CHAPTER I. INTRODUCTION

Chapter Overview

The first chapter gives the audience an introduction into the study. The background of the study, the problem statement, the purposes of the research, the research questions, the hypotheses, and the significance of the study, the delimitations and limitations, and finally a definition of the terms are all addressed, in order to introduce a thorough and comprehensive focus by the researcher.

Background of the Study

The role of strategic management has never seemed more crucial than in the context of today's world economic and financial crisis. In order to survive in this new environment, companies have to become more responsive to change. The fight for survival and grasp of market share is pushing companies to transform themselves for competition in which the ability to exploit information has become of greater importance than their capacity of managing physical resources. Therefore, performance can be viewed from the perspective of the interaction of the company's business decisions with its internal and external environments.

First of all, in contouring the baseline for effective strategic management, companies have to proceed to the identification and analysis of internal and external factors that can either stimulate or hinder its performance. In doing so, one of the most commonly used frameworks (Bernroider 2002; Yuksel & Dagdeviren 2007) in strategic management is the SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis. SWOT analysis can be simply understood as the examination of an organization's internal strengths and weaknesses and its environments' opportunities and threats (Johnson et al. 1989; Bartol et al. 1991).

As the final goal of a company's strategic planning process is the development of a strategy comprising of an optimal fit between the internal and external factors, the role of a correct SWOT analysis is essential. Nevertheless, the sole use of a SWAT analysis is highly controversial (Dyson 2002; Kurttila, et al. 2003; Yuksel & Dagdeviren 2007), and criticism has been directed towards its lacking an analytical mean in determining the importance of the observed factors.

Secondly, a company's strategic decision making impacts and is affected at the same time by the different groups that contour its direct environment. According to Houben, Lenie and Vanhoof (1999), the direct environment includes those elements or groups which influence or are directly influenced by the actions of the company. The three most important ones are the shareholders, the organization's employees represented by the trade unions, and the board of directors.

Thirdly, the economic and industry analysis literature is characterized by an emphasis on a new knowledge intensive era of economic activity (OECD, 1999). Knowledge is the 'driver of productivity and economic growth' and 'there is a new focus on the role of information, technology and learning in economic performance' (OECD, 1996).

The IT industry is a knowledge industry. Its major product is knowledge itself and its major output is research which translates into new products and services. The growing economic activity in knowledge- and technology-intensive sectors is already translating into rapidly expanding output and employment growth. The software industry growth market has created many opportunities for software companies. But globalization, the acceleration of technological change and innovation have also created threats. To survive in this new environment, many firms have had to become more responsive to change, which is the foundation of continued competitiveness in the dynamic environment of IT companies.

Since we are dealing with, as aforementioned, an increase in the importance of information in assessing competitiveness, the present research will look at one of the champions of the knowledge-intensive era of economic activity, IBM. Shih and Plescan (2007) have identified three crucial issues in IBM's evolution.

The first one, in 1992, the company was going through a rough period, as the value of the company's stock reached its lowest point, morale was very low, and the company's products could not keep up with the changing market. In this context, Louis Gerstner entered the company and became the motor of IBM's institutional change.

The second crucial issue to be analyzed was in 2002, when the company sold its hardware business to Hitachi, decision based on the desire to reduce the PC and component businesses altogether, due to a downturn in both the semiconductor and disk drive business.

The third major issue to debate is the vital role of a visionary CEO. During the years he spent in IBM, Gerstner revitalized the company, due to his ability to view the problems unemotionally, and, therefore, he could lay off employees when necessary and create new strategies.

Consequently, the need arises for researching IBM's evolution and strategic changes through the perspective of the three main groups that impact and is influenced by the company's policies (the board, the stockholders and the employees). Also, the strengthening of the SWOT analysis through an econometrics model is required.

Purposes of the Study

The shifts throughout the last decades from an industrial to an information-based society and from a manufacturing to a service oriented economy have significantly impacted the IT industry. A key characteristic of the IT industry in general is its fast clock speed, fast innovation and short life cycles (Mendelson & Pillai 1998; Mendelson & Pillai 1999) hence responsiveness to change is critical.

Therefore, in order to increase performance the companies must have a deeper, more exhaustive picture of the interaction of the company's business decisions with its internal and external environment.

In order to accomplish that, this research sets it primary main purpose as the evaluation of IBM's strategy with respect to the following three dimensions:

1. The Board's Perspective
2. The Stakeholders' Perspective
3. The Unions' Perspective

The research will set its objectives as the following:

1. To examine the impact of regional variables on the board of directors, stockholders and employees of IBM.
2. To investigate the extent to which the board of directors, stockholders and employees are influenced by IBM's strategic business units.
3. To investigate the impact of the human resource strategies of IBM on the board of directors and stockholders.
4. To understand and analyze the intensity to which the strategic changes in 1993 and 2002, as well as the impact of Louis Gartner's policies on the board of directors, stockholders and employees of IBM

In order to realize this, Shih and Moldovan have created a theoretical framework through the integration of econometrics and SWOT analysis: ESWOT.

Questions of the Study

Given all the above, 11 research questions have emerged:

I. *The board's perspective*

1. Which region's financial results (Europe / Middle East / Africa, Asia Pacific or the Americas) had a larger impact on the company's Earnings and Revenue?

2. Which Strategic Business Units (Global Services, Hardware, Software and Global Financing) had a larger impact on the company's Earnings and Revenue?

3. Did the human resource policies (Individuals benefiting from a retirement plan / Number of employees) influence the company's Earnings and Revenue?

4. Did the strategy change in 1993 and 2002 have an impact on the company's Earnings and Revenue?

II. *The stockholders' perspective*

5. Which region's financial results (Europe / Middle East / Africa, Asia Pacific or the Americas) had a larger impact on the company's EPS?

6. Which Strategic Business Units (Global Services, Hardware, Software and Global Financing) had a larger impact on the company's EPS?

7. Did the human resource policies (Individuals benefiting from a retirement plan / Number of employees) influence the company's EPS?

8. Did the strategy change in 1993 and 2002 have an impact on the company's EPS?

III. The unions' perspective

9. Which region's financial results (Europe / Middle East / Africa, Asia Pacific or the Americas) had a larger impact on the company's human resource policies (Individuals benefiting from a retirement plan / Number of employees)?

10. Which Strategic Business Units (Global Services, Hardware, Software and Global Financing) had a larger impact on the company's human resource policies (Individuals benefiting from a retirement plan / Number of employees)?

11. Did the strategy change in 1993 and 2002 have an impact on the company's human resource policies (Individuals benefiting from a retirement plan / Number of employees)?

Testing Hypotheses

Based on the previously mentioned research questions, 11 hypotheses have emerged:

I. For the board's dimension

1. Which region's financial results (Europe / Middle East / Africa, Asia Pacific or the Americas) had a larger impact on the company's Earnings and Revenue?

Hypothesis 1:

H_0: There is no difference regarding the impact on the company's Earnings and Revenue between the financial results from the geographical areas (Europe / Middle East / Africa, Asia Pacific and the Americas).

H_0: $\beta_{YXi} = 0$

H_a: The impact on the company's Earnings and Revenue differs among the financial results from the geographical areas (Europe / Middle East / Africa, Asia Pacific and the Americas).

H_a: $\beta_{Yxi} \neq 0$

2. Which Strategic Business Units (Global Services, Hardware, Software and Global Financing) had a larger impact on the company's Earnings and Revenue?

Hypothesis 2:

H_0: There is no difference regarding the impact on the company's Earnings and Revenue between Strategic Business Units (Global Services, Hardware, Software and Global Financing).

H_0: $\beta_{Yxi} = 0$

H_a: The impact on the company's Earnings and Revenue differs among the Strategic Business Units (Global Services, Hardware, Software and Global Financing).

H_a: $\beta_{Yxi} \neq 0$

3. Did the human resource policies (Individuals benefiting from a retirement plan / Number of employees) influence the company's Earnings and Revenue?

Hypothesis 3:

H_0: There is no relationship between human resource policies (Individuals benefiting from a retirement plan / Number of employees) and the company's Earnings and Revenue.

H_0: $\beta_{Yxi} = 0$

H_a: There is a relationship between the human resource policies (Individuals benefiting from a retirement plan / Number of employees) and the company's Earnings and Revenue.

Ha: $\beta_{Yxi} \neq 0$

4. Did the strategy change in 1993 and 2002 have an impact on the company's Earnings and Revenue?

Hypothesis 4:

H_0: There is no relationship between the strategy changes in 1993 and 2002 and the evolution of the company's Earnings and Revenue.

H_0: $\beta_{Yxi} = 0$

H_a: There is a relationship between the strategy changes in 1993 and 2002 and the company's Earnings and Revenue.

