

Company Size: Does Intellectual Capital Differ? - A Study Of UK Based Companies

Md. Abul Kalam Azad*, Md. Shariful Haque**
and Muhammad Showkat Imran***

This paper aims to find out the relationship between the company size and intellectual capital. Ten small and ten big UK based companies using the purposive sampling have been taken as sample. It is full of empirical study of existing data on Company size and Intellectual Capital(IC) using financial and operational data up to 2010. Few variables like the number of employees, annual turnover and total asset have been predetermined to specify the size of the company. For calculation and analysis the linear regression has been run using an online resource viz. www.fame.com. Outcome of the study tells that the IC tends to have equal contribution in market value of both the Big and Small companies. However, in some cases IC works more for the small companies.

Keyword: Intellectual Capital, Company Size, Annual Turnover

Field of Research: Finance

1. Introduction

When identifying what makes a triumphant business, there seems to be some allowance for the more powerful ones. The fissure between a firm's market value and the value of its physical assets has amplified ominously over the last decades as identified by Brinker (2000). More elaborate and specific result can be taken from the valued work of Bryan (1997); Mouritsen (2004) as they mentioned market-to-book value ratio of United State firms was roughly become 2 to 1 between 1945 and 1990. One observations of Lester (1996) suggests that crudely 40 per cent of medium enterprise's market value is missing from the balance sheet. A more advance review of Morgan Stanley's World Index highlighted recently as the average market value of companies typically ranges from two to seven times of book value Brinker (2000). In this study, a close look has taken upon creation, development, maintenance and finally measurement of knowledge within any company. The ultimate objective of this study is to identify the factors that determine the level of Intellectual capital for any business entity.

One useful experience from the capital market would be helpful to understand the above highlighting statements. Microsoft's stock price rocketed \$100 per share in one day when it released its operating software namely Windows 95. As a result, Microsoft became more valuable than Boeing overnight. To make above discussion livelier, another contemporary example may be considered. In 1995 Netscape went

*Assistant Professor of Finance, Department of Business Administration, International Islamic University Chittagong, Bangladesh, email: azadiiuc@gmail.com

** , *** Assistant Professor of Marketing, Department of Business Administration, International Islamic University Chittagong, Bangladesh, email: iucmba@gmail.com & imraniuc@yahoo.com

Azad, Haque & Imran

public with its fifty employees worth of \$17 million. Just after one year of that it touched \$3 billion in capital market. Interestingly, investors certainly did not buy its tangible assets with that price or even the inventory software. In fact, investors only concentrated on the group of people who built Netscape- their talent, creativity, initiative quality, thought and skills. Investors also concentrate on the future growth of this company in comparing its past years performances and market response. In short, they invested such enormous amount of money to buy Intellectual Capital of that company. There are many similar examples available in everyday market performance Buday, Thiel, & Buddenbaum (2008).

2. Objectives of the Study

The core intention of this study is to identify the relationship of IC of a company with the size based on number of employees, asset value, and profitability. This study also aims:

- To identify the nature and creation of IC;
- To identify the development and growth of IC;
- To measure IC of a company using its different assumed factors;
- To furnish suggestions for the concerned authority in an effective creation and development of IC in a company.

3. Literature Review

This chapter condensed by a table guiding us to develop strong platform to mature and sum up core inspiration for this study. Literature review table shown in table 1 is solely to identify successive factors that may inspire the level of IC among the business industries especially in term of size. Inspiration of such study came across with reference of previous valued work of Brinker (2000); Guthrie, (2001); Lee & Guthrie (2010); Freedman (2004) and many more. In order to develop this study in more suitable and logical way we classified factors that describe and categorise business into big and small size.

Guthrie (2001) stumbled on management issues that are no longer interested in calculating tangible assets of a company. Rather, they have higher concern about identifying and managing company's intangible assets and Intellectual Capital (IC). Montequin et. al. (2006) found the initial action to change a common company into a knowledge company, to identify the inherent knowledge of the firm, which is termed as Intellectual Capital. As a result, both intangible asset and intellectual capital are taking into consideration the evaluation of a business performance, and then comparing it with one another. In oppose to above, Mouritsen (2004) says measurement of intellectual capital is of zero value if it is only for theoretical purposes. He also suggests implementing measurement techniques into company operation, to achieve perfection.

Azad, Haque & Imran

Table 1: Literature Review Table and Development of Theory of Intellectual Capital Measurement

Year	Author/s	Dependent Variable	Independent Variable	Method Used	Theory development	Measure +ve/-Ve
1992	Kaplan, R., & Norton, D.	Turnover and Gearing ratio	Intangible	Balance Scorecard; Author technically proposed to evaluate business performance assuming a balance scorecard as standard. The study has taken 56 companies for the study.	Harvard Business School introduce it using Skandia in practice. It offers three additional components as customer, process and growth as apparatuses	+ve
1996	Brooking, A.	Employee	Intellectual Capital	Relative Value; Relative study always measured a situation assuming others as variable. Author used Skandia insurance performance and theory as model for assuming relative value.	This approach has been supported by Bob Buckman (BuckmanLabrotaries) and Skandia Insurance. In this approach growth is not a qualitative approach rather its ultimate goal	+ve
1997	Stewart, K	Gearing ratio	Intangible asset	Competency Model; Same to subsystem performance and slightly improved study has done by the author taking 42 companies into account.	Generating dollar denominated value of IC by calculating successful employees and market value of its output	+ve
1997	Sveiby, C		Intellectual Capital	Business Worth; Ignoring market cannot be accepted and taking into this account author for the first time tried to inform the influence of market information to the intellectual capital position of a firm. According to author, market has significant influence to IC and some times which is unpredictable.	It is one of the classic approaches to measure IC of a firm (Suciu, 2002). It depends upon understanding of three basic questions. First, what happen if the firm disappear all in a sudden? Second, What happen if all components become double next day? And finally, change in value with change of information after a regular time line	+ve

Azad, Haque & Imran

2000	Brinker, B.	Market information	Market price of share	Business Process: similar to market worth and influence of market information have taken into consideration of 29 companies made this effort successful.	It is kind of general use of sense that how any information may enhance market by useful information for instance auditing information, production etc	+ve
2001	Guthrie, J.	Employee and Tangibles	Intangible	Human and Structural Capital: Among 57 companies, author has found significant relation between number of employee and tangibles to the development of intangibles.	Human capital implies strength of the organization in terms of confidence where structural capital supports to achieve the specified goal	+ve
2003	Youngman, R.	Brand	Intellectual Capital	Brand Equity: This study only focuses on market performance and positioning through branding of a company. Author has taken 72 companies for the study.	It partially describes capacity of a brand image to create market response in terms of pricing, customer feedback etc.	+ve
2004	Mouritsen, J.	Tangible	Intellectual Capital	Return on Asset: Simple mathematic has implied in this study to recognize IC through tangible assets.	An advanced method for IC calculation, Return on Asset describes the difference between any firms profitability power apart from its tangible asset	+ve
2010	Lee, L, & Guthrie, J	Firm's performance	Intellectual Capital	Computer assisted Content Analysis (CA) over 156 firms of global information technology industry Results of the survey showed (i) the extent that companies have adopted Intellectual Capital, and (ii) how many companies have exerted effort to fit Intellectual Capital within traditional accounting and in management reporting.	The Organization for Economic Cooperation and Development (OECD) conducted a survey of 1800 companies, on their uses of Intellectual Capital; in organization (structure), in business relations (to customers, and to stakeholders), and with employee (competence).	+ve

