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

Alex Edmans, Wharton

Virginia Tech Seminar

March 14, 2008

Introduction

- 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, over double the market return
  - Robust to controls for risk (monthly four-factor α of 64 bps), industry and firm characteristics
- Key implications of results:
  - Employee satisfaction (ES) is positively correlated with shareholder value
  - The market misvalues intangibles, even when made publicly and independently verified
  - An SRI screen based on ES can increase returns

Long-Run "Event Studies"

- Gompers, Ishii and Metrick (2003): corporate governance
- Hong and Kacperczyk (2006): sin
- Yermack (2006): corporate jets
- Liu and Yermack (2007): CEO homes
- Bennedsen, Pérez-González and Wolfenzon (2007): CEO family deaths
- Standard caveats apply here:
  - Cannot make strong claims about causality
    - This is not a natural experiment with random assignment of ES to firms
  - Small sample size

Motivation: Employee Satisfaction

- The relationship is not obvious (just as for student satisfaction ...)
- Traditional view: employees are no different from any other input. Maximize effort, minimize pay (Taylor (1911))
- ES may represent an inefficiently high *level* of pay
  - Managers want pleasant working relations (Jensen and Meckling (1976), Bertrand and Mullainathan (2003))
  - A potential takeover defense (Pagano and Volpin (2005))
  - Easier for managers to justify higher pay for themselves
- ES may represent an inefficient *form* of compensation (like perks)
  - Existing HC theories focus on cash: Rajan and Zingales (1998, 2001), Berk et al. (2007), Lustig et al. (2007)
- Little existing evidence that employee welfare benefits shareholders
  - Abowd (1989): announcements of pay rises reduce mkt cap \$-for-\$
  - Gorton and Schmid (2004), Diltz (1995), Dhrymes (1998): no or negative link to shareholder value
  - Cronqvist et al. (2007): entrenched managers pay their workers more

So Why Might Employee Satisfaction Matter?

- Data mining and spurious correlation are major concerns with return regressions. A convincing *a priori* hypothesis is critical
- The traditional view no longer holds in the modern firm (Zingales (2000))
- ES is an efficient *form* of compensation
  - Human relations theories: money is only an effective motivator up to a point (Maslow (1943), Hertzberg (1959), McGregor (1960))
  - Unlike perks, job satisfaction cannot be bought with cash
- ES is an efficient *level* of compensation. "Efficiency wage" argument (Akerlof and Yellen (1986))
  - Motivation. Piece pay is no longer effective (e.g., Kohn (1993))
    - Rational view: satisfied employees work hard to avoid being fired (Shapiro and Stiglitz (1984))
    - Sociological view: satisfied employees identify with the firm (Akerlof (1982))
  - Retention and recruitment

Motivation: Does the Market Value Intangibles?

- Even if CEOs are aware that human capital improves long-run value, they may underinvest owing to short-term stock price concerns (Narayanan (1985), Stein (1988, 1989), Edmans (2008))
- Widespread view that myopia is important (Porter (1992), Graham, Harvey and Rajgopal (2005))
  - But little direct evidence either documenting or contradicting its existence
- This paper tests a necessary assumption for myopia
  - Market fails to value intangible investment
- Paper focus on a *publicly available* measure of ES (vs. most long-run event studies)
  - Underreaction to this measure may imply misvaluation of intangibles more broadly
  - Focus on long-horizon returns
- This is *not* a test of market rationality. Market may have simply been unaware of shareholder benefits of ES

Motivation: Profitability of SRI

- Traditional view: "either-or" choice. Markowitz (1959): SRI screens reduce an investor's choice set
- SRI screening improves returns: Moskowitz (1972), Luck and Pilotte (1993), Derwall et al. (2005)
- SRI screening worsens returns: Geczy, Stambaugh and Levin (2005), Hong and Kacperczyk (2006), Brammer, Brooks and Pavelin (2006)
- It doesn't matter: Hamilton, Jo and Statman (1993), Kurtz and DiBartolomeo (1996), Guerard (1997), Teoh, Welch and Wazzan (1999), Bauer, Koedijk and Otten (2005), Schröder (2007)

- This paper: SRI may improve returns by restricting choice set to attractive investments
  - "Stakeholder capital" may benefit shareholders in the long run, yet not be priced by the market

The Fortune Survey

- 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
- 2/3 of score comes from confidential employee responses to a 57-question survey, 1/3 from Institute's own evaluation of firm policies
- Companies are scored in four areas: credibility, respect, fairness, pride/cameraderie
- Survey is significantly more in-depth than other measures of employee welfare

Original Best Companies

	Mean	Std. Dev.	Min	Max
Market Cap ($ bn)	21.51	39.78	0.03	204.59
Price ($)	50.99	25.48	5.38	127.56
Volume (m)	34.27	71.67	0	406.38
Dividend yield (%)	1.22	1.20	0	5.97
Market/book	4.89	4.81	-3.14	29.10
Intangibles (%)	5.01	7.50	0	28.88

- Common industries: consumer goods (7), financial services (6), software (5), pharma (5), hardware (4), electronic equipment (4)

