Journal of Applied Finance & Banking, vol. 6, no. 3, 2016, 25-37
ISSN: 1792-6580 (print version), 1792-6599 (online)
Scienpress Ltd, 2016

Investment Performance of Intangible Assets: A Further Consideration of Product Safety and High Compensation

Feng-Jui Hsu[1], Yu-Cheng Chen[2] and Tsung-Yi Liu[3]

Abstract

This study investigates the investment performance of selected portfolios which focus on intangible assets, such as a firm's reputation, employee relations, brand quality, and social ethics. Corporate social responsibility investment is also investigated using the KLD Research & Analytics database. The evidence indicates that the performance of portfolios based on multi-indicator intangible assets significantly outperforms those of single-indicator intangible assets and the benchmark index returns. It appears that investors underestimate the value of intangible assets and the importance of corporate governance, suggesting that investment performance could potentially be improved by raising awareness in the undervaluation of intangible assets.

JEL classification numbers: G11, G38
Keywords: Intangible assets, socially responsible investing, high compensation, KLD, product safety

1 Introduction

Among the criteria included in investment decisions, intangible assets cover a firm's reputation, social engagement, environmental responsibility, brand perception, ethics, and sustainability practices. However, intangible assets are difficult to quantify and could thus be underpriced by equity markets.

Orthodox financial theory, premised on efficient markets, suggests that investors would take account of all publicly available information and this information should be fully reflected in a firm's stock market price. If investors who account for intangible assets could outperform market indexes, it would suggest that such information (e.g., the intangible

[1]Department of insurance and finance, National Taichung University of Science and Technology, Taichung, Taiwan.
[2]Department of finance, National Chung Hsing University, Taiwan
[3]Department of finance, National Chung Hsing University, Taiwan

Article Info: *Received :* December 2, 2015. *Revised :* December 29, 2015.
Published online : May 1, 2016

value of social responsibility and brand franchise) are not fully reflected in the stock price. Firms which exercise social responsibility also tend to have high-quality corporate governance, high product quality, and good relations with employees, stockholders, society at large, and the environment. Waddock and Graves (1999) show that the significance of these governance characteristics may be under-recognized by the market, so a firm's current and past social performance could still provide a valuable guide to future financial performance. In addition, a strong brand franchise allows firms to charge a significant premium price (Barnett 2008) and brand loyalty may be an indicator of future sales.

This paper collects intangible assets broadly representative of public trust, such as a firm's employee relations, social image, reputation, and brand value. Firms were chosen from listings in America's 100 Best Companies To Work For (Fortune Magazine), 100 Best Corporate Citizens (Business Ethics), America's Most Admired Companies (Fortune Magazine), and 100 Best Global Brands (Business Week) to guide an analysis of the relationship between intangible assets and financial performance. We then constructed a portfolio composed of firms which feature the intangible assets listed above, finding that the portfolio dramatically outperformed any single intangible asset indicator. We then used the KLD Research & Analytics database to identify and exclude firms with product safety concerns and high board compensation, finding that the remaining firms significantly outperformed the portfolio as a whole.

2 Intangible Assets and Stock Returns

Good employer-employee relations are commonly held to be an intangible asset. Employer-employee relations will affect the firm's performance via customer satisfaction, decreased employee turnover, and improved production efficiency. Husiled (1995) shows that employer-employee relations affect a firm's business outcomes and market value. However, determining which firms excel in human resource management is difficult, with Fortune Magazine's annual "Best Companies To Work For in America" list being one of the few publicly available sources of such information. Since 1998, Fortune has compiled this list based on five characteristics of employer-employee relations including credibility, respect for employees, fairness, pride, and camaraderie. Our empirical studies show that firms included on this list outperform the market in terms of cumulative returns (consistent with Ballou *et al*. 2003, Filbeck & Preece 2003, Fulmer *et al*. 2003, Boyle 2006).