Source: (Brooking, 1996; Edvinsson & Malone, 1997; Stewart, 1997; Sveiby, 1997; Brinker, 2000; Suci, 2002; Lee & Guthrie, 2010)

Technically, Intellectual Capital by all definitions is almost the same; asset, other than intangible asset has no physical existence Bontis (1999), Freedman (2004) and Buday, Thiel, & Buddenbaum (2008). However, the predicament is proper identification of

internal knowledge of a company which has not yet veteraned such long way of development, such as how much Intellectual Capital it holds or either which is better than another company. As the valued work of Montequin, et al. (2006) suggests the concept of Knowledge Manakement (KM) and intellectual capital have developed around large enterprises, mainly related to the financial sector. Though, some other authors like Mouritsen (2004) identifies IT sector as the main source of Intellectual capital such as patent capital or innovation capital.

4. Research Rationale

A recent survey of Bloom Group has produced stunning report to demonstrate present scenario of IC after analysing 179 professional service firms. Their valued work provides more interesting outcomes for future research. Though all researchers are accustomed with the initially idea of IC which is an inherent asset produced and maintained in big firms as such financial institution, IT sector or others Lester (1996). According to Buday, Thiel, & Buddenbaum (2008) small and medium firms are clearer toward their objectives. According to the survey of Bloom group, 'Attaining through Leadership', it shows average of the respondent their confidence in IC at in improved rate of 3.61 at the scale of 5 where 1 state less successful and 5 is mostly successful.

The survey covered a range of professional firms: consulting, IT services, law, accounting, training and development, research and others. Some 25% had annual income of extra than \$1 billion, 35% had fewer than \$25 million, 18% had \$25 -\$100 million, and 22% had \$101- \$1 billion. According to Buday, Thiel, & Buddenbaum (2008) Bloom survey presents 81% of the big firms (in terms of net income) can reach to their target level of success to develop IC compare to only 10% of the smaller firms. Buday, Thiel, & Buddenbaum (2008) suggest a substantial percentage of smaller firms have superior IC than remarked by the big firms. Numerically, around 50% of the small firms with net income of less than \$25 million say their IC is stronger while only about 25% of the company with \$1 billion of net profit said the same.

Freedman (2004) disagreed with the professional talk of top service firms in UK as they believe IC creation and management is far reach for the small and medium size of firms and financially and technically possible for the big organizations at long run. He also disagreed with the concept of creation IC literally only possible in Technological sector. According to Brinker (2000), the same scenario very well in the way of showing top ten list of world companies before mid of 19th century and at the end. According to him, before information age mostly natural resource companies denominated the world business. However, it changed. Now a days mostly IT sector, service sector and companies with strong KM show up in top chart. Supporting the same a resourceful study of Freedman (2004) agrees IC has not only existed in IT rather it associated with proper KM, training, development internal knowledge, staff, utility and proper safeguard of existing IC.

From definition, research needs to be carried out in limited space. In consequence to this theory this paper has designed in such way to treat it as first step to develop the idea of either IC differ with the size of the firm or not. This study covers 10 companies as sample for both the big and small firms. However, more variables, such as life time, number of branches, shareholders proportion in the total liability might introduce. Regarding length of work, this paper has only considered secondary work to trace out relationship between company size and IC. An interdisciplinary work may facilitate

future research to come up with more concentrate findings which facilitates both the investors and managers to establish IC as a driven force to create firm's value.

5. Methodology

Literally, by nature of this paper, it is full of empirical study of existing data. According to the conceptual framework, at the first phase of this study a threat beaten discussion took place to establish strong background of IC. Considering time limit and available resources, 10 companies have been selected in the group of big companies. Now, to be realistic and practical, few variables have predetermined to separate them; number of employees, annual turnover and total asset. For the big companies, minimum number of employee have anticipated as 1000, turnover should maximum £500 million and total asset is maximum £5000 million have fixed. Logically, a company with more than 1000 employee is either labour oriented or very large organization with lots of brunches. In either ways, number of employees is a great factor behind be a big company. Regarding turnover, 500 million is handsome prediction.

Predictions behind the big company selection has established by using **www.fame.com** database used by most educational institutions and companies where millions of UK companies are listed. According to them, they have 2188 listed public company's information available in their data bank. In connection to this, trial and error has performed to find big companies. A good combination has developed after finding that among the 2188 companies only 38 companies have more than 1000 employees, around 29 companies are doing turnover of £500 million annually. Finally and most importantly, only 21 companies have more than 5000 million of total asset in their business. In contrast of the big companies, sample size of small companies have selected with reference of few variables. Likewise, maximum number of employees has assumed 500, in terms of turnover, it assumed as £5million and total asset has predicted of £50 million. At the same process of trial and error practice, top ten companies have selected for the sample group of small companies.

Last phase of analysis took place to compare difference between book value and market value of a firm and look forward to bind the relation with any or more of the theories cited from the literature review. In order to do this, company variables may need to analyse in comparison with profit margin of the company and other financial performance index.

Hypothesis

Based on the above objectives, the two hypotheses we tested here are:

H₀₁: There is no impact of Intellectual Capital investment on the size of the company

H_{a1}: There is impact of Intellectual Capital investment on the size of the company

H₀₂: There is no relationship between the size of the company and Intellectual Capital of its own.

H_{a2}: There is relationship between the size of the company and Intellectual Capital of its own.

6. Analysis

"IC is not something identifiable and visible" said by Edvinsson & Malone (1997). To move forward in connection to find out level of IC of a firm, we have to assess its quantitative value of tangible asset, organizational structure and human resources and

Azad, Haque & Imran

then compare it with existing market value Brooking (1996); Edvinsson & Malone (1997); Kanevsky & Housel (1998); Andriessen (2004); Marr (2005). Since core objective of this study is to develop an idea regarding IC which supposes to compare distinctive level of IC in respect of size of them, we have grouped two distinctive lists of UK companies in terms of number of employee, Total Asset and performance. Table 02 (appendix 01) is a snapshot of top ten UK based companies with more than 3000 employees and total asset is also more than £50 million. They also are common in terms of higher profit margin. In the list, first place has taken by Royal Dutch Shell PLC followed by BP PLC, Vodapone, Legal and General group, Aviva PLC, prudential public limited company, Standard life PLC, Irish Life, Old Mutual Public Limited company and last place has occupied by ICAP PLC.

