

Return of human capital development and training investments on corporate valuation

Florian Knaeple

Maastricht University, School of Business and Economics

Florian.Knaeple@gmail.com

ABSTRACT

The dynamic environments evolving in most markets led to the necessity of recruiting and retaining highly educated employees for a company's success. This research paper investigates the economic return of human capital investments on corporate valuation and identifies organizational activities that could signal these investments. For economic return estimations, an event study with the reception of training awards, as a signal for exceptional human capital activities, is used. It is revealed that training-award winners experience significant abnormal returns around the award announcements. Further, organizational activities that influence these abnormal returns and serve as indicators for stakeholders are determined.

Keywords

Human capital development, corporate valuation, agency theory, human capital theory, event study.

INTRODUCTION

The current dynamic environment in most industries is a result of the opening of global markets and shorter technological life cycles. As a consequence of these events, competition has increased and corporations are forced to be more innovative and adaptive to satisfy the demands of various stakeholders. The modern corporation needs novel methods of tackling this dynamic marketplace. A possible method could be investing in intangible assets which show immense potential to fulfil the role for enhancement of firm performance and the pursuit of a sustainable competitive advantage ([1]).

This approach is supported by the resource-based view theory which focuses on the necessary characteristics of resources which in turn may lead to a sustainable competitive advantage. The respective criteria require a resource to be rare, valuable, inimitable and non-substitutable. A resource that fulfills all these criterions is human capital of the workforce and their skillset ([2]). Furthermore, the knowledge of employees satisfies the other conditions highlighted by the resource-based view. For example, skills possessed by the employees might only be source for a competitive advantage due to the interpersonal relationships, the corporate culture or other social factors ([3]).

Based on this information, this research paper focuses on two questions regarding the investment into human capital. The first question covers whether investments in the corporation's human capital show economic returns. The relevance of this question stems from the shortage of adequate measurement techniques that accurately estimate the value of human capital. Additional deficiencies include the lack of methods to precisely calculate the financial returns of human capital development efforts and the

misinterpretation of training investments by the accounting discipline. For instance, most accounting principles such as IFRS/GAAP do not have specific procedures and policies to handle workforce-related expenses. As a consequence, the investment is only reflected as an expense to stakeholders without showing potential benefits of the transaction. Potential solutions are currently being developed with the introduction of the TDRP (Training & Development Reporting Principles), however, only a small percentage of firm adopted this or similar guidelines; as a consequence, the proper assessment of training expenditures is still particularly challenging. To overcome these assessment difficulties, the research paper uses the announcement of the ATD-BEST training awards by the Association of Talent Development (ATD) as an approximation for training investments by corporations ([4]). The ATD-BEST award represents a costly signal for entities due to the high application, the difficulty of mimicking a high-training firm and the additional resources required to go through the application process (e.g. description of internal process with corresponding inspection).

The second question focuses on the specific organizational activity variables that might signal "above average" investments into human capital development and influence the subsequent abnormal returns. Specifically, the lack of reporting standards, possible provision of some guidelines for various stakeholders to quantify investments into human capital and the comparison with other companies are addressed ([5]). For instance, the investments into physical capital, staff expense and research and development (R&D) could be a potential source of information for all stakeholders. One example is investments into new equipment requiring the training of the workforce and subsequently, increases its remuneration. This information is reflected in the financial statements and can aid stakeholders' investments decisions. Furthermore, the presence of high R&D expenses could also be a possible signal of long-term growth objectives and be accompanied by the engagement in "above-average" investments in human capital for growth motivations.

METHODOLOGY

Due to the research depending on the announcements of training awards, the paper uses an event study to capture the announcements and potential effect of the ATD BEST award.

The BEST Awards are given to organizations that demonstrate enterprise-wide success as a result of employee talent development. Participants are evaluated through a wide-ranging survey that is based on talent development on an enterprise-wide level, the importance of learning in the corporate culture, learning links to individual and organizational performance for increased alignment and the

investments into human capital development. The main benefits of the BEST award are feedback on the efficiency of training investments, benchmarks to compare one's investments into human capital development to competitors and more transparency of investments to external stakeholders. Moreover, the research paper uses the ATD BEST award announcement for data collection purposes to overcome the self-reporting issues that training information in Corporate Social Responsibility (CSR) reports might experience. For example, some organizations disclose their human capital development efforts in a separate section in their CSR report, however, such information is relatively difficult to assess by external stakeholders. In comparison, the Association of Talent Development as a third-party has less incentives to display organizations in a more favorable position than the respective organization that is being evaluated.