H_a: $\beta_{Yxi} \neq 0$

II. *For the stockholder's dimension*

5. Which region's financial results (Europe / Middle East / Africa, Asia Pacific or the Americas) had a larger impact on the company's EPS?

Hypothesis 5:

H_0: There is no difference regarding the impact on the company's EPS between the financial results from the geographical areas (Europe / Middle East / Africa, Asia Pacific and the Americas).

H_0: $\beta_{Yxi} = 0$

H_a: The impact on the company's EPS differs among the financial results from the geographical areas (Europe / Middle East / Africa, Asia Pacific and the Americas).

H_a: $\beta_{Yxi} \neq 0$

6. Which Strategic Business Units (Global Services, Hardware, Software and Global Financing) had a larger impact on the company's EPS?

Hypothesis 6:

H_0: There is no difference regarding the impact on the company's EPS between Strategic Business Units (Global Services, Hardware, Software and Global Financing).

H_0: $\beta_{Yxi} = 0$

H_a: The impact on the company's EPS differs among the Strategic Business Units (Global Services, Hardware, Software and Global Financing)

Ha: $\beta_{Yxi} \neq 0$

7. Did the human resource policies (Individuals benefiting from a retirement plan / Number of employees) influence the company's EPS?

Hypothesis 7:

H_0: There is no relationship between human resource policies (Individuals benefiting from a retirement plan / Number of employees) and the company's EPS.

H_0: $\beta_{Yxi} = 0$

H_a: There is a relationship between the human resource policies (Individuals benefiting from a retirement plan / Number of employees) and the company's EPS.

H_a: $\beta_{Yxi} \neq 0$

8. Did the strategy change in 1993 and 2002 have an impact on the company's EPS?

Hypothesis 8:

H_0: There is no relationship between the strategy changes in 1993 and 2002 and the evolution of the company's EPS.

H_0: $\beta_{Yxi} = 0$

H_a: There is a relationship between the strategy changes in 1993 and 2002 and the company's EPS.

H_a: $\beta_{Yxi} \neq 0$

III. For the unions' dimension

9. Which region's financial results (Europe / Middle East / Africa, Asia Pacific or the Americas) had the largest impact on the company's human resource policies (Individuals benefiting from a retirement plan / Number of employees)?

Hypothesis 9:

H_0: There is no difference regarding the impact on the company's human resource policies (Individuals benefiting from a retirement plan / Number of employees) between the financial results from the geographical areas (Europe / Middle East / Africa, Asia Pacific and the Americas).

H_0: $\beta_{YjXi} = 0$

H_a: The impact on the company's human resource policies (Individuals benefiting from a retirement plan / Number of employees) differs among the financial results from the geographical areas (Europe / Middle East / Africa, Asia Pacific and the Americas).

H_a: $\beta_{YjXi} \neq 0$

10. Which Strategic Business Units (Global Services, Hardware, Software, and Global Financing) had a larger impact on the company's human resource policies (Individuals benefiting from a retirement plan / Number of employees)?

Hypothesis 10:

H_0: There is no difference regarding the impact on the company's human resource policies (Individuals benefiting from a retirement plan / Number of employees) between Strategic Business Units (Global Services, Hardware, Software and Global Financing).

H_0: $\beta_{YjXi} = 0$

H_a: The impact on the company's human resource policies (Individuals benefiting from a retirement plan / Number of employees) differs among the Strategic Business Units (Global Services, Hardware, Software and Global Financing).

H_a: $\beta_{YjXi} \neq 0$

11. Did the strategy change in 1993 and 2002 have an impact on the company's human resource policies (Individuals benefiting from a retirement plan / Number of employees)?

Hypothesis 11:

H_0: There is no relationship between the strategy change in 1993 and 2002 and the human resource policies (Individuals benefiting from a retirement plan / Number of employees).

H_0: $\beta_{YjXi} = 0$

H_a: There is a relationship between the strategy change in 1993 and 2002 and the human resource policies (Individuals benefiting from a retirement plan / Number of employees).

H_a: $\beta_{YjXi} \neq 0$

Significance of the Study

The significance of this study derives from two major perspectives:

First of all, if used correctly, SWOT can provide a good basis for successful strategy formulation (Kurttila, et al., 2000), nevertheless it could be used more efficiently.

Criticism to employing the SWOT analysis in the formulation of a company's strategy pinpoints the fact that the analysis lacks the possibility of comprehensively appraising the strategic decision-making situation; merely pinpointing the number of factors in strength, weakness, opportunity or threat groups does not emphasize the most significant group.

In addition, SWOT includes no means of analytically determining the importance of factors or of assessing the fit between SWOT factors and decision alternatives. The further utilization of SWOT is, therefore mainly based on the qualitative analysis, capabilities and expertise of the persons participating in the planning process.

In this respect, the theoretical framework that Shih and Moldovan have created through the integration of econometrics and SWOT analysis (ESWOT) will provide the quantifiable, measurable dimension to the classical strategic analysis tool.

Secondly, besides the contribution to the general theoretical theory, the study's value comes from the fact that an integrated econometrical framework has not yet been employed in analyzing IBM's strategy. An econometrical approach to measure IBM's profitability and human resource policies has been realized through a model was built by Shih & Plescan (2007), but the integration with the theoretical framework is yet to be achieved, which is what this study sets out to realize.

Delimitations and Limitations

The research's primary limitation is the data time constraint. The 17 years of IBM's financial reports, from 1990 to 2007, might restrict the results.

Also, the financial data is provided via website, through IBM's Corporate Archives Web, where the public financial statements can be found. It is stated that: "It is the intent of the IBM Corporate Archives to make selected information publicly available on this Web site in order to advance the study of science, information technology, and the IBM Corporation. The image and text files on the IBM Corporate Archives Web site are made available for noncommercial, educational, and personal use only."
(http://www.ibm.com/annualreport/)

Definition of Terms

International Business Machines Corporation, abbreviated IBM and nicknamed "Big Blue" (for its official corporate color), is a multinational computer technology and consulting corporation headquartered in Armonk, New York, United States. The company is one of the few information technology companies with a continuous history dating back to the 19th century. IBM manufactures and sells computer hardware and software, and offers infrastructure services, hosting services, and consulting services in areas ranging from mainframe computers to nanotechnology. IBM has been known through most of its recent history as the world's largest computer company. With over 388,000 employees worldwide, IBM holds more patents than any other U.S. based Technology Company and has eight research laboratories worldwide. Known for its highly talented workforce, the company has scientists, engineers, consultants, and sales professionals in over 170 countries. IBM employees have earned three Nobel Prizes, five National Medals of Technology, and five National Medals of Science. As a chip maker, IBM has been among the Worldwide Top 20 Semiconductor Sales Leaders in past years, and in 2007 IBM ranked second in the list of largest software companies in the world.
(http://en.wikipedia.org/wiki/IBM)

Information technology (**IT**), as defined by the Information Technology Association of America (ITAA), is "the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware." IT deals with the use of electronic computers and computer software to convert, store, protect, process, transmit and retrieve information securely. Today, the term information technology has broadened to encompass many aspects of computing and technology, and the term has become very recognizable. The information technology umbrella can be quite large, covering many fields. IT professionals perform a variety of duties that range from installing applications to designing complex computer networks and information databases. A few of the duties that IT professionals perform may include data management, networking, engineering

computer hardware, database and software design, as well as the management and administration of entire systems.
(http://en.wikipedia.org/wiki/Information_technology)

The SWOT Analysis is a tool that identifies the **s**trengths, **w**eaknesses, **o**pportunities and **t**hreats of an organization. Specifically, SWOT is a basic, straightforward model that assesses what an organization can and cannot do as well as its potential opportunities and threats. The method of SWOT analysis is to take the information from an environmental analysis and separate it into internal issues (strengths and weaknesses) and external issues (opportunities and threats). Once this is completed, SWOT analysis determines what may assist the firm in accomplishing its objectives, and what obstacles must be overcome or minimized to achieve desired results.

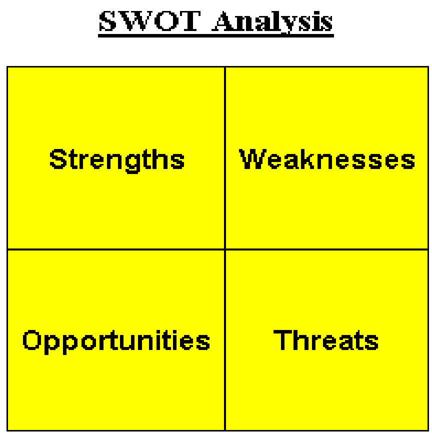

Figure 1.1 SWOT outline

Source: http://www.investopedia.com/terms/s/swot.asp

Econometrics is defined as the application of statistical theories to economic ones for the purpose of forecasting future trends. Econometrics takes economic models and tests them through statistical trials. The results are then compared and contrasted against real life examples.
(http://www.investopedia.com/terms/e/econometrics.asp)

ESWOT is a strategic management tool developed by Shih and Moldovan, through the integration of the SWOT Analysis with an econometrics model developed on three dimensions: the board, the stockholders and the employees.