Table 03 (appendix 01) calculates ten big companies' simple linear regression which identifies average, median and standard deviation of company performance. Table, also identifies ranking of ten big companies where Aviva PLC stood first and followed by BP PLC, ICAP PLC, Legal and General group PLC, Old mutual public, Prudential public, Royal dutch, Standard life and finally Vodafone group. Identical result of this regression is a new list of big companies which is showing different findings in terms of performance. Graphical presentation of table 03 (Appendix 01), Chart 01 (Appendix 02) can be more general and understandable. From the above table it is easily traceable that companies having more tangible asset can have lower standard deviation and perform better than others in terms of net operating profit. From chart specific outcome can be expressed in single statement which is majority of big companies are performing closer to expectation and they have less standard deviation (see table 04, Appendix 01).

A farther study of previous approach has done (Chart 02, Appendix 02) in connection to find whether big companies are superior to small companies in terms of IC. This time, linear regression has performed where number of employee has countered with profit margin of that company. Average number of employee has counted close to half of million, median of sample group is almost the same but standard deviation is higher than expected. The chart 02, Appendix 02, seems almost same with previous one. Graphical positioning reveals the statement clear that most of the big companies are doing well and number of employees affects their profit margin positively. Employee turnover has negative relation with company performance. Table 05 (Appendix 01) is the calculation of average, median and Standard deviation of big companies in terms of their employee turnover and its effect on company turnover. From the above calculation it reveals that employee turnover is highly toxic to company performance. From the calculation average result in both the cases come negative and median is changed a bit. A high value if standard deviation indicates that total composition of this study is true, which is employee turnover affect company performance negatively.

A negative relation between employee turnover and sales turnover has come across of this study from the chart 03 (Appendix 02). The chart derives two important facts in this study. First of all, employee turnover means low satisfaction and most importantly drainage of system and strategy from one company to another. As a result, in competition, firm may lose own segment or may other competitor overcome the segment with the information employee carried with. Important understanding from the chart is only two companies have performed close to expectation where as other seems far from the expectation.

Azad, Haque & Imran

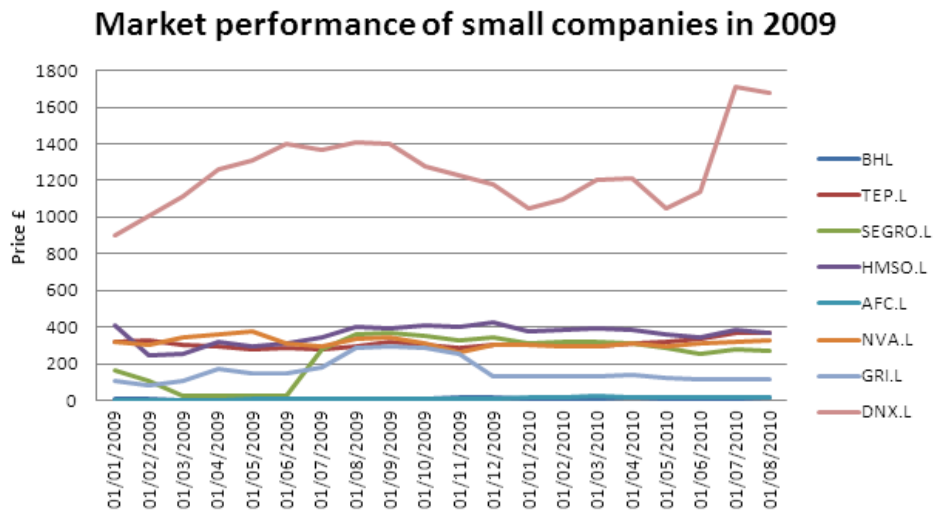
From definition, we all know that a firm either labour based or technology based. Among the ten company we have selected earlier, majority are seems knowledge based rather labour based. Royal dutch, BP PLC and Vodaphone are three labour based firm and they have more than 80, 000 employees of their own. However, from the above discussion shows these three companies are not highest profit generating firm. So a contradictory result just pop up which is labour is not any precondition for generating profit. Now, at the second phase of this study 10 companies have again selected with less than 500 employees who have less than £50 million of total asset and £5 million of turnover. In this sample, due to their low proportionate of employees, turnover and asset it is named as small companies. Like previous, an over view of this sample size has shown below with its different financial position.

From the table 06, Appendix 01, a list of top ten small companies has shown. Dana Petroleum is on the top with only £.3 million of turnover and £1.3 million of total asset. Employee size of it is only 135. The following companies are on the serial as british land company, Segro public Limited, Hammerson Public, Novae Group, Graninger, International Capital, Derwent, Cheenera and sheftesbury Ltd. The range of the employees in these firms from 19 to 545 and range of asset is from £60 million to £130 million. Like previous, Table 07, Appendix 01 is showing linear regression of small companies where independent variable is net tangible asset and its relation has established with profit margin. Average profit margin of these companies is negative 17.35 where as for the big companies it was more than 20 in positive. Again, for small companies median is negative whereas comparing to big companies it was higher than 15. Standard deviation, so far is very high and close to 50.

Chart 4 (Appendix 02) is the graphical presentation of leaner regression. The char has established a negative relation between profit margin and net tangible asset. However which is not in practically true. From the earlier discussion of this study we establish positive relation between these two. From assumption, it can be said that this result is outcome of few companies which unable to take all possible look of performance of small companies. Furthermore, here a hint of further study remains alive. Likewise the previous table and chart of small companies, Table 08, Appendix 01, is also a calculation showing relation between profit margin and number of employees. Average of this calculation, we can see, is negative. Extreme value of small market size may consider as vital point. However, average of employee of these companies is only 152 where is median is lower than that. In total standard deviation are remarkably more than hundred which indicates, small companies are not properly decorated with skilled staff members and safer than big companies to identify.

Chart 05 (Appendix 02) depicts dramatic changes already identify few non positive signals of firm's profitability with number of employees. Graphical presentation of above char describes negative which of number of employees with profitability value. From the chart above sum up decision may be as the more the number of staff the lower the scale of profitability. As we all know staff is sometimes burden and some times more than what they are in reality Kanevsky & Housel (1998).

