Linking Human Capital To Business Performance

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Abstract - The Value of the Emerging View

The purpose of this preview paper is to showcase key findings between Human Capital metrics and company financial performance while also focusing attention on the gap in Human Capital disclosure in traditional public company reporting.

This preview spotlights the extent to which Human Capital metrics link to stock (share price) performance. For many years theories have existed about the contribution of people to company performance. Some theories focus on productivity measures and how productivity increases, and, how reduced costs are the consequence of adding more physical capital (e.g., computing technologies and smarter systems) to a company’s balance sheet.

Physical capital got all the credit, and return-on-investment calculations for physical capital were widely used to show strengths and weaknesses of business performance. Human capital was relegated to a secondary position; even basic headcount reporting can be widely inaccurate (Atwater, Jorgensen 2008). Today, robust analytical information on workers, their costs, and contributions are only periodically available at a high level for large public organizations.

In our analysis, movements in Human Capital measures are analyzed in terms of their contribution to changes in established business performance measures. The key business performance measure is year-over-year movement in common share stock (share) price.

We hope this work stimulates discussion, creates a rationale for greater interest in Human Capital metrics, and increases availability of Human Capital data.

Key Questions Addressed

- Can Human Capital be valued and its contribution quantified in the form of productivity or return?
- Can the return on Human Capital be definitively linked to financial results?

In essence:

Can changes in Human Capital metrics explain (i.e., predict) movements in stock (share price) performance for companies?

We've all heard the phrase: “workers are our most valuable ‘assets’ and also our biggest ‘costs’.” Translated, this means when markets are growing, businesses treat their workers as assets; in a downturn, they become costs to be cut and minimized. Implicit in this way of thinking is that a workforce and its skills are plentiful, quickly hired/replaced and - with necessary costs - easily cut.

But where should the line be drawn on which workers are to be treated as Human Capital assets, and also when they are to be treated as such? These are difficult but important questions because if a group of workers is assumed to be expendable and easily replaceable and in reality is not, then market opportunities are lost, costs rise, economic performance drops and the value of the firm (i.e., shareholder value) does not meet its potential.

In investigating the relationship between Human Capital management practices and the financial impact that they have on the performance of organizations, the key question to answer is not “Does it matter if organizations manage their Human Capital well?” Rather, it is, “how much and in what ways should companies invest in talent management practices to maximize shareholder return?” In a nutshell, what level of resources should be devoted to managing (i.e., optimizing) Human Capital?

If companies are placing an emphasis on managing their Human Capital well, then what impact does it have? If there is a relationship between doing so and financial results, is the relationship causal or just correlative? In other words,

- Are companies with strong financial results in a better position to be able to afford to invest in the area of Human Capital or are companies that invest in Human Capital reaping financial rewards from those investments over time?
- Which drives which?
It is also theoretically possible that there is no causation – that they are not directly linked - but merely correlated to some other variable that impacts them both independently (i.e., an improving economy or falling taxes).

This question of causation is important. If there is an actual statistical or causal link and Human Capital investments do indeed positively impact financial outcomes, then it forms the foundation for ROI-based business cases for investments in Human Capital.

Analysis Scope and Data
To investigate these ideas, multiple industry sectors were analyzed using a set of Human Capital metrics as well as traditional financial metrics and macro-economic variables. The goal was to try and demonstrate the link between Human Capital and a company's financial success, while controlling for economic conditions, inflation, tax rates and more. In addition, HCMi leveraged detailed research data it gathered from organizations utilizing Human-Capital-Financial-Statements (HCF$™) to add more detailed Human Capital data at both industry- and company-specific levels. This additional data allows for practical testing and greater insight into the relationship between workforce optimization strategies, their bottom-line financial results and resulting stock price changes. This analysis addresses the chicken-and-the-egg problem with regard to whether Human Capital management performance drives financial performance, vice versa, or neither.

Overall, year-over-year movements in a variety of Human Capital metrics are strongly associated with year-over-year stock price changes. A multivariate statistical model was not only found to be significant, but provided an important alternative view of industry performance compared to traditional financial metrics and macroeconomic indicators.

