Are CEOs paid extra for riskier pay packages?

Albuquerque-Albuquerque-Carter-Dong

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Compensating Differentials for Risk

“Theory” predicts that risk-averse CEOs will demand compensating differentials for accepting risky pay packages

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Authors consider 3 approaches

- Simulations based on performance metrics in incentive plans (Incentive Lab)
  \( E[\text{Pay}] = \text{Mean}[\text{TDC1}], \text{Var}[\text{Pay}] = \text{Var}[\text{TDC1}] \)

- \( E[\text{Pay}] \) and \( \text{Var}[\text{Pay}] \) based ARCH estimates using TDC1
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Findings:

\[ \beta > 0 \text{ under all 3 approaches} \]
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Apparently, our theories need updating . . .
Paper has a “Fundamental” Problem

“*A fundamental hypothesis* in moral hazard models is that risk-averse CEOs require extra pay for riskier pay packages”

“This is a *fundamental hypothesis* in the sense that it is born out of the participation constraint.”
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Is the trade-off between risk and incentives (or risk and the level of pay) really fundamental in Agency Theory, or is it just convenient modeling?

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Agency Theory is about conflicts of interest between principals and agents.
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This paper shows that we’ve taken the risk-aversion story too seriously
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Does Agency Theory require the CEO’s participation constraint to be binding?
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One way to model:

\[
\begin{align*}
\text{MAX}_{w(y)} & \ (y-w(y)) \quad \text{subject to} \\
\text{MAX}_a & \ U(w(y),a) \\
E[U(w(y),a)] & = \hat{U}
\end{align*}
\]

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\max_{w(y)} E[U(w(y),a)] \quad \text{subject to} \quad \max_a U(w(y),a) \\
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Approach 1: Simulations
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Non-Equity Incentives (24% of Pay)

Bonus

Performance
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- Restricted Stock (15% of Pay)
  - $ Value
  - Stock Price

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- Performance Shares (33% of Pay)
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Approach 1: Simulations

Over 90% of firms use non-GAAP or adjusted measures. How does this affect \( \text{Var(Bonus)} \)?
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Missing values for goals may not be random.
Approach 1: Simulations
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Easiest to model how \( \text{Var(Stock Price)} \) translates to \( \text{Var(RSUs)} \) ... but you seem to ignore time-lapse restricted shares
Approach 1: Simulations

Stock Options (13% of Pay)

$ Value vs. Stock Price
Approach 1: Simulations

Straightforward to model how $\text{Var(Stock Price)}$ translates to $\text{Var(Options)}$ … but is this what you are doing?
Approach 1: Simulations
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Most of the action is in the stock price and not in the metric that determines # of shares
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Why aren’t you simulating stock prices directly (rather through a multiple of sales)?
Approach 1: Simulations

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Restricted Stock (15% of Pay)

Stock Options (13% of Pay)

Performance Shares (33% of Pay)
Approach 2: Realized Var(TDC1)

Var[TDC1] is not the variance of realized pay

Mean[TDC1] is not expected pay
Approach 2: Realized $\text{Var}(TDC_1)$

$\text{Var}[TDC_1]$ is not the variance of realized pay

- CEO #1: Base salary of $1,000,000, no other pay
- CEO #2: Annual RSU grant of $1,000,000, no other pay

Both have $\text{Var}[TDC_1] = 0$, but CEO #2’s pay is riskier

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- Actual bonus rather than expected or target bonus
- Black-Scholes is not the “expected value” of options, etc.
Approach 3: ARCH
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Approach new to CEO pay, but not well described

Like approach #2, seems tied to TDC1 which is problematic
Is Estimated E[Pay]/Var[Pay] Elasticity too low?

What is γ?

I suspect you have underestimated Var[Pay]
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What is $\gamma$?

Modeled as Absolute Risk Aversion, discussed as Relative Risk Aversion

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- Which implies even lower elasticities than reported?
- But, would a higher elasticity “confirm” the fundamental hypothesis?
Would a higher elasticity confirm theory?
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Suppose risky pay was layered on top of competitive pay.
Would a higher elasticity confirm theory?

Suppose risky pay was layered on top of competitive pay.

E[Pay] and Var[Pay] both increase, but cannot reflect a compensating differential for increased risk.
Evidence of Layering (Murphy-Sandino 2020)

$$\Delta E[\text{Total Pay}]_i = \alpha + \beta \Delta (\text{New Equity Grant})_i + \text{Controls}_i + \varepsilon_i$$
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Expect \( \beta = 0 \) under risk neutrality, and \( 0 < \beta < 1 \) under risk aversion, with \( \beta \) smaller for new RSUs than new options or performance shares.
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- Time-Lapse RSUs \( \beta = 1.476 \)
- Stock Options \( \beta = 0.965 \)
- Performance Shares \( \beta = 1.056 \)
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- **Time-Lapse RSUs**: \( \beta = 1.476 \)
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\[ E[\text{Pay}] \] increases, but this cannot logically be a differential for increased risk.
Conclusion: Debunking Risk Aversion

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I’ve suggested some “cleaning up”, but I believe the results will hold and will be compelling.