A **board of directors** is a body of appointed persons who jointly oversee the activities of a company or organization. The body sometimes has a different name, such as board of trustees, board of governors, board of managers, or executive board. It is often simply referred to as "the board." A board's activities are determined by the powers, duties, and responsibilities delegated to it or conferred on it by an authority outside itself. These matters are typically detailed in the organization's bylaws. The bylaws commonly also specify the number of members of the board, how they are to be chosen, and when they are to meet.
(http://en.wikipedia.org/wiki/Board_of_directors)

Earnings are defined as the amount of profit that a company produces during a specific period, which is usually defined as a quarter (three calendar months) or a year. Earnings typically refer to after-tax net income. Ultimately, a business's earnings are the main determinant of its share price, because earnings and the circumstances relating to them can indicate whether the business will be profitable and successful in the long run. Earnings are perhaps the single most studied number in a company's financial statements because they show a company's profitability. A business's quarterly and annual earnings are typically compared to analyst estimates and guidance provided by the business itself. In most situations, when earnings do not meet either of those estimates, a business's stock price will tend to drop. On the other hand, when actual earnings beat estimates by a significant amount, the share price will likely surge. (http://www.investopedia.com/terms/e/earnings.asp)

Revenue is defined by Investopedia as the amount of money that a company actually receives during a specific period, including discounts and deductions for returned merchandise. It is the "top line" or "gross income" figure from which costs are subtracted to determine net income. Revenue is calculated by multiplying the price at which goods

or services are sold by the number of units or amount sold.
(http://www.investopedia.com/terms/r/revenue.asp)

A **stockholder or shareholder** is an individual or company (including a corporation) that legally owns one or more shares of stock in a joint stock company. A company's shareholders collectively own that company. Thus, the typical goal of such companies is to enhance shareholder value.
(http://en.wikipedia.org/wiki/Shareholder)

Earn Per Share (EPS) is defined as the portion of a company's profit allocated to each outstanding share of common stock. EPS serves as an indicator of a company's profitability. It is calculated as:

$$= \frac{\text{Net Income - Dividends on Preferred Stock}}{\text{Average Outstanding Shares}}$$

In the EPS calculation, it is more accurate to use a weighted-average number of shares outstanding over the reporting term, because the number of shares outstanding can change over time.
(http://www.investopedia.com/terms/e/eps.asp)

A **trade union** or **labor union** is an organization of workers who have grouped together to achieve common goals in key areas and working conditions. The trade union, through its leadership, bargains with the employer on behalf of union members and negotiates labor contracts with employers. This may include the negotiation of wages, work rules, complaint procedures, rules governing hiring, firing and promotion of workers, benefits, workplace safety and policies.
(http://en.wikipedia.org/wiki/Trade_union)

An **employee** is an individual who works part time or full time under a contract of employment, whether oral or written, express or implied, and has recognized rights and duties.
(http://www.businessdictionary.com/definition/employee.html)

CHAPTER II. LITERATURE REVIEW

Chapter Overview

This chapter provides the review of relevant literature that assists the researcher in addressing the purpose of the research. The chapter is designed twofold, pertaining to the two main research components: the theoretical and the econometrical framework. At first it provides an insight about the SWOT analysis, moving towards the development of the ESWOT. The chapter continues by focusing on IBM. The IBM timeline will illustrate the specific points in time when change occurred, followed by the profile of IBM's influential CEO, Louis Gerstner. The chapter will conclude by exploring the three dimensions of IBM's strategic analysis: the board of directors, the stockholders and the unions.

The SWOT Analysis

Many companies are conducting a SWOT analysis as part of the strategic planning process to identify the organizations' strengths, weaknesses, opportunities and threats before proceeding to the formulation of a corporate strategy. In this light, a general outlook on strategic planning is needed, prior to the detailed examination of the SWOT analysis.

Strategic planning

Today most business enterprises engage in strategic planning, although the degrees of sophistication and formality vary considerably. Conceptually strategic planning is deceptively simple: analyze the current and expected future situation, determine the direction of the firm, and develop means for achieving the mission. In reality, this is an extremely complex process, which demands a systematic approach for identifying and analyzing factors external to the organization and matching them with the firm's capabilities (Weirich, 1982).

Strategic planning is a way of regenerating the organization, through continuous attention to a vision of what people who make up an organization wish to do (Eden & Ackermann, 2008). It is a pro-active process of seeking to change the organization, its stakeholders, and the environment, which seeks to attain its aspirations.

Strategic planning can be considered as a collection of decisions and actions taken by the business management in consultation with all levels within the company to determine its long-term activities. The results primarily concern an improvement in the competitive position, the realization of profit growth in the long-term, having as a result the achievement of better returns from the capacity utilized.

Strategic planning includes three basic elements, namely:

- The formulation of a strategy.
- The implementation of a strategy.
- The control and evaluation of the strategy (Bernroider, 2002).

The formulation of a strategy is a process for the development of long-term plans, to effectively respond to environmental opportunities and threats in the light of the strengths and weaknesses of the company. Points of departure here are the objectives of company management, which determine the long-term objectives to be achieved. The course to be taken by the company to realize this is called the company strategy or the company policy.

In order to implement the strategy and lines of the policy chosen, action programs are devised and budgets and procedures are drawn up. A program can hereby be considered as a collection of actions and stages which are necessary for the execution of the plan. It translates the strategy into actions at an operational level. A budget, on the other hand, is the translation of this program into financial terms. It provides a prognosis of the detailed costs of each program for the subsequent control and evaluation of the aims.

Finally, evaluation and control is the process of following up company activities and the execution results, so that the actual execution can be compared with that desired.

The business management then uses this information for corrective action or to solve problems. Despite the fact that evaluation and control forms the last important step of the strategic management process, it can also serve as a starting point for a new cycle by indicating weaknesses of the company in previously implemented strategic plans. We thus obtain a continuous process.

Although specific steps in the formulation of the strategy may vary, the process can be built, at least conceptually, around the following framework (Weirich, 1982):

(1) Recognition of the various organizational inputs, especially the goal inputs of the claimants to the enterprise.

(2) Preparation of the enterprise profile.

(3) Identification of the present external environment.

(4) Preparation of a forecast with predictions of the future environment.

(5) Preparation of a resource audit with emphasis on the company's internal weaknesses and strengths.

(6) Development of alternative strategies, tactics and other actions.

(7) Evaluation and choice of strategies.

(8) Consistency testing.

(9) Preparation of contingency plans.

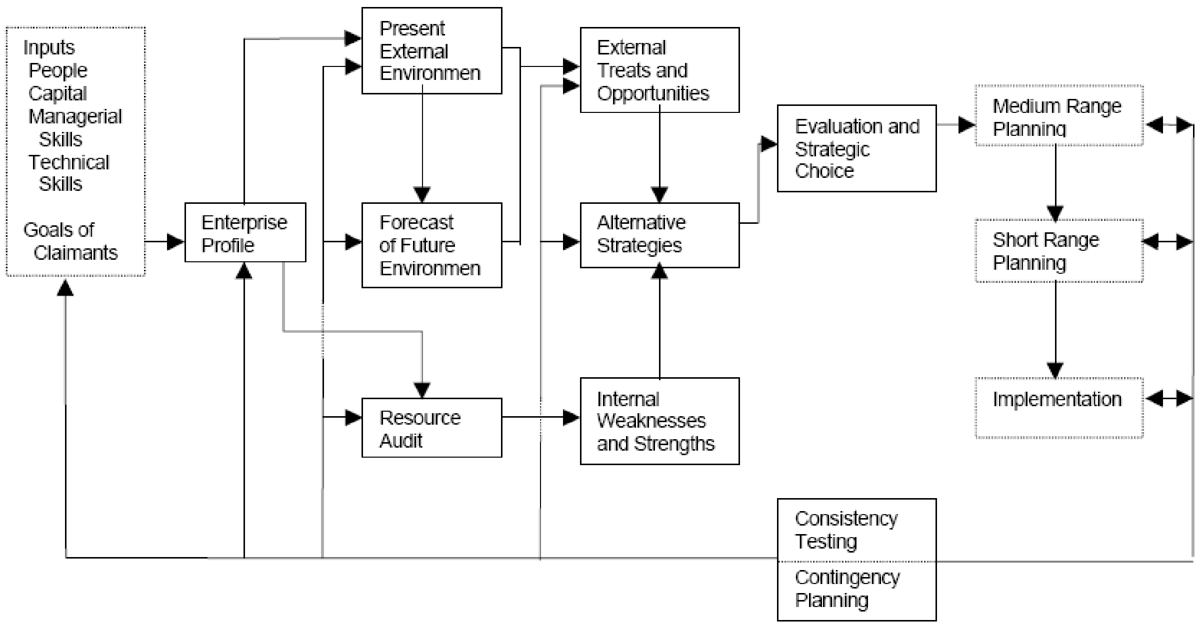

Figure 2.1. Strategic planning process

Source: Weirich, 1982

The strategic manager has to evaluate a multiplicity of possible strategies. Clearly, such a manager has to take into consideration both external realities and internal capabilities. Unfortunately, environments are not static, but are *dynamic* and subject to constant change. Thus, the strategist has to make predictions of changes about the future.

