The Long-Term Effects of Short-Term Incentives

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Almost Everyone Believes Short-Termism Is a Problem

- Clinton: “tyranny of short-termism”; Sanders and Warren: bill to limit activist hedge funds
- CNBC: “Warren Buffett Joins Call to Target "Short-Termism" In Financial Markets”
- Focusing Capital on the Long-Term
Smoking Gun evidence of short-termism: huge fall in R&D since 1977 caused by activist investors, short-term traders, and stock buybacks. papers.ssrn.com/sol3/papers.cf...
'maximising share value' + share buy back = increased executive pay, but leads to long term productivity loss & increased inequality

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6:17 PM - 30 May 2018
Short-Term Incentives Believed To Be Damaging …

- UK Corporate Governance Code is increasing vesting periods from 3 to 5 years
- Theories predict effects of ST incentives
Mismatch between standard empirical measures of incentives and myopia theories

- In theory models, what matters is horizon of incentives. Max $\alpha[\omega P + (1-\omega)V]$
- Standard measures of incentives quantify overall sensitivity to stock price: $\alpha$, not $\omega$

$\alpha \omega P$ is dollar value of CEO’s equity sales

- But actual equity sales are (a) endogenous (b) potentially unpredictable
- Need $E[\alpha \omega P]$: expected equity sales

... But Where’s The Evidence?
Empirical Approach

- Use scheduled vesting of equity
  - Relevance: highly correlated with equity sales
  - Exclusion: driven by grants several years prior
  - Predictable by CEO in advance
  - Available post-2006 SEC rules. Short time series, so use Equilar (Russell 3000) vs. Execucomp (S&P 1500)
Measuring Short-Term Incentives

- Identify vesting options grant-by-grant to calculate delta
  - \textit{VESTING}: effective $ value of vesting equity (stock and options)
  - \textit{VESTED}
  - \textit{UNVESTED}

- Equilar is annual. Derive algorithm to estimate vesting date of equity, enabling calculation of quarterly \textit{VESTING}
Equity Vesting and Investment

- Edmans, Fang, and Lewellen (*RFS* 2017)
- LHS: $\Delta RD$, $\Delta CAPEX$, $\Delta NETINV$, $\Delta RDCAPEX$, $\Delta RDNETINV$
- Controls:
  - $VESTED$, $UNVESTED$, salary, bonus
  - CEO characteristics (Asker et al., 2015):
    - CEO age, CEO tenure, new CEO dummy
    - IO: $Q_t$, $Q_{t+1}$, momentum, age, MV
    - Financing capacity: cash, leverage, retained earnings, ROA
## Equity Vesting and Investment

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>(1) $\Delta RD_q$</th>
<th>(2) $\Delta CAPEX_q$</th>
<th>(3) $\Delta NETINV_q$</th>
<th>(4) $\Delta RDCAPEX_q$</th>
<th>(5) $\Delta RDNETINV_q$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$VESTING_q$</td>
<td>-0.060***</td>
<td>-0.089***</td>
<td>-0.149**</td>
<td>-0.159***</td>
<td>-0.224***</td>
</tr>
<tr>
<td></td>
<td>(0.021)</td>
<td>(0.025)</td>
<td>(0.067)</td>
<td>(0.039)</td>
<td>(0.079)</td>
</tr>
<tr>
<td>$UNVESTED_{q-1}$</td>
<td>-0.003</td>
<td>0.004</td>
<td>0.051</td>
<td>0.002</td>
<td>0.054</td>
</tr>
<tr>
<td></td>
<td>(0.009)</td>
<td>(0.013)</td>
<td>(0.036)</td>
<td>(0.018)</td>
<td>(0.040)</td>
</tr>
<tr>
<td>$VESTED_{q-1}$</td>
<td>-0.001*</td>
<td>0.002</td>
<td>-0.006</td>
<td>0.001</td>
<td>-0.008*</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.004)</td>
<td>(0.002)</td>
<td>(0.004)</td>
</tr>
</tbody>
</table>