The research paper assumes that the announcement of the ATD BEST serves as a "signal" of above-average investments into human capital. Furthermore, the ATD BEST can also be classified as a costly signal as mentioned before due to the respective economic outflows connected to the application. Based on this assumption, the semi-strong form of the efficient-market hypotheses (EMH) predicts that such a signal should lead to an abnormal return due to the informational value. The semi-strong form of the EHM indicates that only previously unknown information causes an abnormal adjustment in share prices ([6]). The potential abnormal returns are computed by an event study which analyses stock market data of ATD BEST winning organizations from 2011-2015. The stock market information is collected from Yahoo Finance; the study uses daily data for all variables of interest to verify the effect of the announcement on corporate valuation. Using daily data results in higher frequency of observations that potentially improves the statistical analysis.

The event study approach outlined by Wang (2012) with the following five steps for analyzing and evaluating the effects of events was adopted. Firstly, the relevant data from Yahoo Finance for the individual organizations was collected. More specifically, the adjusted closing price which provides the foundation for subsequent calculations. Secondly, the event date and event window was specified and provided the base to calculate the expected return for the organizations. Thirdly and fourthly, the expected return was computed and compared to the actual return of the individual firms, resulting in the abnormal return for the specified events. Lastly, the t-values for significance testing of these returns were computed.

To address the second research question, the respective hypotheses relating to organization activities that may signal exceptional human capital performance are tested through OLS regression analyses. Most of the regression variable information is collected from several databases (e.g. Compustat, CRSP) to avoid potential data collection issues. The variables are measured in real terms, rather than in nominal terms to prevent comparison issues. Further, several control variables such as size, industry and consecutive award winning are included to address potential variance concerns.

DATA AND VARIABLES

The initial sample consists of 167 firms involved in numerous industries that received the ATD BEST Award from 2011-2015. This timeframe is deliberately chosen as it possesses specific characteristics. Firstly, this timeframe contains the highest amount of publicly-traded organizations which aids to overcome a data-availability issue. Secondly, this period covers mostly US-based organizations compared to other sample periods, which enables a better comparison

with the S&P500 market returns for the chosen timeframe. Therefore, this time period provides the most holistic and relevant sample for this research project. The cleaning process of the data resulted in the exclusion of 84 organizations which had no publicly available data about their historic performance. This leads to a sample of 83 ATD BEST award-winning organizations and 581 event observations (∓ 3 and 5-day event window) for the event study. The historical financial data on the 84 organizations is hand-collected from Yahoo Finance to calculate the expected return of each individual organization.

However, the final sample only contains 56 ATD BEST award-winning organizations and 392 event observations. This reduction of additional 27 organizations is a result of the unavailability of specific financial statement data on numerous foreign firms. For instance, the Indian and Taiwanese firms did not provide specific figures of their R&D or staff expenses which lead to the exclusion of these firms from the sample.

Dependent Variable (*Abnormal returns*)

The dependent variable for the hypotheses is *abnormal returns* and calculated through an event study that compared the actual return of the respective ATD BEST firms to the expected market return based on the S&P 500 market index performance. The closing price and expected return from the individual firms are adjusted for several events that might affect the firms stock price during the event date. For instance, earnings announcements, stock split and dividends could have an additional influence on the stock price of the firms in this sample. Consequently, the provided abnormal return data aims to capture the new informational value of the ATD BEST training award announcement for investors. This variable is computed and provided in three different forms. The three different forms consist of results for the abnormal return on the event date, ± 3 -Day abnormal return average and ± 5 -Day abnormal return average. The additional model variables are introduced to incorporate leakage of information and/or delayed stock movements. In addition, the inclusion of three log versions of the model aims to account for potential outliers and skewness of the distribution. These models incorporate the same dependent and control variables, therefore, only the independent variables are transformed.

Independent Variable (*Salary competitiveness*)

The independent variable *Salary competitiveness (SC)* is computed by comparing staff expense to overall operation expense (Selling, General and Administrative Expense). The resulting percentage gives an indication of how competitive the offered salaries of an organization are compared to their competitors. This information is crucial for ensuring that the organization can attract and retain highly skilled employees. Moreover, the information can work as a signal for executives to introduce higher salaries along with training programs to ensure competitiveness. The data for staff expenses and selling, general and administrative expenses for the individual organizations are taken from Compustat.

Independent Variable (*R&D effectiveness*)

This research study uses the definition of the variable *R&D effectiveness* as a ratio between the company's annual research and development (R&D) expenses and the total sales. This variable provides the basis to properly compare the efficiency, effectiveness and employment of R&D expenditure across industries. For this variable, the total annual R&D expense of an organization is divided by the total revenue in the respective year.

Independent Variable (*Property, Plant, and Equipment / Machinery and Equipment Turnover*)

The *PPE Turnover* variable aims to capture the effect of

additional workforce training programs to operate the acquired equipment. This might give an indication that firms that heavily invest in PPE, also carry out substantial efforts in human capital development to efficiently profit from the capital investments. It is computed by dividing total sales through PPE/ Machinery and Equipment (Net). The necessary data is collected through Compustat.