Corporate citizenship is a concept that defines the broader roles companies play within society and it is associated with corporate social responsibility (CSR). To work around the limitation of identifying the CSR representatives of individual companies, Allen and Kask (1997) used a firm's social performance data as provided by Kinder, Lydenberg, Domini and Company (KLD) to determine the relative strength of a given firm's social performance. The KLD grade includes issues quality of its community, corporate governance, diversity, employee relations, environmental stewardship, human rights policies, product quality, and six controversial business issues.

Empirical studies have suggested that strong social performance correlates with profitability, with socially responsible firms outperforming conventional firms in the S&P500 during the late 1990s (Statman 2006, Dinusha & Evans 2010). Statman and Glushkov (2009) showed that community relations, employee relations, and environmental stewardship show a positive and statistically significant relationship to returns.

A firm's reputation is also a kind of non-financial intangible corporate asset, and is

increasingly the focus of academic research. Empirical studies have investigated the effect of a company's reputation on stock price returns (e.g., Fortune Magazine's "America's Most Admired Companies" survey). Firms are selected by securities analysts, executives, and directors based on eight key criteria, including social responsibility, innovation, product quality, financial stability, ability to attract employees, investment value, and intelligent use of properties. Studies have found that firms on the list outperform less admired firms (Filbeck *et al*. 1997, Antunovich *et al*. 2000, Chung *et al*. 2003). Our own results also find that the most admired companies also beat market indices (consistent with Anderson & Smith 2006).

Brands are of great economic importance to firms (i.e., Interbrand assesses the value of Coca-Cola brand to be $70.45 billion in 2010 and a total firm value of $160 billion in 2010.) and Simon and Sullivan (1993) have shown that brand power is reflected by a higher valuation. A high-quality brand inspires customer loyalty, leading to improved long-term profitability (Dubé *et al*. 2008). Firms with more highly valued brands also benefit from being able to charge a price premium (Shaffer & Zhang 2002). Our study shows that brand quality is positively correlated to stock returns (consistent with Kerin & Sethuraman 1998, Madden *et al*. 2006) and high-quality brands are found to be more likely to contribute to improved profitability by enabling firms to offer limited edition products (Balachander & Stock 2009).

This paper constructs an investment portfolio combining firms with different types of intangible assets, an approach which has not been adequately used in prior research.

3 Data and Methods

3.1 Data

Firms were selected for inclusion in the portfolio based on data from 2001 to 2010 obtained from the following annual lists: "America's 100 Best Companies To Work For" (Fortune Magazine), "America's 100 Best Corporate Citizens" (Business Ethics), "America's Most Admired Companies" (Fortune Magazine), and "100 Best Global Brands" (Business Week). All of these information sources are easily available to investors and have a reputation for integrity and incisive journalism. Table 1 provides the publication data of our four indicators.

For the selected firms, we then obtained monthly returns (i.e. with dividends added back) and industry codes from CRSP, along with detailed social characteristics from KLD Research & Analytics. The S&P500 index was used a basis for comparison, with monthly return data obtained from DataStream. Firms for which the industry codes or one of the return variables was missing were excluded from analysis.

Table 1: Indicator Edit Calendar, 2001-2010

Publication Date	Best To Work For	Most Admired	Ethics	Top Brands
2001	1/02	2/19	2/25	8/06
2002	2/04	3/04	4/25	8/05
2003	1/20	3/03	4/01	8/04
2004	1/12	3/08	3/03	8/02
2005	1/24	3/07	4/07	8/01
2006	1/11	3/16	4/27	8/07
2007	1/22	3/19	2/16	8/06
2008	1/22	3/17	2/25	9/18
2009	2/02	3/16	3/09	9/17
2010	2/08	3/22	3/02	9/15

3.2 Methods

For each indicator, we considered the buy-and-hold strategy: buying an equally weighted portfolio and holding it throughout the sample period. Each magazine publishes its lists at different times of the year, and the sample period was set to begin with the publishing of each list. Our analysis included publicly traded firms which appear in each annual list and compared their performance with that of the S&P500.