SWOT overview

Every company is confronted with a variety of internal and external forces which, on the one hand can comprise potential stimulants, and on the other hand, can comprise potential limitations with regards to the performance of the company or the objectives the company wishes to achieve.

As a first step in the development of a strategic planning system, business managers should therefore commence with the identification and evaluation of these strategic factors which assist or hinder the company in reaching its full potential. Because every company is confronted with a dynamic environment, the relative importance of a strategic factor will change constantly, so this analysis is unlikely to be of a permanent nature.

Strengths relate to the competitive advantages and other distinguishing competencies which can be exploited by the company on the market. A distinguishing competence is something which can be done very capably by a company. Weaknesses, on the other hand, are limitations which hinder the progress of a company in a certain direction.

A systematic schedule for the analysis of strengths and weaknesses is something constantly gaining popularity. Companies must undertake specific actions in order to distinguish their competitive strengths and weaknesses. History has shown this to be not particularly simple (Weirich, 1982). Many companies only have vague ideas of the source of certain competencies and the extent to which they possess them. The absence of a global company overview prevents a clear picture being obtained. Despite these problems the development of a competitive strategy depends on having a global overview as regards to the strengths and weaknesses.

The strengths and weaknesses can be found in the functional company fields, or they may be a consequence of abnormal interaction between different fields. Furthermore, the strengths and the weaknesses of an aspect must be measured at different levels of the organization; this can be at group level, at individual company level, or at product or market level.

The evaluation of the performances of the past may not be neglected with the measuring of strengths and weaknesses because it provides historic insight into the strategy of the company previously implemented as well as the successes accordingly achieved. Historic investigations may not only be limited to the pure analysis of the paths followed by the company in the past and the results achieved, they must also devote attention to the reasons for this success.

The current strategic position forms a very important point of departure for the development of a future strategy. It is very difficult to understand the current strategy if a formal planning system was previously absent.

The studying of the competition, the current strategic prospects, performances from the past, the market possibilities and the market environment provide us with insight concerning information required for the indication of strengths and weaknesses. Where possible these strengths and weaknesses are to be represented in objective terms. It must be commented that most strengths concern the capabilities of certain personnel members or the resources at hand. A distinction can be made according to the present product/market combinations. It is therefore sensible to make a distinction to the extent to which these strengths and weaknesses are of a critical nature. As regards to the critical factors, an attempt must be made to sort them on the basis of strengths.

SWOT in the context of strategic management

It could be claimed that strategic planning in general and the SWOT analysis in particular, have their mutual origins in the work of business policy academics at Harvard Business School and other American business schools from the 1960's onwards. The work of Kenneth Andrews has been especially influential in popularizing the idea that good strategy means ensuring a fit between the threats and opportunities as external situation faced by a firm, and its own strengths and weaknesses as internal qualities or characteristics.

Subsequent approaches to strategy formation which urge different thinking have been developed, most importantly the work of Michael Porter (the five forces model) focusing on five forces that shape competition within an industry. The problem with the Porter model is the fact that the analysis of industries cannot be undertaken in isolation as industries are embedded in a wider macro-environment that needs to be accounted for in order to get a comprehensive picture.

If used correctly, SWOT can provide a good basis for successful strategy formulation (Kurttila, et al., 2000) nevertheless it could be used more efficiently. Criticism to employing the SWOT analysis in the formulation of a company's strategy pinpoints the fact that the analysis lacks the possibility of comprehensively appraising the strategic decision-making situation; merely pinpointing the number of factors in strength, weakness, opportunity or threat groups does not pinpoint the most significant group. In addition, SWOT includes no means of analytically determining the importance of factors or of assessing the fit between SWOT factors and decision alternatives. The further utilization of SWOT is, therefore mainly based on the qualitative analysis, capabilities and expertise of the persons participating in the planning process.

In their study, Hill and Westbrook (1997) found that none of the 20 companies prioritized individual SWOT factors, one grouped factors further into subcategories, and only three companies used SWOT analysis as an input for a new mission statement. In addition, the expression of individual factors was of a very general nature and brief. Thus, it can be concluded that the result of SWOT analysis is too often only a superficial and imprecise listing or an incomplete qualitative examination of internal and external factors.

As planning processes are often complicated by numerous criteria and interdependencies, it may be that the utilization of SWOT is insufficient. Thus, it can be concluded that the result of SWOT analysis is too often only a superficial and imprecise listing or an incomplete qualitative examination of internal and external factors. Yet this SWOT-type analysis of internal and external assessment and seeking a fit between the two perspectives has remained popular. Modern textbooks on strategy still feel obliged to include SWOT, even if they have reservations about its application.

Applications for gaining extra value from SWOT analysis in further strategic planning processes have been presented. Weirich (1982) presented the TOWS matrix, which helps to systematically identify relationships between threats, opportunities, weaknesses and strengths, and offers a structure for generating strategies on the basis of these relationships. Kotler (1988) (in Kurttila et al., 2000) presented that external factors could be classified according to their attractiveness and success probability (opportunities) and seriousness and probability of occurrence (threats). Internal factors could be rated by their performance and importance. In addition, he subdivided SWOT by business unit. Hemmi (1995) suggested weighting four SWOT groups and using these weights as additional multipliers for individual factors to assess their overall importance. However, none of these approaches presented a systematic technique for determining importance.

With these shortcomings in mind, on one hand, there are still many companies conducting SWOT analysis as part of the strategic planning process (Bernroider, 2002) in order to identify the organizations' strengths, weaknesses, opportunities and threats before proceeding to the formulation of a corporate strategy. Also, the specialty literature counts hundreds of studies on conducting SWOT analysis.

Yet an integrative approach through the use of an econometrics model in order to quantitatively determine the importance of the factors has not been undertaken, thus underlining one of the two major contributions of this study to the strategic management domain, through the ESWOT analysis.

ESWOT

Through the integration of the SWOT Analysis with an econometrics model developed on three dimensions: the board, the stockholders and the employees, Shih and Moldovan have constructed the ESWOT econometrics analysis.

Model I: The board's perspective

A board of directors is a body of appointed persons who jointly oversee the activities of a company or organization. The body sometimes has a different name, such as board of trustees, board of governors, board of managers, or executive board. It is often simply referred to as "the board" (Tombesi, 2006).

A board's activities are determined by the powers, duties, and responsibilities delegated to it or conferred on it by an authority outside itself. In a stock corporation, the board is elected by the stockholders and is the highest authority in the management of the corporation.

Typical duties of boards of directors include:

- Governing the organization by establishing broad policies and objectives
- Selecting, appointing, supporting and reviewing the performance of, the chief executive
- Ensuring the availability of adequate financial resources
- Approving annual budgets
- Accounting to the stakeholders for the organization's performance.

Another feature of boards of directors in large public companies is that the board tends to have more de facto power, as pointed out by Rashidah & Fairuzana (2006). The exercise by the board of directors of its powers usually occurs in meetings. Most legal systems provide that sufficient notice has to be given to all directors of these meetings, and that a quorum must be present before any business may be conducted.

Because directors exercise control and management over the company, but companies are run (in theory at least) for the benefit of the shareholders, the law imposes strict duties on directors in relation to the exercise of their duties.

Puffer and Weintrop (1991) analyze corporate performance and CEO turnover by looking at the role of performance expectations that the board of directors has in judging a CEO's performance. For measuring the board's expectations on which the decision making process is based, the study uses profit and earnings, among other variables. Rashidah & Fairuzana (2006), in their research "Board, audit committee, culture and earnings management: Malaysian evidence", as well as Tombesi (2006), employ the two variables in measuring the board's perspective.