RESULTS AND DISCUSSION

The event study outcome supports the first research question and the corresponding hypothesis (H1) by showing that numerous investigated organizations do experience significant abnormal returns. In particular, the choice of the ATD BEST award receipt announcement as the event date provides the most significant evidence compared with the other event window estimates (± 3 -Day and ± 5 -Day Event window). Consequently, organizational investments in human capital development through training do affect corporate valuation and the investment decision-making of external stakeholders. Furthermore, the six different regression models also deliver significant results by indicating the determining factors responsible for the abnormal returns. However, the results only help to provide support for two of the three additional hypotheses. The significant results for *Salary competitiveness* only exist in the respective log version and the abnormal return specification on the event date. On the contrary, the significant outcome for *PPE Turnover* is only reflected in the models which capture a broader event window (± 3 -Day and ± 5 -Day Event window) and might indicate that external stakeholders react to potential information with different speeds. This information processing can come in two forms: information leakage or delayed response. The former comprises private information regarding the “above-average” investments in training of a specific organization, while the latter relates to an extensive analysis of the ATD BEST organizations after their award receipt.

(1st Research Question)

Firstly, the overall average of the abnormal return values for the respective years are not statistically significant, however, numerous individual organizations over the sample period experience significant abnormal returns on the event date. This variance could be attributed to the fact that the individual organizations in the sample belong to relatively contrasting industries. Consequently, the distinctive industries might have different expectations or standards regarding the optimal training expenditure and unique communication channels to signal the expenditure to external stakeholders. For instance, the majority of the firms that experienced a significant abnormal return belong to the financial or service industry. Firms in such industries are certainly required to hire and maintain a workforce of highly skilled individuals due to extensive customer interactions and complex tasks. Therefore, a potential explanation might be that external stakeholders perceive a signal of “above-average” training performance in such a demanding environment as extremely positive. This would lead to additional hypotheses concerning the importance and influence of industry-specific conditions on the “signal of above-average” training expenditures.

Secondly, the reduced informational value for organizations that received a ATD BEST award in previous years. For example, previous award winners such as BB&T Corporation in 2011/2012 reappear in later years with drastically reduced and non-significant abnormal return values. A potential explanation for this outcome could be the reduction of informational value provided by the receipt of a training reward and the subsequent signal of “above-average” training expenditure. This explanation would support the assumption of a semi-strong form EMH that only

previously unknown information could cause abnormal stock movements. Moreover, this outcome led to the introduction of the *PrvAward* control variable in the following regression analyses to account for the decreasing informational value provided by the receipt of ATD BEST award.

Finally, the outcome of the event study has several implications for managers and organizations concerning efficient training investment decisions and communication techniques. First, the confirmation that organizations with exceptional performance in training and developing their human capital do experience abnormal returns and changes in corporate valuation as indicated by the significant abnormal returns on the event date. As a result, organizations should invest in developing their workforce despite the lack of available reporting and quantification methods of these particular investments. Next, organizations in highly competitive and skill-extensive industries might want to consider additional investments in human capital development. The highly competitive conditions and potential lower growth opportunities in these specific industries result in high appreciation of “above-average” signals of workforce development by external stakeholders and analyst. Lastly, organizations should adjust the communication channels of their extraordinary training expenditures since the potential abnormal return effect decreases over time. However, this does not imply that previous ATD BEST award winners should stop investing in human capital development but rather employ techniques to efficiently take advantage of these training investments.

(2nd Research Question)

The coefficients for the salary competitiveness of organizations for the three initial models show no significant results ($p < 0.08; 0.001; 0.002$). However, the introduction of the logged version of salary competitiveness on the event supports this hypothesis with a statistically significant coefficient ($p < 0.05$). This positive coefficient matches the expectation that more competitive salaries for attraction and maintenance of highly-skilled labor provides a signal of “above-average” investment in human capital development. The potential explanation for this significance through the inclusion of logged versions could be the fact that the initial models experience a certain level of skewness which can be heavily influenced by individual outliers in the data set. Consequently, the natural logarithm helps to control for potential outliers. In addition, the natural logarithm enhances the representation for differences in the variable. For example, larger corporations in the sample will most likely have higher staff and overall expenses than newer organizations, which makes simple difference and change comparisons rather difficult. As a result, one might include logged variables to transform skewed data into more normal data which subsequently provides a better comparison basis.

The six different regression results provide no statistical support for the R&D effectiveness of organizations as a signal of “above average” investments in human capital development and or as a potential influencer of the associated abnormal returns. Moreover, the six different coefficients of R&D effectiveness all indicate a negative influence on the reported abnormal returns which contradicts the expected direction of this variable. A potential interpretation of this result could be that the effects of lacking reporting standards and guidelines for training investments pertain to for the organizational R&D spending. Admittedly, alternative R&D measures should be examined to determine the potential relationships between R&D and human capital development.