Controls, year, qtr, firm FE: Yes, Yes, Yes, Yes, Yes

Observations: 26,724, 26,724, 26,724, 26,724, 26,724

Adjusted $R^2$: 0.093, 0.066, 0.053, 0.099, 0.058

1 SD increase in $VESTING$ associated with 0.2% fall in $RDNETINV$, 11% of the average ratio. $1.8 million / year
Robustness Checks / Additional Analyses

- 2SLS on instrumented equity sales
  - 1 SD increase in *VESTING* associated with $140k increase in equity sales, 16% of average level
- PB vesting (Bettis et al. (2010)) not a concern if price-based, is a concern if earnings-based
  - Robust to removal of such grants
  - Hold for options as well as stock
- Delta of 0.7 for all options, or assuming ATM
- Controlling for vega
- Removal of controls
- Levels
- But cannot make strong claims about causality or efficiency
Interpretation

- **Myopia hypothesis**: vesting equity *causes* CEOs to *inefficiently* reduce investment growth
- **Efficiency hypothesis**: vesting equity *causes* CEOs to *efficiently* reduce investment growth
  - Still causal
  - No significant link to sales growth, operating expenses, COGS ratio, adjusted net income
- **Timing hypothesis**: omitted variables explain correlation between vesting equity and investment
  - Requires boards to forecast quarter-level declines in IO several years in advance
  - Results robust to dropping all grants made within 2 years
Cross-Sectional Tests of Myopia Hypothesis

- **Myopia hypothesis**: CEO will trade off costs and benefits of myopia

- **VESTING**-induced investment cuts lower if
  - Benefit lower: more blockholders (Edmans (2009)), higher institutional ownership
  - Cost higher: younger CEOs, smaller firms, younger firms
Does the CEO Benefit?

- **VESTING** linked to
  - Same-quarter reductions in investment
  - Same-quarter equity sales

- But, earnings are not announced until start of next quarter
  - Does CEO communicate the earnings increases ahead of time?
Does the CEO Benefit? (cont’d)

- **VESTING** linked to
  - Same-quarter analyst forecast revisions (three measures)
  - Positive earnings guidance (but not negative or total), in turn associated with 2.5% return
    - Equity sales are concentrated in a window shortly after the guidance event
  - Beating the analyst forecast by \( \leq 1 \text{ cent} \), but not \( > 1 \text{ cent} \)
Strategic News Releases in Equity Vesting Months

- Edmans, Goncalves-Pinto, Groen-Xu, and Wang (RFS 2017)
- Why is news important?
  - Real decision makers base decisions on news (or stock prices affected by news): Bond, Edmans, and Goldstein (2012)
  - Reduces information asymmetry among investors (cf. Regulation FD)
- News is not mechanically triggered by events, but a strategic decision by the CEO
Strategic News Releases in Equity Vesting Months (cont’d)

- 20% more news releases in months in which CEOs are expected to sell equity, instrumented using vesting months. Holds for
  - Discretionary news, not non-discretionary news
  - Positive news, but not negative news
- Fewer news releases in month before and month after
- News releases lead to short-term spike in stock price and trading volume
- CEOs cash out shortly afterwards
The Long-Term Consequences of Short-Term Incentives

- Edmans, Fang, and Huang (2019)
- Difficult to argue that investment cuts and news releases are damaging to long-term value
  - EFL: LR returns not causal, no announcement date, short time period
  - Used cross-sectional tests, but indirect, so toned down “myopia” claims
Repurchases

- Boost the short-term stock price (Ikenberry, Lakonishok, and Vermaelen (1995))

- Can be

- LR returns measure value created by the repurchase, even if not caused by them

- Concerns that repurchases are driven by short-term incentives
Mergers and Acquisitions

- Can boost the short-term stock price
  - Jensen and Ruback (1983)
- Long-term returns often negative
  - Agrawal, Jaffe, and Mandelker (1992)
  - Negative and significant relation between announcement return and LR return
- Clear announcement date – and AD is relevant
- Significant event; likely that part of LR returns is due to M&A
  - Literature uses LR returns to evaluate M&A
Controls