In light of this research, in constructing Model I, Shih and Moldovan use IBM's profit and revenue as dependent variables to reflect the board's interests within the company.

Model II: The stockholders' perspective

Looking at the second perspective, shareholders have, at a minimum, an interest in the activities of the corporation (Goodrich, Rossiter, 2009).

A stockholder is an individual or company (including a corporation) that legally owns one or more shares of stock in a joint stock company. A company's stockholders collectively own that company. Thus, the typical goal of such companies is to enhance stockholder value.

Stockholders are granted special privileges depending on the class of stock. These rights may include:

- The right to vote on matters such as elections to the board of directors. Usually, stockholders have one vote per share owned, but sometimes this is not the case.
- The right to propose shareholder resolutions.
- The right to share in distributions of the company's income.

- The right to purchase new shares issued by the company.
- The right to a company's assets during a liquidation of the company.

However, stockholder's rights to a company's assets are subordinate to the rights of the company's creditors. This means that stockholders typically receive nothing if a company is liquidated after bankruptcy (if the company had enough to pay its creditors, it would not have entered bankruptcy), although a stock may have value after a bankruptcy if there is the possibility that the debts of the company will be restructured. (http://en.wikipedia.org/wiki/Shareholder)

Stockholders play an important role in raising capital for organizations. Companies typically provide all the necessary proofs to shareholders to show that they are investing at a right place (Copeland, 2002).

Financial metrics to measure performance, guide decision making, and gauge whether shareholder value is created, are being used more today than at any other time in recent corporate history (Copeland, 2002). For example, fair and reliable audit figures from income statement and balance sheet are used as evidence of overall performance for the benefit of shareholders. Financial metrics such as earnings per share growth, economic value added or the percent increase in economic value added are used by Goodrich, Rossiter (2009) to see the total return to shareholders, in a study that investigates the roles of board independence and CEO duality on a firm's performance relying on financial ratios, namely ROA, ROE, EPS and profit margin.

In the early 1990's, IBM's EPS has reached an all time low, resulted in a loss in confidence in investing in the company, and emphasizing the need for change. This is the time when Gerstner came to IBM.

In light of the stockholder's importance within the company (Mello, 2006), Gerstner had to balance their interests and concerns with the ones of the board. The stockholders' primary concern is the company's profitability, quantified through earns per share, (Copeland, 2002; Goodrich, Rossiter, 2009) in order to measure the stockholders' perspective, this study employs the EPS index, for the Model II of the study.

Model III: The union's perspective

When facing globalization, companies needs efficiency in their HR policies in order to cut cost, as Dahl (1998) observes through a human resource cost and benefit analysis. The cost of human resources is of great importance to a company (Boyle, Balfour, 2009). The largest part of that cost is going on employees' salaries and retirement plans, hence cost reduction policies call for efficient HR policies.

As the market place turns increasingly global, it calls for a global union movement with global labor strategies (Anonymous, 2009). Over the last three hundred years, many trade unions have developed into a number of forms, influenced by differing political and economic regimes.

As presented in "Self-evaluation and union interest: The empirical relevance of a mediated model", (Mellor, 2009), the immediate objectives and activities of trade unions vary, but may include:

Provision of benefits to members: Early trade unions, like Friendly Societies, often provided a range of benefits to insure members against unemployment, ill health, old age and funeral expenses.

Collective bargaining: Where trade unions are able to operate openly and are recognized by employers, they may negotiate with employers over wages and working conditions.

Industrial action: Trade unions may enforce strikes or resistance to lockouts in furtherance of particular goals.

Political activity: Trade unions may promote legislation favorable to the interests of their members or workers as a whole. To this end they may pursue campaigns, undertake lobbying, or financially support individual candidates or parties (such as the Labor Party in Britain) for public office.

All in all, the Unions' primary concern is the welfare of the employees (Mello, 2006). Model III of this study makes use of employee numbers and retirement plan beneficiaries in measuring the union's perspective, as previously done by Toulmin (1988) and Borland & Ouliaris (1994).

IBM profile

International Business Machines Corporation (IBM) develops and manufactures information technologies, including computer systems, software, networking systems, storage devices, and microelectronics worldwide. The company was founded in 1911 as Computing-Tabulating-Recording Company and changed its name to International Business Machines Corporation in 1924. IBM is based in Armonk, New York.

It was formed by Charles Flint, a noted trust organizer, who engineered the merger of Hollerith's Tabulating Machine Company with two others - Computing Scale Company of America and International Time Recording Company. Based in New York City, the company had 1,300 employees and offices and plants in Endicott and Binghamton, NY; Dayton, OH; Detroit; Washington, D.C.; and Toronto. The combined company manufactured and sold machinery ranging from commercial scales and industrial time recorders to meat and cheese slicers, along with tabulators and punched cards.

IBM would continue to grow over the next few decades and build new devices such as calculators and typewriters. This would lead the company to develop mainframe computers for use by companies and the military. In 1981, IBM developed its own personal computer (PC) using a processor from Intel and Disk Operating System (DOS) software from Microsoft. This would kick off a new era of technology by bringing computing to the masses.
(http://nyjobsource.com/ibm.html).

IBM Timeline

1911/06/15 - IBM incorporates in New York as the Computing-Tabulating-Recording-Company.

1915/11/12 - IBM stock begins to sell publicly on NY Stock Exchange for $46 a share.

1924/02/14 – Computing – Tabulating – Recording - Company changes its name to International Business Machines.

1964/04/07 - IBM introduces System 360, first large family of computers.

1981/04/14 - Space Shuttle Columbia, aided by five onboard IBM computers, launched in first Shuttle flight.

1981/08/12 - IBM introduces the personal computer.

1984/05/05 - In Tokyo, IBM workers hold first international meeting.

1987/01/12 - IBM workers from around the world discuss union issues at London conference.

1991/01/31 - IBM announces 10% reduction in pension benefits

1991 (or 1992?) – Elimination of medical plan's "coordination of benefits".

1993/04/01 - Louis V. Gerstner Jr. becomes IBM Chairman and CEO.

1994/02/17 - 320 employees laid off at IBM Endicott.

1994/07/27 - IBM announces Kingston, NY plant closing1996/02/11 - IBM's "Big Blue" beats world chess champion, Gary Kasparov, marking a machine's first victory over a world chess grandmaster.

1999/05/10 - IBM stock splits 2 for 1 (15th stock split).

1999/05/18 - IBM employees establish pension bulletin board at Yahoo.com.

1999/07/01 - Pension reductions for employees under 40 due to Cash Balance Plan conversion.

1999/09/17 - Bowing to protests by employees, IBM partially restores "pension choice" to employees.

2000/03/27 - California pension system announces decision to vote 9.2 million shares in favor of IBM employee stockholder resolution to restore pension and medical benefits.

Louis Gerstner

Louis Gerstner, Jr., served as chairman and chief executive officer of IBM from April 1993 to March 2002, when he retired as CEO. He remained chairman of the board through the end of 2002. Before joining IBM, Mr. Gerstner served for four years as chairman and CEO of RJR Nabisco, Inc. This was preceded by an eleven-year career at the American Express Company, where he was president of the parent company and chairman and CEO of its largest subsidiary.

Gerstner is credited with saving IBM from going out of business in the early 1990s. In his memoir, “Who Says Elephants Can't Dance?” he describes his arrival at the company in April 1993, when an active plan was in place to disaggregate the company. The prevailing wisdom of the time held that IBM's core mainframe business was headed for obsolescence. The company's own management was in the process of allowing its various divisions to rebrand and manage themselves — the so-called "Baby Blues."

Gerstner reversed this plan, and the subsequent refocusing on the IT services business (which grew to nearly 50% of the IBM's revenues), the embrace of the Internet as a business phenomenon, and a broad effort to revive the company's culture are widely seen as having resulted in one of the most remarkable turnarounds in business history.

In his memoir, Gerstner described the turnaround as difficult and often wrenching for an IBM culture that had become insular and balkanized. Before he arrived, over 100,000 employees had been laid off from a company that had maintained a lifetime employment policy from its inception. Layoffs and other tough management measures continued in the first two years of Gerstner's tenure, but the company was saved, and business success has continued to grow steadily since then.

Upon his departure from IBM, Gerstner received a 10-year consultancy contract worth up to $2 million annually, plus expenses and full use of IBM facilities and services, such as office, cars, aircraft and financial planning. He is only required to work one month out of the year.

Lou Gerstner personifies the new global corporate leader: a change agent whose vision, strategy and determination tamed shifting economic and marketplace realities and reinvented IBM in the process.