Month t is defined as the month in which a given list is published, and we consider abnormal returns on months t to t+n. Statistical significance of the abnormal returns can be obtained using the group mean t-statistic

$$t - \mathrm{stat}_t = \frac{\overline{AR_t}}{\sigma(AR_t)/\sqrt{n_t}} \tag{1}$$

where $\overline{AR_t}$is the mean cumulative abnormal return in month t, $\sigma(AR_t)$ is the cross-sectional standard deviation, and n_t is the number of firms in the portfolio in month t.

We then assessed the empirical description and power of statistical significance based on both CARs and BHARs. We use the return on the S&P500 index portfolio as the expected return for each sample firm when computing CAR or BHAR.

$$t_{CAR} - \mathrm{stat}_t = \frac{\overline{CAR_t}}{\sigma(CAR_t)/\sqrt{n_t}} \tag{2}$$

$$t_{BHAR} - \mathrm{stat}_t = \frac{\overline{BHAR_t}}{\sigma(BHAR_t)/\sqrt{n_t}} \tag{3}$$

where $\overline{CAR_t}$ and $\overline{BHAR_t}$ are the sample means, $\sigma(CAR_t)$ and $\sigma(BHAR_t)$ are the cross-sectional standard deviation, and n_t is the number of firms.

4 Results and Discussion

Table 2 shows the stock returns impact following a firm's inclusion in the top 40 for a given indicator. If any firm in the top 40 failed to present data related to the indicator, it was excluded and the top firm initially excluded from the top 40 was added to replace it. Based on the buy-and-hold strategy, we bought an equally weighted portfolio at the beginning of the sample period (i.e., when the list is published), and held these stocks to the end of the sample period. The first and third columns below each header represent the abnormal returns for all firms in the top 40 for a sample period of 60 months from the announcement. Results indicate that the market seems to view inclusion in the top 40 positively (consistent with Boyle 2006, Brammer *et al*. 2009). Furthermore, the one-year cumulative returns are especially large. These unusually large returns may be simply coincidental, or may be due to the first appearance of a given list having the greatest impact. Accordingly, the information impact value of a listing in the top 40 is likely to max out during that year.

Our findings are also consistent with those of Anderson and Smith (2006) who showed that, from 1983 to 2004, the Top 10 Most Admired Companies earned returns 67.26% higher than the S&P500 using a buy-and-hold strategy over 1250 trading days (i.e., 5 years). Two alternative scenarios may lead to the same finding. First, it is possible that investors take longer to react to intangible assets that do not correctly show up in a firm's balance sheet. Second, if investors disregard the annual survey data, the information may still prove helpful when the listed firms provide relatively higher returns.

Table 3 presents the results of CAR, BHAR (using S&P500 as a benchmark), and the risk-adjusted β. In addition, companies performing well in the four indicators were found to beat the market (consistent with Statman 2006, Dinusha & Evans 2010), while β was found to be greater than that of the benchmark, suggesting that our four indicators carry additional risk.

4.1 Measures of Risk-adjusted Indicator Performance

The higher returns associated with the four indicators were accompanied by higher risk. This increased risk is described by several standard risk-adjusted performance measures (Bodie *et al*. 2002:315) which are described in Table 4.

Different performance measures are used for different purposes. The Sharpe (1966) and Treynor (1965) ratios respectively divide the average excess returns over the standard deviation (σ) and per unit of systematic risk (β). Another approach uses α (Jensen 1968) to measure the average return above that predicted by the CAPM model. The M^2 measure (Modigliani & Modigliani 1997) considers total volatility, risk free assets and market volatility.

Table 4 shows that our four indicators outperform the market based on each risk-adjusted performance measure and for each sample period. For example, the Sharpe and Treynor ratios show that our indicators offered higher average returns than the market from 2001 to 2010.

