Does the Stock Market Fully Value Intangibles?
Employee Satisfaction and Equity Prices

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Employee satisfaction is associated with positive long-horizon returns

- *Fortune* magazine’s "Best Companies to Work For in America" earned 14% per year over 1998-2005, double the market return
- Monthly four-factor alpha of 64 basis points
- Robust to controls for other characteristics known to affect returns

Key implications of results:

- Employee satisfaction (ES) improves shareholder value
- The market misvalues intangibles, even when made publicly and independently verified, providing support for managerial myopia theories
Motivation: Employee Satisfaction

- Taylor (1912): employees are no different from any other input
- Many believe human capital is critical today (Zingales (2000)), but investing in HC may be problematic as it’s inalienable
- Rajan and Zingales (1998, 2001), Berk et al. (2006): retain workers with higher wages
  - ES may be an inefficient type of compensation, or represent inefficiently high compensation (see Cronqvist et al. (2006), Pagano and Volpin (2005), Bertrand and Mullainathan (2003))
- Little existing evidence that employee-friendly programs benefit shareholders
  - Abowd (1989): announcements of pay rises reduce mkt cap $-for-$
- Why might ES matter?
Motivation: Does the Market Value Intangibles?

- Even if CEOs are aware that human capital improves long-run value, they may underinvest (Narayanan (1985), Stein (1988, 1989), Edmans (2007)) owing to stock price concerns.
- Widespread concern that myopia is a problem and that the market misvalues intangibles, but little evidence.
- Paper focus on a publicly available measure of ES:
  - Underreaction to this measure may imply misvaluation of intangibles more broadly.
  - Focus on long-horizon returns.
Great Place to Work Institute creates 100 “Best Companies to Work For”
- Arguably the most respected and prestigious measure of ES

Since January 1998 this has been published in *Fortune*
- Importantly, the survey is independently conducted. Reuter and Zitzewitz (2006): newspapers may bias towards advertisers
Portfolio Analysis

- Portfolio I: buy Best Companies at end of January 1998 and hold from February to December. Re-form in 1/99 and repeat each year until 12/05
- II: contains the original 68 Best Companies from January 1998
- III: adds any new Best Companies each year, but does not drop removed companies
- IV: includes only companies dropped from the list
Hypotheses

- Portfolios I-III outperform their benchmarks. Joint hypothesis:
  - ES matters
  - ES is not immediately incorporated into the stock price

- Portfolio IV underperforms I-III

- Should Portfolio IV underperform its benchmark?
  - Yes, if markets incorporate ES. Returns are driven by ES vs. prior expectation
  - No, if markets don’t incorporate ES. Returns are driven by ES vs. average
Methodology

- Returns over
  - Market
  - Industry-matched portfolio (zero investment strategy)
  - Characteristics-matched portfolio (size, B/M, momentum as in Daniel et al. (1997))

- Carhart (1997) four-factor alphas
  - Agnostic as to whether the factors represent risk or mispricing
  - Newey-West (1987) standard errors allow for heteroskedasticity and serial correlation
### Results

#### Unadjusted Returns

<table>
<thead>
<tr>
<th>Year</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>CRSP VW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>20.90%</td>
<td>22.42%</td>
<td>20.90%</td>
<td></td>
<td>21.74%</td>
</tr>
<tr>
<td>1999</td>
<td>36.20%</td>
<td>24.08%</td>
<td>30.19%</td>
<td>12.43%</td>
<td>25.26%</td>
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<tr>
<td>2000</td>
<td>9.66%</td>
<td>17.95%</td>
<td>10.27%</td>
<td>9.91%</td>
<td>-11.04%</td>
</tr>
<tr>
<td>2001</td>
<td>-7.11%</td>
<td>2.25%</td>
<td>-0.43%</td>
<td>6.53%</td>
<td>-11.27%</td>
</tr>
<tr>
<td>2002</td>
<td>-13.53%</td>
<td>-10.68%</td>
<td>-17.26%</td>
<td>-20.60%</td>
<td>-20.84%</td>
</tr>
<tr>
<td>2003</td>
<td>45.54%</td>
<td>38.21%</td>
<td>47.75%</td>
<td>49.59%</td>
<td>33.15%</td>
</tr>
<tr>
<td>2004</td>
<td>22.72%</td>
<td>18.64%</td>
<td>18.62%</td>
<td>15.59%</td>
<td>13.00%</td>
</tr>
<tr>
<td>2005</td>
<td>7.52%</td>
<td>6.82%</td>
<td>7.86%</td>
<td>8.11%</td>
<td>7.31%</td>
</tr>
<tr>
<td><strong>CAGR</strong></td>
<td><strong>13.81%</strong></td>
<td><strong>14.23%</strong></td>
<td><strong>13.39%</strong></td>
<td><strong>10.17%</strong></td>
<td><strong>5.59%</strong></td>
</tr>
</tbody>
</table>
## Risk-Adjusted Returns (cont’d)