Data Background
Human capital and financial data from over 50,000 companies and thirteen business sectors (as defined by the North American Industry Classification System or "NAICS") were gathered from the Compustat database over a 16-year period from 1996 – 2011. The industry sectors included in the analysis are as follows:

1. Accommodation & Food Services
2. Admin Support & Waste Mgmt/Remediation Services
3. Arts & Entertainment
4. Finance & Insurance
5. Health Care
6. Manufacturing
7. Mining
8. Professional, Scientific, & Technical Services
9. Real Estate, Rental, & Leasing
10. Transportation & Warehousing
11. Utilities
12. Wholesale Trade

Notes:
- Holding companies and small organizations with fewer than 1000 employees were excluded as were companies that omitted critical workforce cost or other financial data.
- The Retail Trade Sector was excluded due to inadequate and inaccurate workforce cost information.
- Information on each sector’s description, size, and major sub-sectors are included in the full white paper Appendix B. – see detail at the end of this report.

Human Capital Financial Statements
HCMi leveraged metrics from the Human Capital Financial Statements (HCF$™) which were originally introduced in 2010. These statements include a comprehensive set of advanced metrics enabling organizations to measure and quantify the impact of Human Capital investments in much the same way as traditional financial statements do for business.

1 Human Capital Financial Statements (HCF$) available in South Africa through www.talentalign.com
Human Capital Financial Statements (HCF$™)
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Study Parameters
HCMI’s study leveraged dozens of financial, economic and Human Capital data elements, a subset of which were included in a multivariate linear regression analysis.

- 16-year analysis period, 1996-2011
- 12 of 13 industry sectors analyzed
- 22,100 companies included in study from the HCMI database
- 50,000 companies from the Compustat database
- 17 total variables analyzed
- 6 Human Capital variables modelled

Human Capital Metrics tested in the model included:

- Profit per FTE
- Revenue per FTE
- Human Capital ROI Ratio (HC ROI Ratio)
- Return on Human Capital Investment (Return on HCI)
- Total Cost of Workforce Percent of Operating Expense (TCOW % of Operating Expense)
- Total Cost of Workforce Percent of Revenue (TCOW % of Revenue)

The set of Human Capital metrics was tested along with selected other variables in a multivariate statistical model to analyze the various sectors.

A Stock (Share) Price Analysis of Human Capital Metrics
The analysis focuses on year-over-year changes in Human Capital metrics and business performance. The key hypothesis was that financially successful businesses (i.e., those that have rising share prices which are higher than competitors) have flexible and adaptable Human Capital programs. Such programs can decrease costs as a share of revenue, increase Human Capital ROI and return on Human Capital Investment faster than others, resulting in better financial results.

No bias for good economic times or high-performing companies
Another key hypothesis was that economic conditions affected financial performance. Successful businesses had to manage both Human Capital and economic conditions that were given to them. This combination of talents (managing Human Capital in an uncertain economic world) has historically proven to be important. In many multinational companies - including IBM - bonuses are adjusted for economic conditions. Specifically, if a national market has strong positive economic conditions, meeting targets has been found to be easier than in markets with poor economic growth and/or inflation. So the latter yield the higher bonuses if targets are met.

Since the data includes high- and low-performing companies, bias toward high-performing company rapid stock price gains is neutralized. Further, the analysis period from 1996 to 2011 includes multiple strong and weak economic environments and so is not biased toward high-performing companies or good economic times.
Findings

While there is still much to learn about how companies can best leverage Human Capital metrics to increase the impact of their workforce strategies on the bottom line and stock price, this white paper is a first step in shining a light on what, until now, has often been a “black box” for business leaders, HR managers, and the investment community. The insights noted here are, we believe, of significant value, continuously increasing in value as more organizations begin to track and report Human Capital metrics, and increasing the pool of available data for analysis and testing back to financials and stock price.

The idea of this relationship or link is not new. Research by Dr. Lauri Bassi, CEO of McBassi and Company, and other Human Capital research thought leaders (Bontis & Fitzenz, 2002) showed what appeared to be a clear linkage between investments in Human Capital and public U.S. companies’ stock prices (Bassi, Harrison, Ludwig, & McMurrer, 2004). Others have also done parallel work: such as AON Hewitt’s Mark Ubelhart, practice leader of Value Based Management and Architect of Human Capital Foresight, who conducted research connecting Human Capital metrics to financial results. The research made use of cross-company, longitudinal data from over 1000 companies and 20 million employees. The findings quantified the relative impact of the flow of Pivotal Employees (top quartile pay progressors adjusted for age, pay and tenure) on subsequent company Cash Flow Return on Investment (CFROI).