Table 2: Announcement Window Returns for Each Indicator

For each year, Fortune Magazine, Business-Week, and Business Ethics announce the Top 100 firms. We exclude stocks untraded on the market. For each annual indicator, we compute the cross-sectional raw return for month t. Table 2 reports the raw return of these indicators. The last column of each indicator reports the difference (Dif) between the return of the annual indicator versus the benchmark portfolio. All numbers are in percentages.

	Best to Work for portfolio		S&P500 portfolio			Most Admired portfolio		S&P500 portfolio			Ethics portfolio		S&P500 portfolio			Top Brand portfolio		S&P500 portfolio		
Time period	Raw returns	Std Dev.	Raw returns	Std Dev.	Dif.	Raw returns	Std Dev.	Raw returns	Std Dev.	Dif.	Raw returns	Std Dev.	Raw returns	Std Dev.	Dif.	Raw returns	Std Dev.	Raw returns	Std Dev.	Dif.
0-6	3.59	2.00	-0.79	0.69	4.39≠	3.66	1.01	0.59	0.88	3.07≠	5.48	1.65	1.86	1.03	3.62≠	3.76	2.24	0.02	1.43	3.73+
0-12	8.97	2.90	-0.50	0.61	9.46≠	6.98	1.89	0.97	0.96	6.01≠	8.16	3.04	1.76	0.99	6.41≠	9.69	3.64	0.26	1.51	9.44≠
0-24	6.59	2.92	-7.11	2.82	13.69≠	7.92	1.85	-6.29	3.20	14.22≠	4.41	2.55	-7.24	3.41	11.65≠	19.32	5.14	1.20	1.91	18.12≠
0-36	18.81	6.13	-0.31	2.91	19.13≠	18.77	5.52	-0.40	2.75	19.17≠	21.32	5.34	0.92	2.84	20.40≠	27.65	8.25	3.62	2.36	24.04≠
0-48	28.49	10.30	3.10	4.21	25.39≠	25.22	8.78	3.28	3.65	21.93≠	36.17	10.05	6.62	3.97	29.55≠	38.37	11.34	8.82	3.90	29.55≠
0-60	36.22	13.48	4.38	5.22	31.84≠	28.33	10.31	4.96	4.63	23.36≠	43.63	14.35	8.68	5.30	34.94≠	45.97	13.62	11.49	5.01	34.49≠

Note: +, ≠, and ≠ denote the significance at the 10%, 5%, and 1%, respectively.

Table 3: Long-Term Excess Returns and Risk

We compute the cross-sectional cumulative abnormal return for month t. The CAR and BHAR can be defined as $CAR_{i\tau} = \sum_{t=1}^{\tau} AR_{it}$ and $BHAR_{i\tau} = \prod_{t=1}^{\tau}[1 + R_{it}] - \prod_{t=1}^{\tau}[1 + E(R_{it})]$, respectively. Table 3 reports the long-term return of these indicators. The second and fourth column of each indicator reports the difference between the return of the annual indicator versus zero mean. All CAR and BHAR numbers are in percentages.