Setting the Vision: Direct and intensely focused, Lou Gerstner is the quintessential global corporate leader: a swift-acting change agent who sets the vision for the new reality. He created IBM's future by moving it from product manufacturer to service provider, opening up totally new opportunities in the process.

Managing Risk-Reward: Pursuing growth and maintaining profitability is a matter of setting strategy, aligning resources, solid execution and dealing with an increasingly complex global marketplace in a competitive industry. Gerstner weighs in on the challenges of today's business environment and offers advice based on his experience.

A Life of Purpose: Gerstner is a champion of quality education and created the Commission on Teaching, in order to help solve America's growing education crisis. His best-selling book, "Who Says Elephants Can't Dance?", chronicles IBM's incredible rebound and provides a thoughtful look at leadership in action.

IBM's Board of Directors

IBM's Board of Directors consists of 10 members, and it is responsible for supervision of the overall affairs of the Company. The Board held 10 meetings during 2007. To assist it in carrying out its duties, the Board has delegated certain authority to several committees. Overall attendance at Board and committee meetings was 92%. Attendance was at least 75% for each director. Directors are expected to attend the Annual Meeting of Stockholders, and all directors attended the 2007 Annual Meeting. Following the Annual Meeting in 2008, the Board will consist of 11 directors. In the interim between Annual Meetings, the Board has the authority under the by-laws to increase or decrease the size of the Board and to fill vacancies.
(ftp://ftp.software.ibm.com/annualreport/2007/2008_ibm_proxy.pdf)

IBM’s Employees

IBM employees have earned three Nobel Prizes, four Turing Awards, five National Medals of Technology, and five National Medals of Science. Hence, the men and women around the world employed by IBM have been a priority. For example, IBM’s founder, Thomas J. Watson, told employees in October 1926 “They say a man is known for the company he keeps. We say in our business that a company is known by the men it keeps”.

IBM is committed to a diversified workforce and actively seeks qualified candidates who reflect the various markets served, including women, minorities, people with disabilities and gays and lesbians. Each year, IBM recruiters attend more than 40 diversity focused conferences and career fairs to recruit from these constituencies. Its Project View, a national university recruitment program targets graduating seniors of diverse backgrounds for employment in a variety of technical fields.

In 1999, for the second year, WE Magazine recognized IBM as the best employer in America for people with disabilities.

The value placed on IBM employees was codified in one of IBM’s three fundamental principles. In 1969, IBM chairman wrote to his management team: “Our basic belief is respect for the individual, for his rights and dignity. It follows from this principle that IBM should help each employee to develop his potential and make the best use of his abilities; pay and promote on merit, and maintain two-ways communications between manager and employee, with an opportunity for a fair hearing and equitable settlement of disagreements”.

The company and its US subsidiaries have defined benefit **postretirement plans** that provide medical, dental and life insurance for retirees and eligible dependents.

It is the company’s practice to fund amounts for pensions sufficient to meet the minimum requirements set forth in applicable employee benefit and tax laws, and such additional amounts as the company may determine to be appropriate from time to time. The assets of the various plans include corporate equities, government securities, corporate debt securities and income producing real estate.

CHAPTER III. METHODOLOGY

Chapter Overview

This chapter contains the research framework, research model, the research procedure, as well as the research methods. The integration of the theoretical model with the econometrics model is resulting in ESWOT. The chapter explains the approach to the econometrics model through using the three dimensions (Board, Stockholders and Unions) as dependent variables. The researcher provides definitions for each independent variable in relation to the purpose of the study. The framework shows how the variables are being tested and the research process explains the steps taken. Details of the method, procedure and instrumentation are given.

Research Framework

A research framework has been developed, in order to acquire a better understanding of the appropriate research approaches conducive to the design of new strategies. The framework integrates the theoretical with the econometric model. The different categories of variables are introduced and defined, in order to provide a clear picture of the research outputs. This framework was developed as a clear representation of the variables of study.

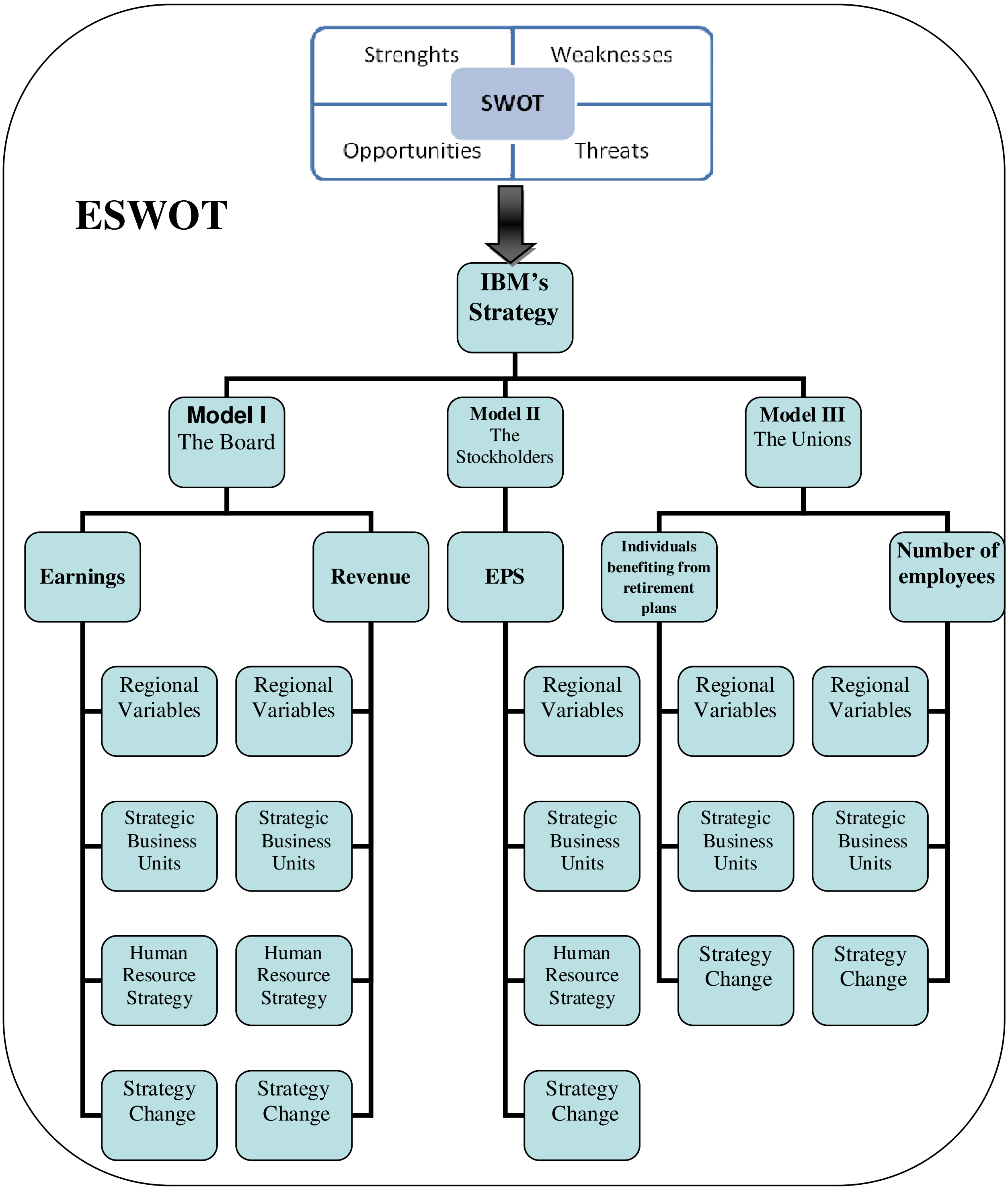

Figure 3.1. Research framework

The present study is dimensioned on the integration of the SWOT Analysis with the 3 econometrics models, which will be explained in depth in the following paragraphs.

In constructing **Model I**, Shih and Moldovan use IBM's profit and revenue to reflect the board's interests within the company, as employed by Tombesi (2006). Puffer and Weintrop (1991) analyze corporate performance and CEO turnover by looking at the role of performance expectations that the board of directors has in judging a CEO's performance. For measuring the board's expectations on which the decision making process is based, the study uses profit and earnings, among other variables. In light of this research, in constructing Model I, Shih and Moldovan use IBM's profit and revenue as dependent variables to reflect the board's interests within the company.