Stock Returns

- Key dependent variable is future long-run stock returns, to mitigate (but not eliminate) reverse causality concerns
  - Filbeck and Preece (2003): mixed evidence when looking at past returns
  - Faleye and Trahan (2005): accounting performance
- Stock returns capture all potential channels through which ES manifests in favorable tangible outcomes
  - Future accounting performance
  - Non-financial company news releases (e.g. announcing a new contract, launching a new product filing a new patent)
  - Favorable news articles by the press (e.g. customer positive customer reception to a product)
    - Simon and DeVaro (2006): Best Companies have superior customer satisfaction
    - Mas (2007): labor unrest at Caterpillar led to poor product *quality*
  - Equity analyst reports

Portfolio Analysis

- Portfolio I: buy Best Companies at end of January 1998 and hold from 2/98 through 1/99. Re-form in 1/99 and repeat each year until 1/06
  - Note *Fortune* survey is published in mid-January
- II: contains the original 69 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
- Additional tentative hypothesis: I outperforms III, which in turn outperforms II
- 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))
- Control for risk using Carhart's (1997) four factors

Unadjusted Returns

	I	II	III	IV	CRSP VW
1998	23.87%	24.83%	23.87%		26.40%
1999	40.75%	26.07%	33.41%	13.48%	15.84%
2000	13.09%	9.37%	16.50%	20.78%	-3.70%
2001	-14.81%	-13.33%	-9.55%	-4.69%	-16.02%
2002	-18.39%	-17.20%	-22.05%	-25.04%	-21.43%
2003	58.18%	39.75%	56.86%	55.64%	39.49%
2004	12.57%	13.04%	8.10%	4.70%	7.52%
2005	16.05%	15.06%	16.48%	16.87%	14.66%
CAGR	**13.90%**	**10.66%**	**13.12%**	**8.74%**	**6.05%**

Monthly Portfolio Returns

	I	II	III	IV
Over market	0.67%	0.65%	0.64%	0.64%
Over industry	0.57%	0.45%	0.52%	0.45%
Over characteristics	0.60%	0.57%	0.53%	0.40%
# obs	96	96	96	84

Risk-Adjusted Returns

	I	II	III	IV
Panel B (excess returns over industry)				
α	0.46	0.44	0.46	0.38
	(3.25***)	(3.48***)	(3.81***)	(1.58)
β_{MKT}	0.11	-0.06	0.07	-0.01
	(2.62***)	(1.70*)	(2.10**)	(0.14)
β_{HML}	0.07	0.07	0.07	0.08
	(1.46)	(1.55)	(2.03**)	(0.95)
β_{SMB}	0.14	0.09	0.15	0.16
	(2.92***)	(2.01**)	(4.53***)	(2.09**)
β_{MOM}	-0.28	-0.04	-0.06	-0.13
	(1.11)	(1.76*)	(3.27***)	(2.93***)
# obs	96	96	96	84

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

An Alternative Hypothesis

- ES is meaningless, but correlated with other variables that affect stock returns
- $R_{it} = a_t + b_t X_{it} + c_t Z_{it} + e_{it}$
  - 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, RET23, RET46, RET712, dollar volume, price
- Estimate via Fama-Macbeth (1973)
  - Raw returns: alpha of 0.55% (2.38**)
  - Industry-adjusted returns: alpha of 0.52% (2.60***)

Possible Interpretations

- A: ES causes superior future stock returns
- D: A third unobservable variable (e.g. good management practices) causes both ES and superior returns
  - I can only control for observables
  - Conclusion of non-incorporation and trading strategy still remain
- C: Expectations of higher future stock returns cause high ES today
  - Any measure of satisfaction must come from workers (directly or indirectly)
  - Little evidence of superior employee trading behavior: Benartzi (2001), Bergman and Jenter (2007)

Possible Interpretations (cont'd)

- B: ES is irrelevant, and higher returns stemmed from irrational market reactions or demand from SRI funds
- I use stock returns as it captures all potential channels, but it may be also be affected by factors unrelated to true value
  - Irrational reactions are likely concentrated around announcement: Huberman and Regev (2001), Gilbert et al. (2006)
- LAD regressions of next-year industry-adjusted accounting performance on BC dummy and B/M (cf. Gompers et al. (2003))
  - Operating Income and Net Income over Equity, Sales and Employees all significant at 1% level
- 1998-2005 industry-adjusted growth
  - Sales, operating profit, net income, operating profit / employees, net income / employees all higher
  - Sales / employees lower

Additional Remarks

- Unclear whether we should expect a relationship in the future
- Remaining caveats
  - Generalizability from small sample size to overall relationship between ES and shareholder value
  - Generalizability from ES to SRI in general
- Certain factors may lead to results being understated
  - Portfolio captures the benefits of ES that have manifested in tangible outcomes within the time period studied
  - Some firms choose not to be in the Best Companies list
  - ES is very difficult to measure, biasing the results towards zero

Conclusion

- Fortune's "Best Companies" outperform market, industry and characteristics benchmarks at long-horizons
  - Results are robust to controls for risk
- Implications
  - Employee satisfaction is positively correlated with corporate performance, rather than representing excessive compensation
  - Market inadequately incorporates intangibles: implications for managerial myopia
  - Certain SRI screens can boost investment returns