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel B</strong> (excess returns over industry)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\alpha$</td>
<td>0.46</td>
<td>0.44</td>
<td>0.45</td>
<td>0.36</td>
</tr>
<tr>
<td></td>
<td>(3.32***)</td>
<td>(3.51***)</td>
<td>(3.83***)</td>
<td>(1.52)</td>
</tr>
<tr>
<td>$\beta_{MKT}$</td>
<td>0.12</td>
<td>-0.06</td>
<td>0.07</td>
<td>-0.01</td>
</tr>
<tr>
<td></td>
<td>(2.75***)</td>
<td>(1.63)</td>
<td>(2.22**)</td>
<td>(0.14)</td>
</tr>
<tr>
<td>$\beta_{HML}$</td>
<td>0.08</td>
<td>0.07</td>
<td>0.07</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td>(1.58)</td>
<td>(1.60)</td>
<td>(2.22**)</td>
<td>(0.94)</td>
</tr>
<tr>
<td>$\beta_{SMB}$</td>
<td>0.14</td>
<td>0.09</td>
<td>0.16</td>
<td>0.18</td>
</tr>
<tr>
<td></td>
<td>(2.91)</td>
<td>(2.05)</td>
<td>(5.13***)</td>
<td>(2.34**)</td>
</tr>
<tr>
<td>$\beta_{MOM}$</td>
<td>-0.26</td>
<td>-0.04</td>
<td>-0.06</td>
<td>-0.13</td>
</tr>
<tr>
<td></td>
<td>(0.98)</td>
<td>(1.73*)</td>
<td>(3.14***)</td>
<td>(2.85***)</td>
</tr>
<tr>
<td># obs</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>83</td>
</tr>
</tbody>
</table>
Robustness Tests

- Robust to winsorization (top and bottom 10% by portfolio and by month)
- Results still significant when extending sample back to 1984 (original publication of “100 Best Companies to Work For in America” book)
- Value-weighted portfolios
Alternative Hypothesis

- ES is meaningless, but correlated with other variables that affect stock returns
  - Conclusion of non-incorporation and trading strategy still remain

- \( R_{it} = a_t + b_t X_{it} + c_t Z_{it} + e_{it} \)
  - \( R_{it} \) is either raw return or industry-adjusted return
  - \( X_{it} \) is a dummy for inclusion in recent *Fortune* survey
  - \( Z_{it} \) are controls taken from Brennan, Chordia and Subrahmanyam (1998): size, BM, yield, past return over various horizons, dollar volume, price

- Estimate via Fama-Macbeth (1973)
  - Raw returns: alpha of 0.60% (2.51**)
  - Industry-adjusted returns: alpha of 0.57% (2.71***)
Conclusion

Fortune’s “Best Companies” outperform market, industry and characteristics benchmarks at long-horizons

- Results are robust to controls for covariances and observable characteristics

Implications

- Employee satisfaction improves corporate performance, and is not simply a form of excessive compensation
- Market inadequately incorporates intangibles: implications for managerial myopia
Remaining Caveats

- A third unobservable variable (e.g. good management practices) causes both satisfaction and superior returns
  - FM regression can only control for unobservables
  - Fixed effects approach ineffective here as little within-firm variation
  - Conclusion of non-incorporation and trading strategy still remain

- Reverse causality: employees have private information about superior returns, and report superior satisfaction
  - Any measure of satisfaction must come from workers (directly or indirectly)
  - Little evidence of superior employee trading behavior: Benartzi (2001), Bergman and Jenter (2007)