	Best to Work for indicator					Most Admired indicator					Ethics indicator					Top Brands indicator				
Time period	CAR	P-value	BHAR	P-value	β	CAR	P-value	BHAR	P-value	β	CAR	P-value	BHAR	P-value	β	CAR	P-value	BHAR	P-value	β
0-6	4.39	(0.001)≠	4.73	(0.001)≠	1.22	3.07	(0.012)≠	3.60	(0.012)≠	0.98	3.62	(0.009)≠	-2.13	(0.000)≠	1.18	3.73	(0.002)≠	2.78	(0.001)≠	1.17
0-12	9.46	(0.000)≠	9.98	(0.000)≠	1.22	6.01	(0.000)≠	7.04	(0.000)≠	1.00	6.41	(0.000)≠	-1.65	(0.000)≠	1.15	9.44	(0.000)≠	7.16	(0.000)≠	1.15
0-24	13.69	(0.000)≠	11.61	(0.000)≠	1.19	14.22	(0.000)≠	12.19	(0.000)≠	1.02	11.65	(0.000)≠	2.29	(0.013)≠	1.20	18.12	(0.000)≠	13.83	(0.000)≠	1.16
0-36	19.13	(0.000)≠	17.92	(0.000)≠	1.19	19.17	(0.000)≠	16.42	(0.000)≠	0.98	20.40	(0.000)≠	7.52	(0.049)≠	1.22	24.04	(0.000)≠	23.44	(0.000)≠	1.14
0-48	25.39	(0.000)≠	25.67	(0.000)≠	1.20	21.93	(0.000)≠	20.16	(0.000)≠	0.99	29.55	(0.000)≠	16.38	(0.000)≠	1.24	29.55	(0.000)≠	37.67	(0.000)≠	1.12
0-60	31.84	(0.000)≠	31.22	(0.000)≠	1.18	23.36	(0.000)≠	20.69	(0.000)≠	1.01	34.94	(0.000)≠	29.62	(0.000)≠	1.24	34.49	(0.000)≠	52.79	(0.000)≠	1.11

Note: +, ≠, and ≠ denote the significance at the 10%, 5%, and 1%, respectively.

Table 4: Measures of Indicator Performance, 2001-2010

	Best to Work for indicator						**Most Admired indicator**					
Time period	Sharpe	Treynor	M^2	α	S&P Sharpe	S&P Treynor	Sharpe	Treynor	M^2	α	S&P Sharpe	S&P Treynor
0-6	0.2953	0.2709	0.47%	-0.02%	-0.3109	-0.2966	0.3287	0.3489	0.57%	0.64%	-0.0805	-0.0970
0-12	0.5276	0.4271	0.56%	1.53%	-0.2703	-0.2097	0.3195	0.3740	0.55%	0.19%	-0.0744	-0.0933
0-24	0.3204	0.3947	0.55%	0.24%	-0.1725	-0.2064	0.2824	0.4840	0.61%	0.85%	-0.0703	-0.1106
0-36	0.3167	0.4826	0.63%	0.76%	-0.0776	-0.1107	0.3610	0.6227	0.75%	0.51%	-0.0009	-0.0014
0-48	0.2528	0.4235	0.59%	0.12%	-0.1016	-0.1582	0.2869	0.5168	0.67%	0.15%	-0.0219	-0.0367
0-60	0.2012	0.3736	0.54%	1.32%	-0.1214	-0.2093	0.2211	0.4263	0.58%	0.99%	-0.0467	-0.0841

	Ethics indicator						**Top Brands indicator**					
Time period	Sharpe	Treynor	M^2	α	S&P Sharpe	S&P Treynor	Sharpe	Treynor	M^2	α	S&P Sharpe	S&P Treynor
0-6	0.4018	0.5114	0.78%	0.25%	0.0562	0.0842	0.1587	0.3260	0.46%	1.01%	-0.0785	-0.1522
0-12	0.3279	0.3977	0.54%	-0.55%	-0.0298	-0.0349	0.3632	0.6100	0.75%	-0.07%	0.0258	0.0410
0-24	0.1691	0.2149	0.36%	0.28%	-0.1325	-0.1572	0.4004	0.6235	0.75%	1.07%	0.0220	0.0316
0-36	0.3239	0.4567	0.59%	1.11%	-0.0024	-0.0031	0.3581	0.5865	0.71%	0.60%	-0.0150	-0.0220
0-48	0.3431	0.5003	0.67%	1.91%	-0.0207	-0.0290	0.3022	0.5527	0.69%	1.22%	-0.0505	-0.0823
0-60	0.2595	0.4364	0.58%	1.54%	-0.0527	-0.0810	0.2467	0.5090	0.63%	1.37%	-0.0842	-0.1537