What is the value of Human Capital initiatives in terms of increasing shareholder value? While clearly valuable, those wishing to replicate these findings may discover that due to untracked and missing Human Capital data, this analysis can be difficult to replicate. In essence, the single biggest limitation in having confidence for specific Human Capital programs in different industry segments and individual companies, is solid, consistent and accurate workforce data. However, based on our research, an emerging view seems clear; with improved depth and breadth of Human Capital data and good analytical methods, increasingly precise contributions of Human Capital to financial performance can be determined. (see FC Corporation example)

![Example: FC Corporation](image)

Using results for an actual transportation company, FC Corporation (pseudonym), a series of three predictive metrics to Human Capital are analyzed. Flexibility and adaptability are priorities of FC Corporation. FC Corp. has a $60 common stock price and 35 million shares outstanding for a total market value of $2.1 billion. The company identified target productivity programs to improve results 5% in 3 Human Capital metrics*. The predicted change from a 5% gain in Human Capital metrics = A $2 per share gain, and $69 million or 3.3% to FC Corp. market value

* 3 Key Human Capital metrics include Human Capital ROI Ratio, Return on Human Capital Investment and Total Cost of Workforce % of Revenue, described in detail in the forthcoming full-length “Linking Human Capital to Business Performance” white paper.

Note: The predictions are not the “total value” of Human Capital initiatives but the INCREASE in shareholder value from one year’s Human Capital impact.

Highlights

- **Gains across all industry sectors** - a 10% increase in Human Capital productivity metrics are associated with stock (share) price gains ranging from 3% to 19%. For example, a 10% improvement in select Human Capital metrics resulted in stock price gains of:
  - 7.7% in Admin Support & Waste Management Services
  - 6.5% in Transportation/Warehousing
  - 19.1% in Accommodation & Food Services

  *Note: Modelled stock price changes for all 12 industries/sectors studied are included in the full white paper results.*

- **Total Cost of Workforce (TCOW) is superior to headcount metrics** (i.e., FTE1). When explaining stock price changes, revenue and profit-per-FTE metrics are good, but TCOW is significantly better to quantify productivity and explain stock price changes. (See white paper Total Cost of Workforce, 2010).

- **New Human Capital metrics reveal a surprising picture of industry performance.** The study showed clear productivity winners (Admin Support & Waste Management Services), and losers (Financial Services & Insurance), over a sixteen-year period during multiple market cycles including:
  - False winner sectors showing healthy gains in revenue or profit per FTE, but their TCOW rose far more than revenue or profits. Thus, while headcount was controlled, workforce cost was not.
  - Financial Services workforce productivity declined more than any industry. Often cited as highly productive, this sector actually showed negative productivity in Human Capital ROI Ratio (-10.4%) and in Return on Human Capital Investment (-15.0%).
- **Investment Banking is among the worst performers** (1996 - 2011), based on the productivity metrics studied. As median revenue per FTE increased 21.8%, median Human Capital ROI ratio dropped (-29%) and TCOW ballooned by 47.5%, negatively impacting profit/performance. This clearly shows that fewer workers are getting an ever larger slice of industry revenue, calling into question whether investors are being well served in this industry.

So, in answer to the questions

- Can Human Capital be valued and its contribution quantified in the form of productivity or return?
- Can the return on Human Capital could be definitively linked to financial results?
- Can changes in Human Capital metrics explain (i.e., predict) movements in stock (share price) performance for companies?

The answer is a resounding YES!

**RECOMMENDATION:** Investors can raise the bar and improve their ability to spot high-performing companies through the use of selected Human Capital metrics.

**The Analysis: Preview of an Emerging View**

Graphical snapshots of three analyses are presented in this section. The first chart is an emerging analytical view of a multiple variable regression and its ability to explain movements in year-over-year stock prices. The second, **Chart 2**, is a chart of traditional financial performance (profit per FTE) and productivity by industry (revenue per FTE). **Charts 3 and 4** present a new and different view of advanced productivity metrics per industry.