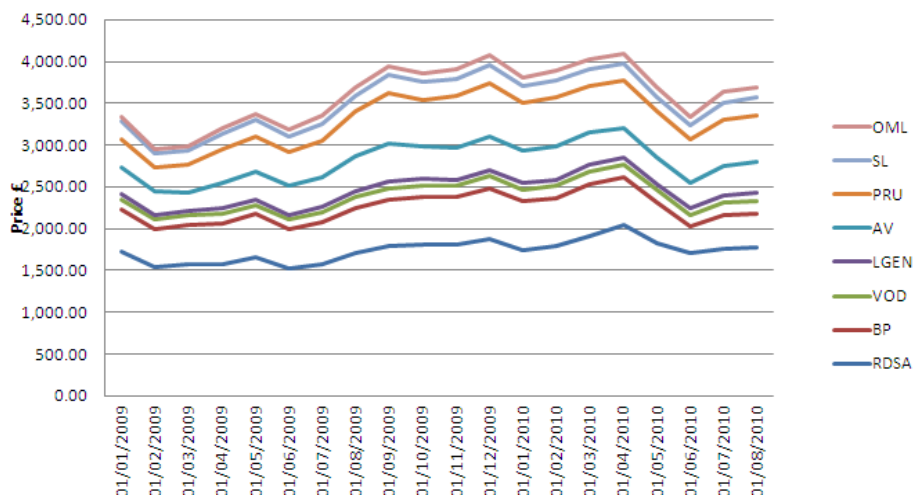
Diagram 1: Market Performance of Small Companies



Source: Market price quoted from yahoo finance

Above line chart of market performance of small companies indicates a major outcome of this study. Small firms have fewer market prices than big companies for few reasons Brooking & J (1996). But considerable fact is, movement of these companies in capital market has identified as unique. Starting from January, 2009 to till date has portraint a significant understanding that price is stable and steady. Over more than 17 market prices did not move unexpectedly.

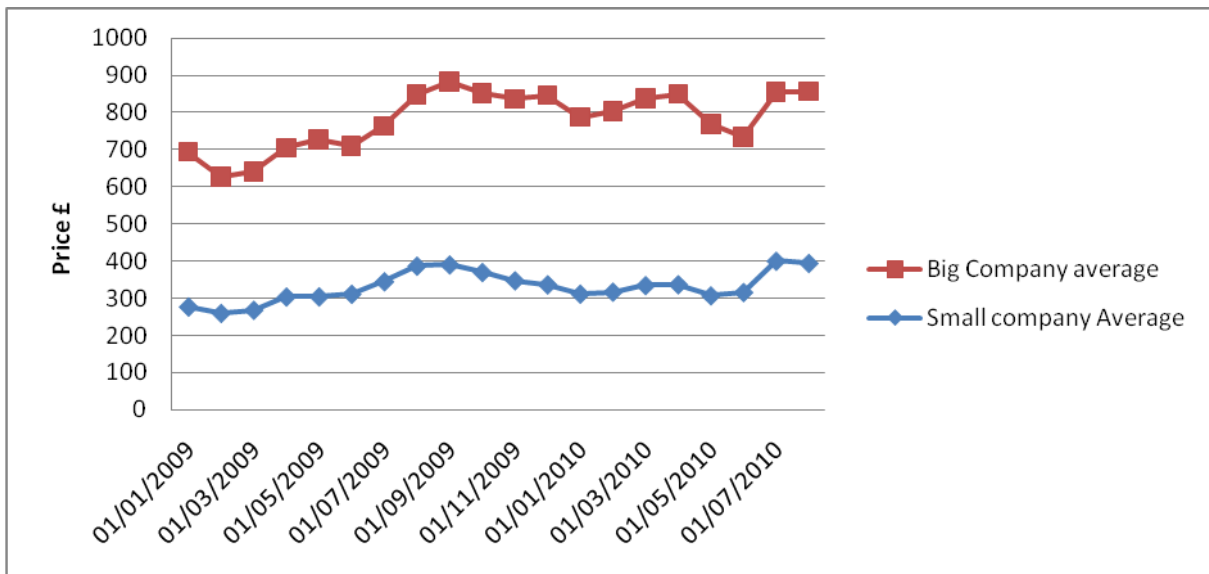
Diagram 2: Market Performance of Big Companies Starting From January, 2009



Source: Market price quoted from yahoo finance

At the same connection, above line diagram is presenting market value and its movement of big company sample. Over last 19 months big companies are doing stable market performance. Movement among the prices is quite similar and in same length.

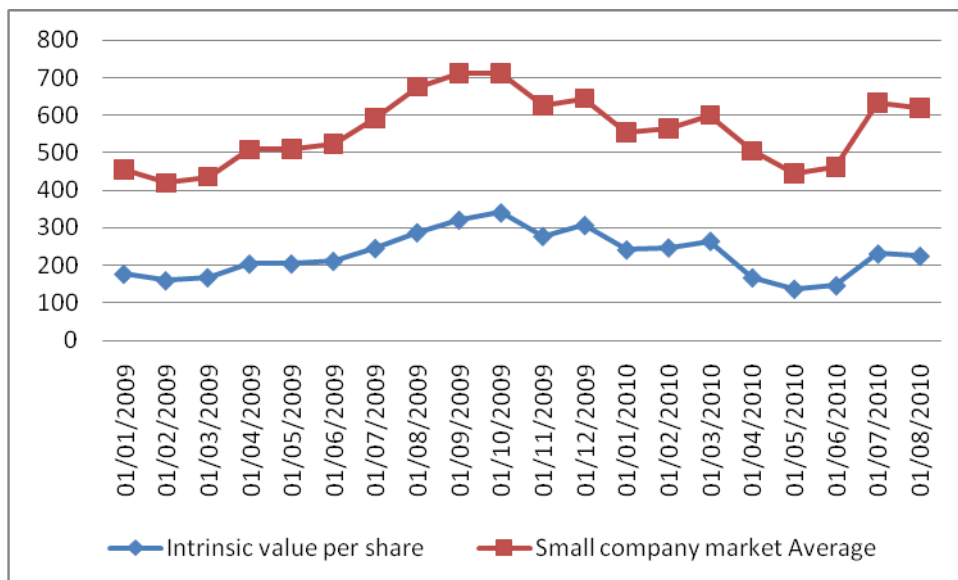
Diagram 3: Market Performance of Big and Small Company Group



Source: Market price quoted from yahoo finance

In connection to previous two charts, above chart has shown comparative market movement of big companies and small companies over the period. It is showing a positive movement with almost same phase in both the movement of two sample groups. Except an few changes, movement look pretty similar. One and most important hints which is big company performance is more in numeric figure than small companies. In last 19 months small company stock price increased only £100 where as in big companies, it increased around double.

