 4: Including Quadratic Time Trend and Firm FE					
Average Size in Year $t-1$		.035	.750**	.143*	−.312*
		(.032)	(.082)	(.079)	(.171)
Size – Year Avg.		.217**	.309**	.272**	.391**
		(.038)	(.028)	(.046)	(.042)
Panel 5: DV = ΔLn(Comp$_{ift}$)					
Δ Average Size in Year $t-1$		.012	.210**	.087*	.172
		(.031)	(.080)	(.049)	(.174)
Δ Size – Δ Year Avg.		.092**	.277**	.077**	.145
		(.032)	(.035)	(.024)	(.116)

Figure 3: All specifications

Pay-to-performance compensation has become more important...

Ex ante changes in the value of executives' stock and stock option holdings (year 2000 dollars)

	Option holdings		Stock holdings		Stock + option holdings	
	For $1,000 change in firm market value (Jensen–Murphy) (1)	For a 1% increase in firm's rate of return (equity at stake) (2)	For $1,000 change in firm market value (Jensen–Murphy) (3)	For a 1% increase in firm's rate of return (equity at stake) (4)	For $1,000 change in firm market value (Jensen–Murphy) (5)	For a 1% increase in firm's rate of return (equity at stake) (6)
1936–1940	0	0	1.35	18,401	1.35	18,670
1941–1949	0	0	0.39	6,530	0.40	6,814
1950-1959	0	0	0.31	9,392	0.45	13,975
1960–1969	0.11	7,913	0.35	20,531	0.68	38,978
1970–1979	0.12	6,303	0.22	11,766	0.47	21,743
1980–1989	0.24	13,056	0.17	12,735	0.55	34,679
1990–1999	0.41	57,975	0.29	36,273	0.95	120,342
2000–2005	0.65	127,195	0.27	49,729	1.08	227,881

Based on the three highest-paid executives in the fifty largest firms in 1940, 1960, and 1990. Each column shows the median across all executives in each decade. Ex ante revaluations of stock options are computed using the "delta" for the portfolio held by each executive (Core and Guay 2002). Columns (5) and (6) report the median across executives of the sum of the ex ante revaluations of stock and stock option holdings.

Figure 4: Changes in managerial incentives (1936-2005)

- Jensen–Murphy statistic: dollar change in executive wealth per dollar change in firm value
- Equity at stake: dollar amount of wealth that an executive has at risk for a 1% change in the firm's value

...even after controlling for firm size

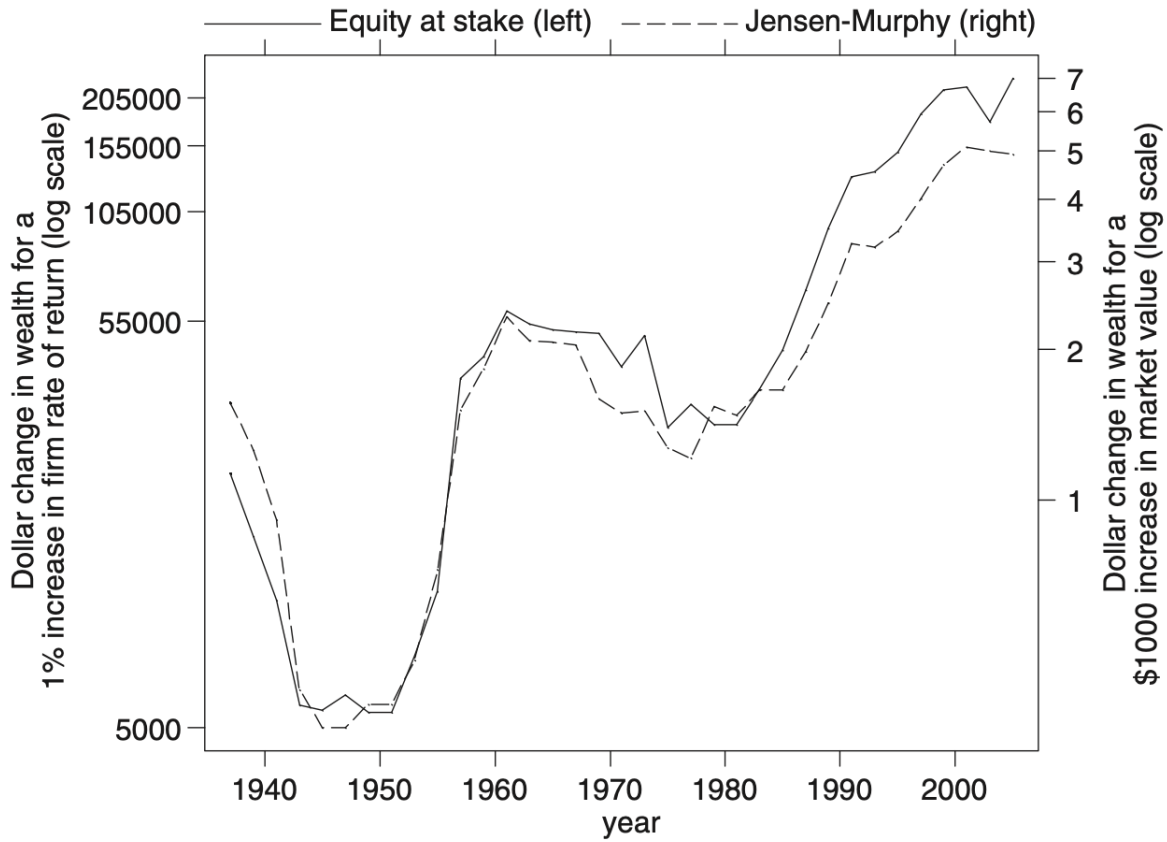

Figure 5: Size-adjusted indexes of pay-to-performance

But does ↑ pay-to-performance explain ↑ executive compensation?

- Any formal test requires a structural model that allows an econometrician to recover the risk-aversion of executives

  Finding evidence to support or reject this hypothesis is difficult because ***the optimal relationship between incentive pay and the total level of compensation predicted by principal–agent models depends on unobservable parameters****. With this caveat in mind,* ***we do not find strong support for risk as an explanation*** *for the rise in the level of pay under the admittedly strong assumption that the unobservable parameters of the model remained constant over time.*

Key Takeaways

To inform the debate on executive pay using long-run data, we need consistently measured information on the level and structure of pay, the dispersion of pay across executives, the correlation of pay with firm size, the sensitivity of pay to firm performance, and managerial skills.

- History provides an important source of evidence to evaluate our models — importance of measuring executive compensation consistently
- Explanations on the determinants of executive compensation should account for historical changes (e.g. sharp change since the 1970s)