Beyond showing relationships, the metrics studied were factored into a statistical model to explain and predict company stock price changes. **Chart 1** below shows the total amount of stock price movement explained by the set of regression variables across each sector studied. In each sector, **Human Capital metrics in the model were found to make important predictive contributions to stock price performance**.

**Chart 1: R-Squared Value by Industry Sector**

R-Squared explains stock price changes (possible values between 0–1).

![Chart 1: R-Squared Value by Industry Sector](image)

Converting R-Squared into a percentage shows how much the model explains stock price changes. For example, 59.4% of variance in Real Estate stock price can largely be explained by the statistical model variables.
Traditional Financial Performance and Productivity by Industry

When graphed, relationships between various Human Capital metrics emerge showing how different sectors’ Human Capital performance, compare against one another. Chart 2 below shows the industry performance for two well established metrics: Revenue per FTE and Profit per FTE.

**Chart 2: Traditional Financial Performance and Productivity by Industry**

- **Correlation coefficient**: $r^2 = .86$ (Revenue per FTE to Profit per FTE)

**Gains in Headcount Productivity**

All sectors studied showed gains in the two headcount productivity metrics (Chart 2), with median gains of 66% in revenue per FTE and 107% in profit per FTE from 1996-2011. The spread between sectors shows the top performing sector, Utilities, with 12 times greater revenue per FTE and 19 times greater profit per FTE than Accommodation & Food Services (Chart 4), the bottom sector.

Three sectors (Finance & Insurance, Transportation & Warehousing, and Wholesale Trade), have mapped lines showing their 1996 performance and movement to most recent 2011 performance (Charts 2 and 3). The largest gain was Wholesale Trade, in which median revenue per FTE increased by $387,000 and profit per FTE increased $54,000 over the analysis period. The largest percentage improvement was Admin Support & Waste Management Services, which had 471% and 1483% gains in revenue and profit per FTE respectively. This industry was a bottom performer in 1996, but surpassed five other sectors by 2011.

**Is the Productivity Real?**

While revenue per FTE and profit per FTE are commonly used metrics, our research shows that they are by no means the best predictors of financial success. This is because they only show changes in revenue and profit versus headcount rather

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**The Problem with Headcount Reporting**

Headcount reporting is supposed to be a simple counting process with a tangible outcome. However, counting the "number of people a business employs on a global basis" is not as straightforward as it should be. In one recent case, a corporate human resources (HR) report showed that the company’s global workforce was comprised of 4,100 persons, while a tabulation across business units came to 3,570, and a finance report showed 4,320 persons. While all were arithmetically correct and tabulated for the same day, each report adopted a different construct.

- The HR report counted full-time employees, temporary workers who replaced full-time workers on leave, and part-time employees.
- The business units reported only full-time workers, and the finance report was based on full-time workers, part-time workers, temporary workers, and contractors.

Above and beyond these tabulations, the budgeting headcount was 4,000, and the workforce planning number for the comparable period of the previous year was 3,915. An objective observer could say these counts are technically all correct. A frustrated executive would say there should be one, and only one, answer.
than including cost changes in the workforce. The pretense of these metrics is that measuring headcount is a good proxy for measuring cost of workforce, but as our analysis and the below example illustrates, this is a fallacy.

Since HC ROI Ratio, Return on HCI, TCOW % of Revenue, and other advanced measures utilize true workforce cost in their calculation, it was our hypothesis that these are superior metrics to explain performance and stock price changes. This position is supported by the model statistical analysis, which shows that TCOW, HC ROI Ratio and Return on HCI are indeed superior predictive measures, linking closely to costs and profits, and are not coincidently more difficult for companies to manage or cheat. This new relationship can be seen in Chart 3.

Using these metrics combined with other variables, enables quantification of productivity by sector, industry, company and ultimately by job group within a company. Such insights would otherwise be hidden from management and investors, leading to incorrect interpretations and workforce decisions, as shown by Revenue and Profit per FTE metrics versus the new metrics.

Advanced Productivity Metrics by Industry – A New Relationship

Looking at Chart 3 below begins to reveal a new and different story. Using HC ROI Ratio (a revenue-cost linked metric), and Return on HCI (a profit-cost linked metric), we see performance clusters with sectors in cluster “C” showing very similar returns in 2011 and all analysis years (1996 – 2011). However, contrary to the previous revenue and profit per FTE metrics, not all sectors improved during the analysis period. Finance and Insurance and Arts & Entertainment both declined from 1996 to 2011. Cluster “C” shows tight Human Capital ROI Ratio productivity (from 1.27 to 1.74), but more separation in Return on Human Capital Investment. However, Cluster “A” (Utilities, Mining) far outperforms Cluster “C” in both metrics.