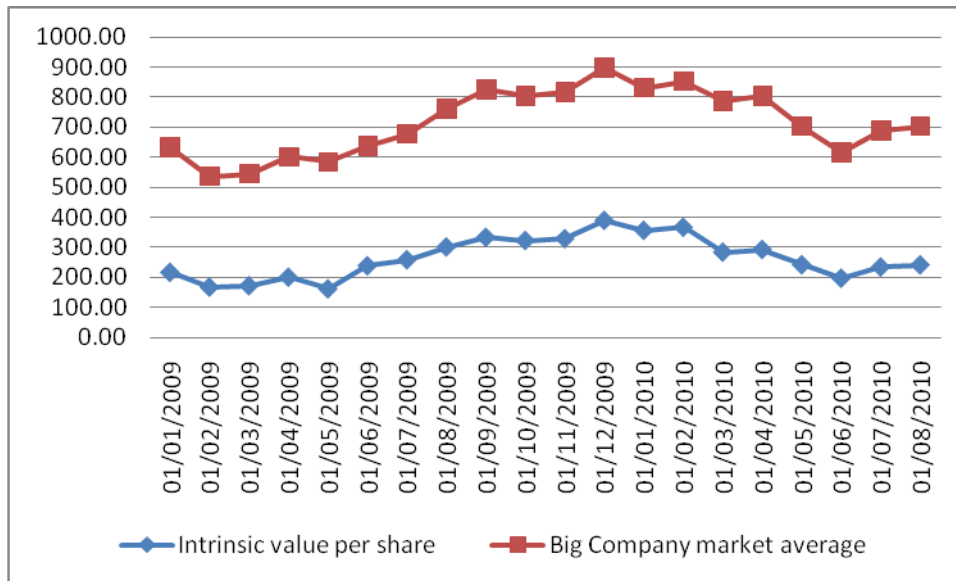
Diagram 4: Value Gap in Market Value with Intrinsic Value of Big Companies



Source: Market price quoted from yahoo finance

Above chart is the line graph presenting market confidence of the investors for small companies in relation with the intrinsic value of those companies. Book value per share and market value per share has a gap. Again the average among these values have manipulated from the extreme values. Along with the limitations, we can see from the chart that a gap of around 200GBP exists throughout the time frame.

Diagram 5: Value Gap in Market Value with Intrinsic Value of Big Companies



Source: Price quoted from yahoo finance

The above chart is also presenting gap between the market value average and book value per share average of big companies. Surprisingly, Values have been manipulated with the lower and upper value of the sample group. However, an average gap of more than 350 GBP has found along with the graph.

7. Findings

Being practical and optimistic on above discussions and analysis, few things became almost crystal clear to us. Among the findings:

- A positive correlation between IC and market value of a firm is identified through lots of examples, events and through various model of IC calculation. The ultimate finding of this study initially agrees the association of IC and market price. So, the null Hypothesis (H_{01}) is rejected and the alternative Hypothesis which is “There is impact of Intellectual Capital investment on the size of the company” is being accepted.
- A second finding of the study is IC measurement and development is not easy but not impossible. This paper suggests looking at the office to hunt talent both in management and labour so we can be cost effective or department potentials are in full capacity to generate economic cost effective profit.
- This study has proved through the chart diagrams above is not other than hypnotising to realize market is very changing. So, to get rid of this basic and useless information, at the end of research this study found that, intellectual capital is quite optimisation for both the investors and managers. If a firm has failed to develop IC, it will surely fail to get market perfection and will incur potential loss.
- Last but not the least, the study identified the big companies are cost effective in implementing IC in work to develop market value of a firm comparing to small companies. This basic finding is yet to go a long way experimenting with more variables and time frame. In total, this paper has successful to fulfil all of its objectives. Hence, the second null hypothesis (H_{02}) is rejected and the alternative

hypothesis which is “There is relationship between the size of the company and Intellectual Capital of its own.” Is being accepted.

8. Recommendation

This paper has discovered that knowledge of a company may affect IC of a firm rather than size of it. This paper might have covered more specific information if it could counter really small business entity like small chicken chips shop or corner shop. Specific finding of this study is the anomalies in IC of different firms. Based on the size of the companies, it has categorised companies in two different groups. This situation is more likely and realistic if we consider any IT industry for our example.

In contrast to this theory, let's shift our look to small companies. The considerable object as we can see is how small companies are handling IC of their firm. No matter how limited IC they have, every penny shall count to have strong IC another day. At the same direction, it is quite easy to pass the specific knowledge to its competitors. So, one can imagine the amount of fund a firm may use to protect its IC. But, since they have low turnover, they hardly afford expensive protection capacity for their position and business.

Now, look at the management capacity. From the basic information of Boedker, Mouritsen, & Guthrie (2008); Lee & Guthrie (2010), in small companies, employee turnover is higher than big companies proportionately. Why is that? One of the reasons may be as big companies have no intension to loss its valuable asset, especially the managers. So, at the end of corner small companies also need to find and use some short of techniques to restore unique knowledge and knowhow of small companies to survive.

9. Conclusion

It is not obvious that the level of knowledge; IC of all big firms should be the same and as same as for small and medium companies. Rather, maybe there are high possibilities that small companies may have more IC than big ones. According to the result of the study small companies have more specific and straight goal than big companies. The point which has been highlighted here so far is level of IC, management skill and performance may differ from companies to companies. Big companies naturally do have high volume of turnover occupied with strong financial, strategic and structural framework for operation. In addition to this they may also have a good number of high skill managers who are leading the firm for further success. Beside all of these countable and tangible assets, a considerable and fundamental logic is to answer.

So, no matter how big or small the firm is, the fundamental of creation, nursing and development of IC is the idea, ability and environment of identifying, managing and developing philosophies to influence investors being confident to count in time of calculating IC for a firm.

References

- Andriessen, C 2004, 'The intellectual capital of the European Union. Measuring the Lisbon agenda' *Version, Centre for Research in Intellectual Capital, University of professional education de Baak - Management Centre VNO-NCW Hollend*, pp. 123.
- Boedker, C, Mouritsen, J, & Guthrie, J 2008, 'Enhanced Business Reporting; International Trade and Possible Policy Direction', *Journal of Human Resource Costing and Accounting*, vol. 12(1), pp.14-25.
- Bontis, N 1999, 'Managing organizational knowledge by diagnosing intellectual capital' *International Journal of Technology Management*, vol. 18(5), pp. 433.
- Brinker, B 2000, 'Intellectual Capital: Tomorrow's Asset, Today's Challenge', Retrieved on July 09, 2010, from <http://www.cpavision.org/>.
- Brooking, A 1996, '*Intellectual Capital: Core Assets for the Third Millennium Enterprise*'. London: Thomson Business Press.
- Bryan, L 1997, 'Stocks Overvalued? Not in the New Economy', *The Wall Street Journal*, pp. 24.
- Buday, B, Thiel, B, & Buddenbaum, S 2008, 'Survey Says: Strong Intellectual Capital Is The Key to Effective Professional Services Marketing', *New York: The Bloom Group 'Attaining Through Leadership'*.
- Edvinsson, L & Malone, M 1997, 'Intellectual Capital'. *New York: HarperCollins*, pp. 5.
- Freedman, E 2004, 'Knowledge Management: Not Just for Big Firms', *Law Technology News*.
- Guthrie, J 2001, 'The Management, Measurement and Reporting of Intellectual Capital', *Journal of Intellectual Capital*, 2(1), pp. 27-41.
- Kanevsky, V & Housel, T 1998, 'The learning-knowledge-value cycle', *Knowing in Firms: Understanding, Managing and Measuring*. London.
- Kaplan, R & Norton, D, 1992, 'January, The balanced scorecard measures that drive performance', *Harvard Business Review*.
- Lee, L & Guthrie, J 2010, 'Visualising and Measuring Intellectual Capital in Capital Market: A Research Method', *Journal of Intellectual Capital*, 11(1), pp. 4-22.
- Lester, C 1996, 'Thurow, The future of Capitalism', *New York: William Morrow and Company Inc.*
- Marr, B 2005, 'Perspectives on Intellectual Capital – Interdisciplinary Insights into Management, Measurement and Reporting', *Boston, MA: Elsevier*.
- Montequin, VR, Fernandez, FO, Cabal, VA & Gutierrez, NR 2006, 'An Integrated Framework for Intellectual Capital Measurement and Knowledge Management Implementation in Small and Medium- sized Enterprises', *Journal of Information Science*, vol.6, pp. 322-329.
- Mouritsen, J 2004, 'Measuring and Intervening: How do we Theorise Intellectual Capital Management?', *Journal of Intellectual Capital*, 5(2), pp. 257-67.
- Stewart, T 1997, 'Intellectual Capital: The New Wealth of Organizations', *Doubleday/Currency. New York*.
- Suciu, MC 2002, 'Intangible Asset and Intellectual Capital; Key Success Factor for Romania's Convergence. *the Lisbon strategy*', *The Barcelona Summit*.
- Sveiby, K 1997, 'The New Organizational Wealth: Managing and Measuring Knowledge Based Assets', *Berrett Koehler, San Francisco*.
- Youngman R 2003, Retrieved July 14, 2010, from <http://www.euintangibles.net>