Model I is designed in order to understand the **Board**'s perspective, through Profit and Earnings, as functions of 4 independent variables, for the time period between the years 1990 and 2007.

$$Yi = f(xi) = a_0 + b_1 * x_1 + b_2 * x_2 + b_3 * x_3 + b_4 * x_4 + \varepsilon$$

The independent variables are categorized into 4 groups:

1. Regional variables
   - Revenues for Europe/Middle East/ Africa geographical area
   - Revenues for Asia Pacific geographical area
   - Revenues for Americas geographical area
2. Strategic Business Units
   - Strategic Business Unit – Global Service
   - Strategic Business Unit – Hardware
   - Strategic Business Unit – Software
   - Strategic Business Unit – Global Financing, other Investments
3. Human Resource Strategy
   - Employee number evolution
   - Individuals benefiting from a Retirement Plan

4. Strategy variables
    - dummy variable – measuring the impact of a new CEO in 1993
    - dummy variable – measuring the impact of selling the Hardware department in 2002

Model II is designed in order to understand the **Stockholder**'s perspective. In light of the stockholder's importance within the company (Mello, 2006), Gerstner had to balance their interests and concerns with the ones of the board. The stockholders' primary concern is the company's profitability, quantified through earns per share, (Copeland, 2002, Goodrich, Rossiter, 2009) in order to measure the stockholders' perspective, as functions of 4 independent variables, for the time period between the years 1990 and 2007, this study employs the EPS index, for the Model II of the study.

$Y = f(xi) = a_0 + b_1 * x_1 + b_2 * x_2 + b_3 * x_3 + b_4 * x_4 + \varepsilon$

The independent variables are categorized into 4 groups:

1. Regional variables
    - Revenues for Europe/Middle East/ Africa geographical area
    - Revenues for Asia Pacific geographical area
    - Revenues for Americas geographical area
2. Strategic Business Units
    - Strategic Business Unit – Global Service
    - Strategic Business Unit – Hardware
    - Strategic Business Unit – Software
    - Strategic Business Unit – Global Financing, other Investments
3. Human Resource Strategy
    - Employee number evolution
    - Individuals benefiting from a Retirement Plan
4. Strategy variables

- dummy variable – measuring the impact of a new CEO in 1993
- dummy variable – measuring the impact of selling the Hardware department in 2002

Model III – is designed in order to understand the **Unions**' perspective. All in all, the Unions' primary concern is the welfare of the employees (Mello, 2006). Model III of this study makes use of employee numbers and retirement plan beneficiaries, as a function of 3 independent variables, for the time period between the years 1990 and 2007, in measuring the union's perspective, as previously done by Toulmin, (1988) and Borland & Ouliaris (1994).

$Yi = f(xi) = a_0 + b_1 * x_1 + b_2 * x_2 + b_3 * x_3 + \varepsilon$

The independent variables can be categorized into 3 groups:

2. Regional variables
   - Revenues for Europe/Middle East/ Africa geographical area
   - Revenues for Asia Pacific geographical area
   - Revenues for Americas geographical area
3. Strategic Business Units
   - Strategic Business Unit – Global Service
   - Strategic Business Unit – Hardware
   - Strategic Business Unit – Software
   - Strategic Business Unit – Global Financing, other Investments
4. Strategy variable
   - dummy variable – measuring the impact of a new CEO in 1993
   - dummy variable – measuring the impact of selling the Hardware department in 2002.

The 3 models are integrated with the SWOT analysis on its 4 dimensions (Strengths, Weaknesses, Opportunities, Threats), thus encompassing the ESWOT.

Research Model

The current study aims to provide a tool for the development of strategies through the underlining of the actions that have had an impact on IBM's financial position by focusing on a longitudinal time series study, between 1990 and 2007, with special focus at the times that changes have taken place, in 1993 and 2002.

The merger between the SWOT analysis and a statistical analysis will provide a clear understanding of IBM's evolution, as well as the sectors, areas, and strategies to be exploited.

Three research models, related to three variables measuring domestic contribution, international contribution and institutional contribution.

The econometrical model is established on the three research models, pertaining to the three independent variables measuring the Board's Perspective (Earnings and Revenue), the Stockholder's Perspective (EPS) and the Unions' Perspective (employee number and number of employees benefitting from a retirement plan).

Model I:

$$Yi = f(xi) = a_0 + b_1 * x_1 + b_2 * x_2 + b_3 * x_3 + b_4 * x_4 + \varepsilon$$

Where:

Y = **The Board's Perspective**, measured by

a) Earnings
b) Revenue

x_1 = Region variable (Europe/Middle East/Africa, Asia Pacific, America)

x_2 = Product variable (Global Service, Hardware, Software, Global Financing)

x_3 = Human resource policy

x_4 = Strategy variable (dummy variables related to the 1993 and 2002 strategic periods)

Model II:

$Y = f(xi) = a_0 + b_1 * x_1 + b_2 * x_2 + b_3 * x_3 + b_4 * x_4 + \varepsilon$

Where:

Y = The Stockholder's Perspective, measured by EPS

x_1 = Region variable (Europe/Middle East/Africa, Asia Pacific, America)

x_2 = Product variable (Global Service, Hardware, Software, Global Financing)

x_3 = Human resource policy

x_4 = Strategy variable (dummy variables related to the 1993 and 2002 strategic periods)

Model III:

$Yi = f(xi) = a_0 + b_1 * x_1 + b_2 * x_2 + b_3 * x_3 + \varepsilon$

Where:

Y = **The Unions' Perspective**, measured by

c) the number of individuals benefiting from a retirement plan
d) the number of employees

x_1 = Region variable (Europe/Middle East/Africa, Asia Pacific, America)

x_2 = Product variable (Global Service, Hardware, Software, Global Financing)

x_3 = Strategy variable (dummy variables related to the 1993 and 2002 strategic periods)

Research Procedure

In order for the study to develop in a clear and structured manner towards the achievement of the outcomes proposed by the purpose of the study, the following research process has been outlined.

Figure 3.2. Research process

Research Methods

In order for the study to attain its desired outcome, there will be a quantitative method approach for data analysis.

The researcher will use the SPSS software. A first step will be the use of descriptive statistics. This statistical procedure allows the researcher to present the relevance and importance of the study. The descriptive statistics helped the researcher to arrange the data into a more interpretable form by forming the frequency distributions and generating graphical displays. All this data can be summarized easily or can be examined on their interrelation.

The statistical tool employed in order to attain the purpose of the present study and to summarize the relationship between the variables, when one variable helps predict or explain the other (Moore et al., 2003), is the linear regression. This method also permits the researcher to estimate the magnitude of the effect of the predictor variables on the outcome variable. Therefore, regression methods seem to be superior in studying the relationship between the predictor and outcome variables.

In order to examine the extent to which a variable is a good indicator of a factor extracted, for the data analysis, a stepwise variable selection will be used, namely the backward elimination process. In this process there are formulas designed to fit measures of resultant models when one variable is removed successively from x_1 to x_n in the current model, starting with the full model and then eliminating at each step the one variable whose deletion will cause the residual sum of squares to increase the least (Shih, Plescan, 2007).

In the backwards elimination procedure, we proceed as follows: fit the maximum model, examine the p-values and eliminate the variable with the highest p-value if it is greater than a pre-specified level, and recompute the regression equation for the reduced model. The process is repeated until the variable with the highest p-value is below the criterion value.

All in all, this method is chosen because instead of focusing on individual variables, it is important to study the relationship or interaction of these variables designated to be important, as in reality the variables do not exist or exert their influence independently.

Source of data

The study will employ financial data retrieved from IBM’s website. The Corporate Archives provide public financial statements from 1990 until 2007. (http://www.ibm.com/annualreport/).

The financial statements are formal records of a business' financial activities, which provide information about the financial position, performance and changes in financial position of an enterprise that is useful to a wide range of users in making economic decisions. There are four basic financial statements:

The Income Statement reports on a company's income, expenses, and profits over a period of time. Basically, the income statement shows how much money the company generated (revenue), how much it spent (expenses) and the difference between the two (profit) over a certain time period.

The Balance Sheet reports on a company's assets, liabilities, and net equity as of a given point in time. These three balance sheet segments give investors an idea as to what the company owns and owes, as well as the amount invested by the shareholders.

The Cash Flow Statements reports on a company's cash flow activities, particularly its operating, investing and financing activities, thus showing the net increase or decrease in cash for the period under investigation.

The Statement of Retained Earnings explains the changes in a company's retained earnings over the reporting period. It breaks down changes affecting the account, such as profits or losses from operations, dividends paid, and any other items charged or credited to retained earnings.

CHAPTER IV. FINDINGS AND DISCUSSION

Chapter Overview

In this chapter two major dimensions will be discussed: the descriptive statistics and the empirical results. The empirical result section is further subdivided into three parts, each pertaining to one of the three dimensions of the research model.