4.2 Forming an Investment Portfolio Strategy

Once we've established that our four intangible asset indicators outperform the market, we construct an investment portfolio including four indicators. First, we investigate the change of indicator components to determine the change effect (i.e., a firm's relative position, its presence, ranks risen, or ranks fallen) for market response. We then attempt to determine the effect of a firm being continuously listed for each indicator over 2 to 5 consecutive years (i.e., we have considered the result of 6 and 7 years too, but not better than 5 years). Finally, we consider the listing of a given firm for more than one indicator. Table 5 presents the performance of our 11 investment portfolios. The Ranks-Upgrade portfolio is seen to outperform the others in all periods, which is consistent with Brammer *et al*. (2009), though the positive results they found were for announcement returns of firms with daily-based ranking improvements, but the returns also significant in monthly announcements.

Table 5: Cumulative Abnormal Return for Various Investment Portfolios

Time period	New entering indicator portfolio	Deleted out of indicator portfolio	Ranks upgrade portfolio	Ranks downgrade portfolio	Continuously 2-years in indicator portfolio	Continuously 3-years in indicator portfolio	Continuously 4-years in indicator portfolio	Continuously 5-years in indicator portfolio	Selected by 2 indicators portfolio	Selected by 3 indicators portfolio	Selected by 4 indicators portfolio
0-6	6.40	6.26	8.32	2.46	5.21	8.13	5.20	4.81	1.61	2.84	0.02
0-12	7.40	8.51	13.98	8.87	11.38	13.05	10.68	10.71	8.92	6.24	4.40
0-24	18.94	23.08	23.57	18.71	20.89	20.08	17.45	15.92	17.37	8.36	19.09
0-36	26.33	34.74	34.17	32.74	30.39	28.19	23.79	20.16	25.35	17.85	29.01
0-48	37.78	42.79	43.91	39.85	35.27	31.63	23.87	21.79	34.62	32.77	29.81
0-60	42.18	45.99	52.68	45.75	37.90	28.13	23.16	51.13	35.71	40.63	33.50

Note: All numbers are in percentages.

Table 6 compares the cumulative abnormal return between the Ranks-Upgrade portfolio and our four intangible assets indicators. The portfolio outperforms our four intangible asset indicators and the differences are found to be positively significant. If investors underestimate one kind of intangible asset, they would be less able to assess the effect of combinations of several kinds of intangible assets.

Table 6: Robustness Check between Ranks-Upgrade Portfolio and Each Indicator

Time period	Ranks-Upgrade portfolio	Best to work for portfolio	Difference[a]	Most Admired portfolio	Difference[b]
0-6	8.32	3.59	4.73≠	3.66	4.66≠
0-12	13.98	8.97	5.01≠	6.98	7.00≠
0-24	23.57	6.59	16.98≠	7.92	15.65≠
0-36	34.17	18.81	15.35≠	18.77	15.40≠
0-48	43.91	28.49	15.42≠	25.22	18.69≠
0-60	52.68	36.22	16.47≠	28.33	24.36≠

Time period	Ranks-Upgrade portfolio	Ethics portfolio	Difference[c]	Top Brands portfolio	Difference[d]
0-6	8.32	5.48	2.84+	3.76	4.56≠
0-12	13.98	8.16	5.81+	9.69	4.28≠
0-24	23.57	4.41	19.16≠	19.32	4.25≠
0-36	34.17	21.32	12.85≠	27.65	6.51≠
0-48	43.91	36.17	7.74≠	38.37	5.54≠
0-60	52.68	43.63	9.05≠	45.97	6.71≠

Notes:

[a] *Cumulative abnormal returns difference between Ranks upgrade and Best to Work for portfolio.*

[b] *Cumulative abnormal returns difference between Ranks upgrade and Most Admired portfolio.*

[c] *Cumulative abnormal returns difference between Ranks upgrade and Ethics portfolio.*

[d] *Cumulative abnormal returns difference between Ranks upgrade and Top Brands portfolio.*

[e] *All numbers are in percentages.*

[f] *+, ≠, and ≠≠ denote the significance at the 10%, 5%, and 1%, respectively.*

4.3 Application of KLD database

To further understand the effect of corporate governance on the performance of our Ranks-Upgrade portfolio, we consider firms with product safety concerns and excessive board compensation, using data obtained from the KLD Research & Analytics database.