Appendix 01:

Table 2: Financial Figure of Top Ten UK Companies

Company Name	A) a	Turnover	Turnover	Turnover	Profit (Loss)	Profit (Loss)	Profit (Loss)	Total Assets	Total Assets	Total Assets	Number of	Number of	Number of
		th GBP	th GBP	th GBP	before	before	before	th GBP	th GBP	th GBP	Employees	Employees	Employees
		Last avail.	Year - 1	Year - 2	Taxation	Taxation	Taxation	Last avail.	Year - 1	Year - 2	Last avail.	Year - 1	Year - 2
		Yr.			th GBP	th GBP	th GBP	Yr.			Yr.		
					Last avail.	Year - 1	Year - 2						
ROYAL DUTCH SHELL PLC		176,661,000	316,046,000	178,625,000	13,016,000	36,041,000	25,378,000	174,730,000	190,446,000	132,426,000	101,000	102,000	104,000
BP P.L.C.		152,417,000	253,088,000	148,238,000	15,558,000	23,639,000	15,862,000	145,259,000	156,175,000	113,986,000	80,300	95,700	97,600
VODAFONE GROUP PUBLIC LIMITED COMPANY		44,472,000	41,017,000	35,478,000	8,674,000	4,189,000	9,001,000	156,951,000	152,691,000	127,270,000	84,990	79,097	72,375
LEGAL & GENERAL GROUP PLC		43,790,000	-31,644,000	18,202,000	1,239,000	-2,153,000	795,000	297,411,000	256,898,000	281,661,000	9,324	9,777	10,067
AVIVA PLC		34,690,000	34,642,000	29,312,000	2,022,000	-2,368,000	1,857,000	354,404,000	354,562,000	319,720,000	49,182	54,758	57,011
PRUDENTIAL PUBLIC LIMITED COMPANY		20,299,000	18,789,000	18,188,000	1,564,000	-2,074,000	1,185,000	227,754,000	215,542,000	219,744,000	27,389	29,683	49,616
STANDARD LIFE PLC		17,435,000	-15,590,000	10,113,000	419,000	-476,000	620,000	146,613,000	136,985,000	143,980,000	9,762	9,959	9,998
IRISH LIFE & PERMANENT PUBLIC LIMITED COMPANY		8,719,837	1,132,327		60,143	360,500	295,626	70,977,797	58,829,545	61,038,093	6,200		
OLD MUTUAL PUBLIC LIMITED COMPANY		3,820,000	5,156,000	4,941,000	247,000	595,000	1,668,000	163,806,000	145,926,000	142,734,000	63,706	58,546	54,630
ICAP PLC		1,605,000	1,801,000	1,304,000	247,000	281,000	275,000	62,361,000	33,840,000	39,478,000	4,502	4,232	3,673

Source: www.fame.bvdep.com, cited on August 13, 2010

Table 3: Liners Regression of Big Companies with Tangible Asset and Profit Margin

Dependent variable : Profit Margin - 2009	Independent variable : Net Tangible Assets (Liab.) - 2009
Equation : $y = -2.81E-011 x + 10.9$ (Correlation : -0.464)	

Company name	Indep. variable	Dependent variable	%
	th GBP	real value	calculated
AVIVA PLC	13,895,000	€ 83	10.47
BP P.L.C.	96,037,000	10.21	8.16
ICAP PLC	309,000	1€ 39	10.8€
LEGAL & GENERAL GROUP PLC	286,024,000	2.83	2.82
OLD MUTUAL PUBLIC LIMITED COMPANY	6,720,000	6.47	10.57
PRUDENTIAL PUBLIC LIMITED COMPANY	5,229,000	7.70	10.71
ROYAL DUTCH SHELL PLC	118,909,000	7.37	7.52
STANDARD LIFE PLC	131,198,000	2.40	7.17
VODAFONE GROUP PUBLIC LIMITED COMPANY	54,077,000	19.50	9.34
AVERAGE	79,155,444	8.63	
MEDIAN	54,077,000	7.37	
STANDARD DEVIATION	87,575,71€	€ 31	

Source: www.fame.bvdep.com, cited on August 13, 2010

Azad, Haque & Imran

Table 4: Linear Regression of Big Companies with Number of Employee and Profit Margin

Dependent variable : Profit (Margin) - 2009	Independent variable : Number of Employees - 2009
Equation : $y = 5.31E-005x + 5.15$ (Correlation : 0.342)	

Company name	Indep. variable		Dependent variable %	
		real value	calculated	
AMVA PLC	49.182	5.83	8.77	
BP P.L.C.	80.300	10.21	10.42	
ICAP PLC	4.502	15.39	5.39	
LEGAL & GENERAL GROUP PLC	9.324	2.83	6.65	
OLD MUTUAL PUBLIC LIMITED COMPANY	53.705	5.47	9.01	
PRUDENTIAL PUBLIC LIMITED COMPANY	27.389	7.70	7.61	
ROYAL DUTCH SHELL PLC	101.000	7.37	11.52	
STANDARD LIFE PLC	9.752	2.40	5.67	
VODAFONE GROUP PUBLIC LIMITED COMPANY	84.990	19.50	10.57	
AVERAGE	45.683	8.53		
MEDIAN	49.182	7.37		
STANDARD DEVIATION	34.180	5.31		