The coefficients for the PPE_Turnover of Model 2&3 and the Log Models 5&6 support that the efficiency of physical capital investments classified as PPE_Turnover serves as an indicator of “above-average” investments in human capital development. However, the results only show significant coefficients for the wider event windows compared to the abnormal returns on the event date. Furthermore, the direction of the relationship between PPE_Turnover and AR on a ± 3 -Day or a ± 5 -Day event window diverges from the expectation. A probable explanation for this negative relationship between the two variables is provided by the economic theory which hypothesizes the substitutability of labor and capital ([8]). This theory implies that automation and advancement in technology has enabled organizations to replace its human capital with physical capital. This assumption would be supported by the event study results that mainly firms belonging to particularly competitive and technological industries experience abnormal returns. Such industries acquire and develop physical capital that already incorporates an extensive amount of technology which would replace the need for highly-skilled labor. However, additional physical capital measures should be investigated to support this assumption.

CONCLUSION

This research paper aimed to analyze the economic benefits on corporate valuation resulting from the human capital development investments undertaken by an organization. The development of an organization’s workforce is gaining considerable importance and is becoming a necessity in the knowledge-intensive environment that exists in most industries. However, this importance has not been fully realized by most scholars, as evident in the lacking amount of research literature attempting to identify the factors that influence training investment and the subsequent economic effects on valuation.

Potential reasons for this deficiency in the current literature stems from difficulties in assessing the return on these training investments and the misleading accounting for training expenditure required by international standards. Firstly, the intangibility of human capital results in challenges when providing general guidelines and ratios for quantification of respective investments. Consequently, one has to rely on benchmarks and approximations to assess an organization’s efforts regarding human capital development. Secondly, the general accounting standards require to simply classify these investments as ordinary expenses. However, this classification will fail to communicate the potential economic benefit to external stakeholders. Furthermore, the expense categorization can cause additional problems concerning the principle-agent dilemma. For example, an agent with a short-term focus might reduce training and other related expenditures to boost financial performance at the expense of business longevity and long-term growth opportunities. These reasons have led scholars to develop alternative assessment measures to quantify the training investment and corresponding returns of organizations. Inherently, such approximation will always inherent an increased level of risk that the intended relationship is influenced by additional unidentified factors. Consequently, future research will have to either find alternative ways to attain more reliable data or identify additional factors that might influence the returns of training investments.

To conclude, the results of this research study provides three significant recommendations for organizations in various industries. Firstly, the fact that external stakeholders do value “above-industry” training investments despite the lack of efficient communication channels should reinsure the legitimacy of such investments by organizations. Secondly, the leading organizations and regulators should adjust established standards and work on current quantification

measure of human capital development returns to enhance the signaling of these investments. Lastly, managers should focus on effectively investing in physical capital and offer attractive salaries due to the significant influence on human capital development and the subsequent abnormal returns.

ROLE OF THE STUDENT

The research was conducted by Florian Knaeple who graduated from this university with distinction in 2016. The student has defined the research topic himself, hand-collected the respective data set and taught himself to perform an event study analysis with minimal assistance by his supervisors. The paper is entirely written by the student.

ACKNOWLEDGEMENTS

I thank my supervisors Frank Moers and Patrick Vorst whose enthusiasm and knowledge inspired and supported me for my research. Additionally, I would like to thank my family for the support throughout my studies.

REFERENCES

1. Madhani, P. M. (2012). Intangible assets: Value drivers for competitive advantage. *Best Practices in Management Accounting*, 146-165.
2. Wright, P. M., Dunford, B. B., & Snell, S. A. (2001). Human resources and the resource based view of the firm. *Journal of management*, 27(6), 701-721.
3. Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, 17(1), 99-120.
4. ATD BEST Awards. (n.d.). Retrieved May 08, 2016, from <https://www.td.org/About/ATD-Awards/Best-Awards>
5. Mitchell Williams, S. (2001). Is intellectual capital performance and disclosure practices related? *Journal of Intellectual capital*, 2(3), 192-203.
6. Basu, S. (1977). Investment performance of common stocks in relation to their price-earnings ratios: A test of the efficient market hypothesis. *The journal of Finance*, 32(3), 663-682.
7. Wang, X. (2012). Event Study Analysis of Stock Price and Stock Market Index Data. University of Stirling.
8. Arrow, K. J., Chenery, H. B., Minhas, B. S., & Solow, R. M. (1961). Capital-labour substitution and economic efficiency. *The Review of Economics and Statistics*, 225-250.

’Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted under the conditions of the Creative Commons Attribution-Share Alike (CC BY-SA) license and that copies bear this notice and the full citation on the first page’
 SRC 2016, November 30, 2016, The Netherlands.