For KLD to mark a firm as having product safety concerns means that the firm has paid substantial fines or civil penalties relating to the safety of its products or services. According to empirical studies, perceived brand quality expresses consumer opinion for how well a

brand meets their requirements and expectations (Mitra & Golder 2006) and it has a strong determinant impact on consumer intent to purchase a branded product or service (Erdem *et al.* 2006). Moreover, according to Castillo *et al.* (2011), new product performance is related to network effects, consumer switching costs, and product quality. We therefore exclude firms with product safety concerns from consideration.

Unusually high executive compensation is a concern for corporate governance in that it is associated with ineffective governance structures (e.g., board or ownership structures), and can encourage cronyism which has a statistically significant negative impact on operating and stock return performance (Core, Holthausen, & Larcker 1999, Brick *et al*. 2006). As part of our investigation, we attempt to determine the effect on excessive compensation on the quality of intangible assets. In KLD, a company is marked as "high compensation" if it provides annual compensation of more than US$10m for the CEO, or US$100,000 for independent directors. Firms thus marked were excluded from consideration.

Table 7 shows that our approach can be used to promote investment portfolio performance, using the performance of the Ranks-Upgrade portfolio as a benchmark. Further observation of intangible asset criteria revealed that excluding firms through the use of KLD further improved performance. Obtaining this result was complicated by the fact that the Ranks-Upgrade portfolio outperformed our other portfolios. Eliminating companies with product safety concerns or excessive compensation further improved portfolio performance, reflecting the importance of good corporate governance.

Table 7: Application of KLD database and Performance

Time period	**Ranks-Upgrade portfolio**	$KLD\ criterion\ 1$ [a]	**Diff**[c]	$KLD\ criterion\ 2$ [b]	**Diff**[d]
0-6	8.32	9.05	0.73	10.51	2.20
0-12	13.98	14.50	0.52	20.35	6.37
0-24	23.57	24.49	0.92	23.01	-0.56
0-36	34.17	35.39	1.22	41.21	7.05
0-48	43.91	45.92	2.01	54.52	10.61
0-60	52.68	53.72	1.04	66.51	13.83≠

Notes:

[a] *Ranks upgrade portfolio excludes product safety concerned firms.*

[b] *Ranks upgrade portfolio excludes product safety concerned and high compensation firms.*

[c] *Cumulative abnormal returns difference between KLD criterion 1 and Ranks upgrade portfolio.*

[d] *Cumulative abnormal returns difference between KLD criterion 2 and Ranks upgrade portfolio.*

[e] *All numbers are in percentages.*

[f] *+, ≠, and ≠≠ denote the significance at the 10%, 5%, and 1%, respectively.*

5 Conclusion

Intangible assets are difficult to assess and investors are likely to underestimate their importance of individual intangible assets and are even more likely to underestimate the value of combinations of intangible assets within a single portfolio. The Ranks-upgrade portfolio constructed for this study combined four intangible assets indicators and significantly outperformed any single indicator and all other combination portfolios, indicating that checking positive for more than one indicator provides additional positive benefits from intangible assets, but this can be difficult for investors to appreciate.
In investigating the relationship between intangible assets and corporate governance, we excluded firms marked by product safety concerns and excessive compensation, with performance results outstripping those of the Ranks-upgrade portfolio. This indicates that investors not only underestimate the value of intangible assets but also ignore the importance of corporate governance, and investment performance could potentially be improved by raising awareness of these issues.

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