Chart 3: Advanced Productivity Metrics by Industry

When calculated correctly, these metrics are superior workforce productivity measures and the truest indicators of both current and likely future productivity changes.
These metrics, along with a factor for the Human Capital intensity of each sector, show substantial statistical predictive power, not to mention linking directly to financial results.

**Chart 4: 16-Year Change in Human Capital Metrics by Industry**

- **Mining**, a top performing sector improved by an amazing 99% and 302% in Human Capital ROI Ratio and Return on Human Capital Investment respectively (1996 to 2011) while **Real Estate, Rental & Leasing** – a highly service driven sector improved even more at 582% and 82% Human Capital ROI Ratio and Return on Human Capital Investment. **Finance & Insurance**, however, lost (-10%) in Human Capital ROI Ratio and (-15%) in Return on Human Capital Investment, contradicting conventional wisdom.

The data shows that certain sectors have consistently delivered substantially higher levels of Return on Human Capital Investment, which has been a significant factor in stock price for these sectors. **Chart 4** shows a breakdown by sector. In less Human Capital-intense industries (i.e., **Utilities, Wholesale Trade**), this shows up as high returns on small changes in Human Capital since both industries require substantial financial and physical capital (investment in capital equipment and tangible assets such as product inventory).

Overall, high scoring and significantly improving sectors have one or more of the following factors:

- Lower Human Capital intensity (Human Capital costs less than other expense costs - i.e., jet fuel for airlines in **Transportation & Warehousing** sector).
- Greater potential and realized ability to increase revenue and profits without equivalent increases in Human Capital costs (i.e., **Real Estate, Rental & Leasing, Transportation & Warehousing, Wholesale Trade, Finance & Insurance**).
- Increased demand and/or pricing for commodities (i.e. **Mining, Utilities**) due to global demand, industry deregulation, or other factors.
- Substantial automation of one or more core Human Capital labour elements in an industry/sector (i.e., **Manufacturing, Finance & Insurance**)

**Challenges and Next Steps**

This preview has presented snapshots of some key findings about Human Capital metrics and the contributions Human Capital makes to improved business performance. While much clearly remains to be done, the limitation of existing data remains the most relevant challenge to overcome to learn more and show the true value of Human Capital to businesses.
The full “Linking Human Capital to Business Performance” white paper (see end of this report) provides a more comprehensive view on all industry sectors as well as greater depth of analysis, metrics definitions and our applied analytics modelling. In addition, the full white paper will include an in-depth analysis with actual public companies in two of the featured industry sectors.

However, due to limitations in available data, Human Capital analytics is still early in the anticipated path of exploration, meaning we have only begun to scratch the surface of the linkages and implications Human Capital has on company past, present and future performance.

Next Step, Benchmarking Your Organization’s Workforce Productivity

As a follow up to this preview and in conjunction with the release of the full “Linking Human Capital to Business Performance” white paper (see below), the authors are launching a web-based survey tool enabling organizations to obtain their own workforce productivity metrics and benchmark themselves against industry peers.

To get more information on the upcoming benchmark survey tool - contact us. We hope you will join HCMI, and Professor Don Atwater of Pepperdine University, and TalentAlign in an open discussion of the issues raised around the importance and predictive power of Human Capital data as well as the need to develop improved workforce data and skills to better manage Human Capital in all economic conditions.

This report is a preview summary of the study results. The forthcoming full-length white paper contains a more detailed breakdown of the analysis and findings.

If you would like to receive a copy of the full-length White Paper, Click Here.

Human Capital Management Institute:

The Human Capital Management Institute (HCMI) was founded on the belief that organizations can, and must, find better ways of measuring their investments in Human Capital. Our goal is to help organizations transform workforce data into a source of value that drives fact-based decision making, workforce measurement, planning, and analytic modeling. HCMI leads and educates organizations on what to measure, what it means, how it fits and how to improve it. While many organizations state people are their most valuable asset, few have the tools to assess, manage and optimize their workforce.