Source: www.fame.bvdep.com, cited on August 13, 2010

Table 5: Linear Regression of Big Companies with Number of Turnover of Employee and Turnover

Dependent variable : Turnover (%) - 2009	Independent variable : Number of Employees (%) - 2009
Equation : $y = 1.09x + -8.59$ (Correlation : 0.423)	

Company name	Indep. variable		Dependent variable %	
		real value	calculated	
AMVA PLC	-10.18	0.14	-19.82	
BP P.L.C.	-16.09	-39.78	-26.28	
ICAP PLC	6.38	0.25	-1.71	
OLD MUTUAL PUBLIC LIMITED COMPANY	-8.27	-25.91	-17.73	
PRUDENTIAL PUBLIC LIMITED COMPANY	-7.73	8.04	-17.14	
ROYAL DUTCH SHELL PLC	-0.98	-44.13	-9.75	
VODAFONE GROUP PUBLIC LIMITED COMPANY	7.45	8.42	-0.54	
AVERAGE	-4.20	-13.28		
MEDIAN	-7.73	0.14		
STANDARD DEVIATION	8.14	21.05		

Source: www.fame.bvdep.com, cited on August 13, 2010

Table 6: Financial Information of Small Companies

Company Name	(A) a	Turnover	Turnover	Turnover	Profit	Profit	Profit	Total	Total	Total	Number of	Number of	Number of
		th GBP	th GBP	th GBP	(Loss)	(Loss)	(Loss)	Assets	Assets	Assets	Employees	Employees	Employees
		Last	Year - 1	Year - 2	before	before	before	th GBP	th GBP	th GBP	Last avail.	Year - 1	Year - 2
		avail. Yr.			th GBP	th GBP	th GBP	Last avail.	Year - 1	Year - 2	Yr.	Year - 1	Year - 2
					Last avail.	Year - 1	Year - 2	Yr.					
DANA PETROLEUM PUBLIC LIMITED COMPANY		397,267	517,979	311,499	66,429	191,406	143,271	1,358,005	1,207,792	1,018,758	135	120	67
BRITISH LAND COMPANY PUBLIC LIMITED COMPANY/TH		394,000	554,000	645,000	1,128,000	-3,928,000	-1,609,000	6,398,000	7,578,000	12,648,000	443	728	732
SEGR0 PUBLIC LIMITED COMPANY		365,500	414,700	342,800	-248,100	-939,200	-248,500	5,519,300	5,113,100	5,624,500	318	348	454
HAMMERSON PLC		351,500	344,200	311,500	-453,100	-1,811,500	110,400	5,666,400	6,896,200	7,622,300	332	277	261
NOVAE GROUP PLC		303,600	345,700	302,600	4,200	40,200	41,000	1,888,200	1,754,300	1,513,300	225	219	213
GRAINGER PLC		302,200	246,200	229,300	-170,000	-112,100	77,500	1,949,200	2,113,500	1,992,200	274	300	247
INTERMEDIATE CAPITAL GROUP PLC		274,100	303,700	236,900	105,800	-66,700	229,500	2,905,500	3,062,200	2,556,200	126	141	119
DERWENT LONDON PLC		125,300	120,400	113,700	-34,900	-806,500	-99,800	2,001,900	2,181,100	2,772,500	68	60	56
CHESNARA PLC		100,105		103,554	44,741	22,727	27,720	2,920,059	1,679,554	2,040,897	51	24	30
SHAFTESBURY PLC		67,800	65,359	62,423	-58,100	-220,901	124,176	1,230,400	1,222,794	1,419,007	19	20	19

Source: www.fame.bvdep.com, cited on August 13, 2010

Table 7: Linear Regression of Small Companies' Tangible Asset and Net Profit Margin

Dependent variable : Profit Margin - 2009	Independent variable : Net Tangible Assets (Liab.) - 2009
Equation : $y = -1.15E-008 x + 3.88$ (Correlation : -0.324)	

Company name	Indep. variable th GBP	Dependent variable %	
		real value	calculated
CHESNARA PLC	1,239,292	44.69	-10.33
DANA PETROLEUM PUBLIC LIMITED COMPANY	747,811	14.20	-4.70
DERWENT LONDON PLC	1,929,800	-27.85	-18.26
GRAINGER PLC	1,711,400	-56.25	-15.75
INTERMEDIATE CAPITAL GROUP PLC	2,647,200	38.60	-26.48
NOVAE GROUP PLC	468,500	1.38	-1.49
SEGR0 PUBLIC LIMITED COMPANY	4,868,400	-67.88	-51.97
SHAFTESBURY PLC	1,194,800	-85.69	-9.82
AVERAGE	1,850,900	-17.35	
MEDIAN	1,475,346	-13.23	
STANDARD DEVIATION	1,308,504	46.33	

Source: www.fame.bvdep.com, cited on August 13, 2010

Table 8: Linear Regression of Small Companies with Number of Employee and Net Profit Margin

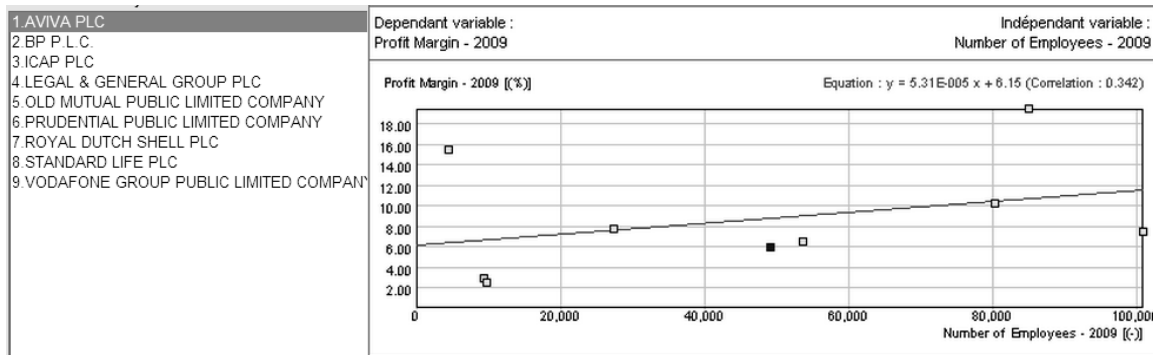
Dependent variable : Profit Margin - 2009	Independent variable : Number of Employees - 2009
Equation : $y = -0.12 x + 0.91$ (Correlation : -0.265)	

Company name	Indep. variable	Dependent variable %	
		real value	calculated
CHESNARA PLC	51	44.69	-5.22
DANA PETROLEUM PUBLIC LIMITED COMPANY	135	14.20	-15.31
DERWENT LONDON PLC	68	-27.85	-7.26
GRAINGER PLC	274	-56.25	-32.01
INTERMEDIATE CAPITAL GROUP PLC	126	38.60	-14.23
NOVAE GROUP PLC	225	1.38	-26.12
SEGR0 PUBLIC LIMITED COMPANY	318	-67.88	-37.29
SHAFTESBURY PLC	19	-85.69	-1.37
AVERAGE	152	-17.35	
MEDIAN	131	-13.23	
STANDARD DEVIATION	102	46.33	