- Unvested, Vested, Salary, Bonus, Age, Tenure, New CEO
- Repurchases: sales, MB, book leverage, ROA, NROA, RET
- M&A: sales, MB, ROA, RET, market leverage, industry M&A liquidity, Herfindahl
  - Uysal (2011)
### Repurchases

<table>
<thead>
<tr>
<th></th>
<th>(1) Probit</th>
<th>(2) LPM</th>
<th>(3)</th>
<th>(4) OLS</th>
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<td>Dep Var</td>
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<tr>
<td>$VESTING_q$</td>
<td>$12.263^{***}$</td>
<td>$4.354^{***}$</td>
<td>$2.752^{***}$</td>
<td>$11.888^{***}$</td>
<td>$6.759^{***}$</td>
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<tr>
<td></td>
<td>(2.681)</td>
<td>(0.875)</td>
<td>(0.529)</td>
<td>(1.776)</td>
<td>(1.458)</td>
</tr>
<tr>
<td>Y-Q FE</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Firm FE</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Obs</td>
<td>93,537</td>
<td>93,537</td>
<td>93,537</td>
<td>93,537</td>
<td>93,537</td>
</tr>
<tr>
<td>Pseudo (Adj) $R^2$</td>
<td>0.113</td>
<td>0.137</td>
<td>0.507</td>
<td>0.0633</td>
<td>0.254</td>
</tr>
</tbody>
</table>

- **Holds after controlling for investment**
- **Effect of $1\sigma$: 1.2% increase, vs. 37.5%**
  - 1.04% vs. 20% for above-mean repurchases
- **OLS: $1.54m$, or $6.16m$ annualized. EFL: $1.8m$
## Returns to Repurchases

<table>
<thead>
<tr>
<th>Period</th>
<th>(1) [q-1, q]</th>
<th>(2) [q+1, q+4]</th>
<th>(3) [q+5, q+8]</th>
<th>(4) [q+9, q+12]</th>
<th>(5) [q+13, q+16]</th>
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<tbody>
<tr>
<td>Benchmark</td>
<td></td>
<td></td>
<td>Market</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VESTING&lt;sub&gt;q&lt;/sub&gt;</td>
<td>0.897**</td>
<td>-3.288***</td>
<td>-2.214***</td>
<td>-0.401</td>
<td>-0.476</td>
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<tr>
<td></td>
<td>(0.422)</td>
<td>(0.553)</td>
<td>(0.586)</td>
<td>(0.558)</td>
<td>(0.484)</td>
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<td>Y-Q, Firm FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Obs</td>
<td>28,535</td>
<td>28,479</td>
<td>28,360</td>
<td>27,171</td>
<td>23,458</td>
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<tr>
<td>Adjusted R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.088</td>
<td>0.201</td>
<td>0.219</td>
<td>0.241</td>
<td>0.237</td>
</tr>
</tbody>
</table>

** Effect of 1σ: 0.3% (0.61% annualized), -1.11%, -0.85%
LT returns to a portfolio of firms which repurchase when VESTING in top quintile

- For firm across all year-quarters
- For all firms in that year-quarter
- For all firms in all year-quarters

BHAR above DGTW, de-meaned

- Significantly negative LR returns over $q+1$ to $q+4$ and $q+5$ to $q+8$; also $q+9$ to $q+12$ under the first two definitions
### M&A

- **(Holds after controlling for investment)**
- **Effect of 1σ: 0.6% increase, vs. 15.8%**