Source: www.fame.bvdep.com, cited on August 13, 2010

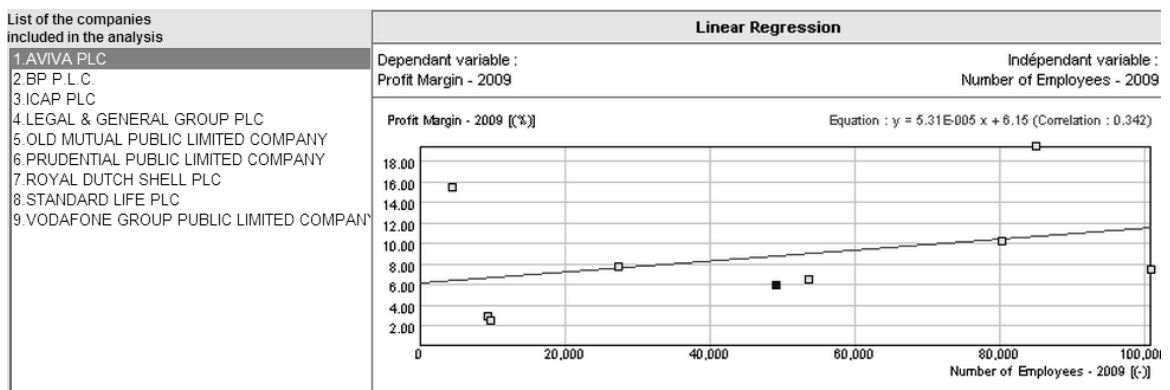
Appendix 02:

Chart 1: Liners Regression of Big Companies with Tangible Asset and Profit Margin



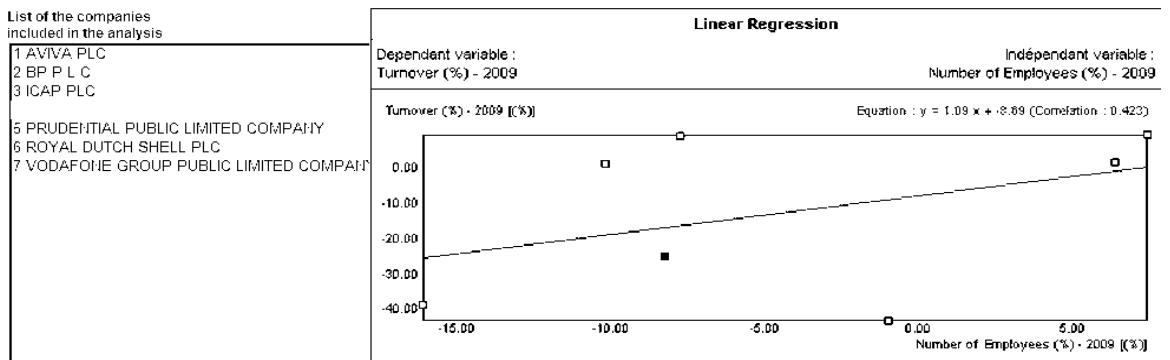
Source: www.fame.bvdep.com, cited on August 13, 2010

Chart 2: Liners Regression of Big Companies with Number of Employees and Profit Margin



Source: www.fame.bvdep.com, cited on August 13, 2010

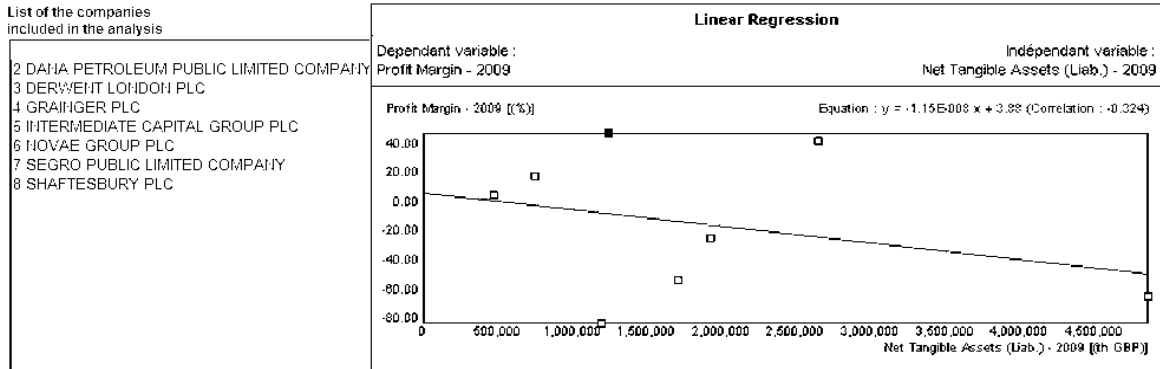
Chart 3: Linear Regression of Employee Turnover and Company Turnover of Big Companies



Source: www.fame.bvdep.com, cited on August 13, 2010

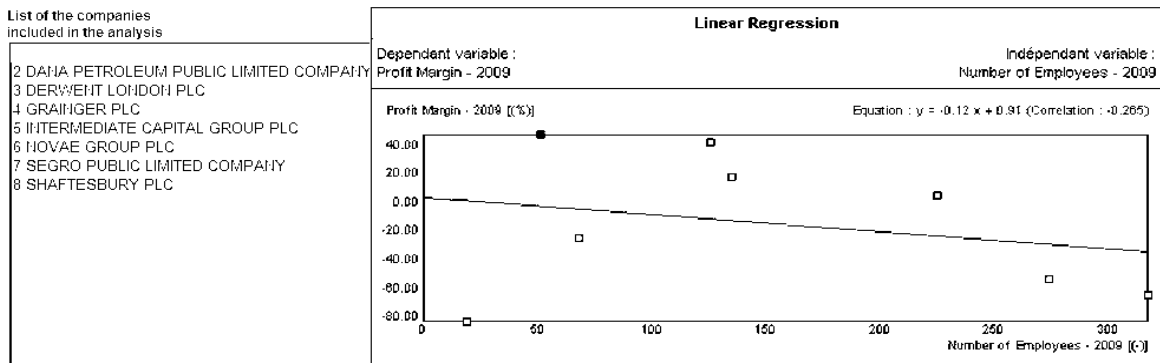
Azad, Haque & Imran

Chart 4: Linear Regression Chart of Small Companies with Tangible Asset and Profit Margin



Source: www.fame.bvdep.com, cited on August 13, 2010

Chart 5: Linear Regression Chart of Number of Employees with Profit Margin



Source: www.fame.bvdep.com, cited on August 13, 2010