<table>
<thead>
<tr>
<th></th>
<th>(1) Probit</th>
<th>(2) LPM</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VESTING$_q$</td>
<td><strong>10.502</strong>*</td>
<td><strong>3.597</strong>*</td>
<td><strong>1.641</strong>**</td>
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<tr>
<td></td>
<td>(2.248)</td>
<td>(0.759)</td>
<td>(0.670)</td>
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<tr>
<td>Y-Q FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Firm FE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obs</td>
<td>94,362</td>
<td>94,362</td>
<td>94,362</td>
</tr>
<tr>
<td>Pseudo (Adj.) R$^2$</td>
<td>0.069</td>
<td>0.059</td>
<td>0.159</td>
</tr>
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</table>
## Returns to M&A

<table>
<thead>
<tr>
<th>Period Benchmark</th>
<th>(1) [q-1, q]</th>
<th>(2) [q+1, q+4]</th>
<th>(3) [q+5, q+8]</th>
<th>(4) [q+9, q+12]</th>
<th>(5) [q+13, q+16]</th>
</tr>
</thead>
<tbody>
<tr>
<td>( VESTING_q )</td>
<td>2.033**</td>
<td>-2.260***</td>
<td>-0.981</td>
<td>-2.009**</td>
<td>-1.715**</td>
</tr>
<tr>
<td></td>
<td>(0.838)</td>
<td>(0.862)</td>
<td>(1.017)</td>
<td>(0.915)</td>
<td>(0.832)</td>
</tr>
<tr>
<td>Y-Q, Firm FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Obs</td>
<td>12,294</td>
<td>12,294</td>
<td>12,258</td>
<td>12,207</td>
<td>11,751</td>
</tr>
<tr>
<td>Adjusted R(^2)</td>
<td>0.176</td>
<td>0.210</td>
<td>0.217</td>
<td>0.256</td>
<td>0.246</td>
</tr>
</tbody>
</table>

| FF 49 Industry   | \( VESTING_q \) | -1.412*       | -1.584*        | -1.995**        | -1.530*          |
|                  | (0.771)       | (0.812)       | (0.950)        | (0.890)         | (0.791)          |

| DGTW             | \( VESTING_q \) | -1.623*       | -0.178         | -0.667          | -1.689**         |
|                  | (0.902)       | (0.928)       | (1.102)        | (1.008)         | (0.838)          |

- **Effect of 1\(\sigma\): 1.47% (annualized), -0.81%, -0.35%, -0.72%, -0.62%**
### M&A Goodwill Impairment

<table>
<thead>
<tr>
<th></th>
<th>(1) [q+1, q+8]</th>
<th>(2) [q+1, q+12]</th>
<th>(3) [q+1, q+16]</th>
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</thead>
<tbody>
<tr>
<td>$VESTING_q$</td>
<td>0.846* (0.497)</td>
<td>2.379** (1.081)</td>
<td>2.842* (1.538)</td>
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<tr>
<td>Y-Q FE</td>
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<td>Yes</td>
</tr>
<tr>
<td>Firm FE</td>
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<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Obs</td>
<td>7,200</td>
<td>7,200</td>
<td>7,200</td>
</tr>
<tr>
<td>Pseudo (Adj.) R²</td>
<td>0.420</td>
<td>0.460</td>
<td>0.457</td>
</tr>
</tbody>
</table>

* Indicates significance at the 5% level.
** Indicates significance at the 1% level.
Stock Sales

- CEO stock sales concentrated in a short window after repurchases and M&A
  - Inconsistent with repurchases being motivated by undervaluation, or M&A by long-term value creation
  - Bonaimé and Ryngaert (2013)
  - Jackson (2018)
Conclusion

- Vesting equity associated with
  - Higher probability and amount of repurchases
  - Higher probability of M&A
  - More positive ST returns, more negative LT returns, to both actions

- Does not mean that longer vesting periods are better
  - Subject CEO to risk
  - May encourage short-termism (Laux (2012)) or excessive conservatism (Brisley (2006))
Implications

- UK Government’s Green Paper recommended increasing vesting periods from 3 to 5 years
- Norwegian Sovereign Wealth Fund, House of Commons Corporate Governance Inquiry advocating long-vesting equity  
  - Unilever, Kingfisher, RBS implementing
- Change the conversation from pie-splitting to pie-enlarging