Descriptive Statistics

In order to gain an overview picture of the evolution of the regional variables, strategic business units, human resource strategies, institutional change variables and the EPS, descriptive statistics will be employed.

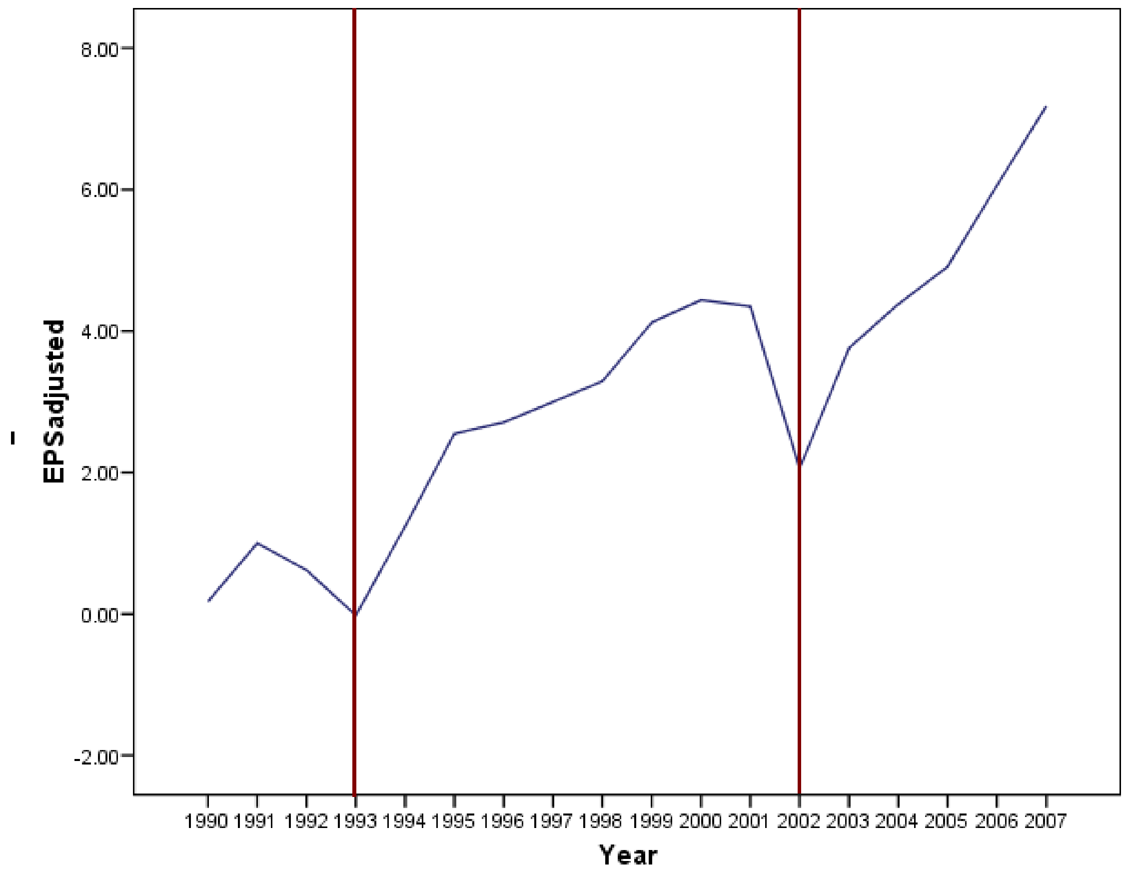

Figure 4.1. Time sequence evolution for EPS

By observing the evolution of EPS in Figure 4.1, we can state that the lowest values are reached in 1993 and 2002, the two years considered as turning points in IBM's history.

The decreasing EPS values in the period prior to 1993, when Gerstner came to IBM, is suggestive for the crisis underwent by the company. The increase in EPS values following Gesner's policies implementation show a positive impact. There is also an observable low point in 2002, followed by a growth after the selling of the Hardware department.

The evolution of Global Service, Hardware and Software strategic business units is presented through the following time series and table.

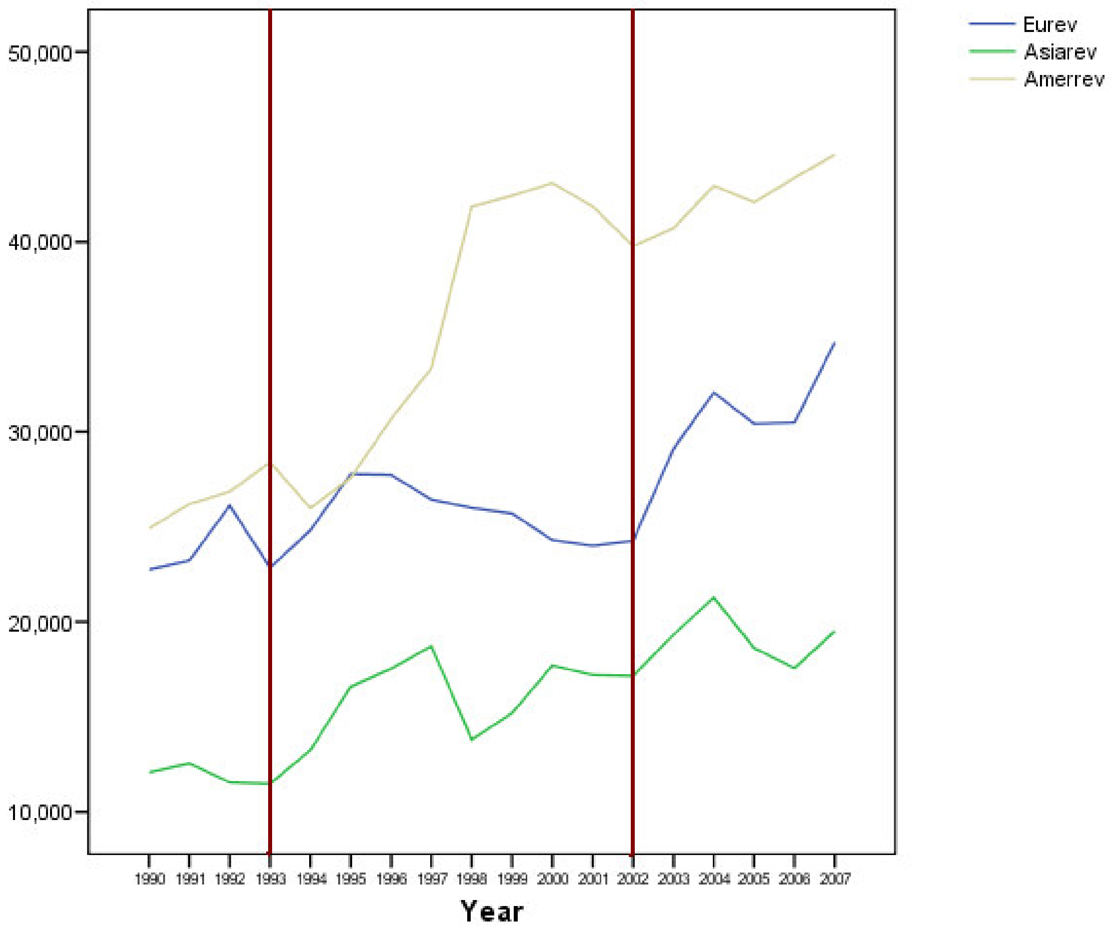

Figure 4.2. Time sequence evolution for Revenues from Europe/ Africa/ Middle East, Asia and America regions

The 1993 and 2002 key points are also observable in the evolutions for the Europe, Asia and America regions, with an exception for America. America region's evolution in 2002 shows a later effect of Gerstner's policy change.

Table 4.1.
Evolution of EPS and Revenue from the Regional Variables

Year	EPS	Revenue US$ million **Europe/ Africa/ Middle East**	Revenue US$ million **Asia**	Revenue US$ million **America**
1990	0.18	22749	12077	24914
1991	1.00	23219	12544	26207
1992	0.62	26125	11547	26851
1993	-0.02	22850	11472	28394
1994	1.24	24821	13241	25990
1995	2.55	27768	16590	27582
1996	2.71	27735	17533	30679
1997	3.00	26432	18721	33355
1998	3.29	26000	13800	41867
1999	4.12	25700	15200	42434
2000	4.44	24300	17700	43089
2001	4.35	24000	17200	41867
2002	2.06	24260	17153	39773
2003	3.76	29102	19317	40712
2004	4.38	32068	21276	42949
2005	4.91	30428	18618	42088
2006	6.06	30491	17566	43367
2007	7.18	34699	19501	44587

The following time series and table present the evolution of Global Service, Hardware and Software strategic business units.

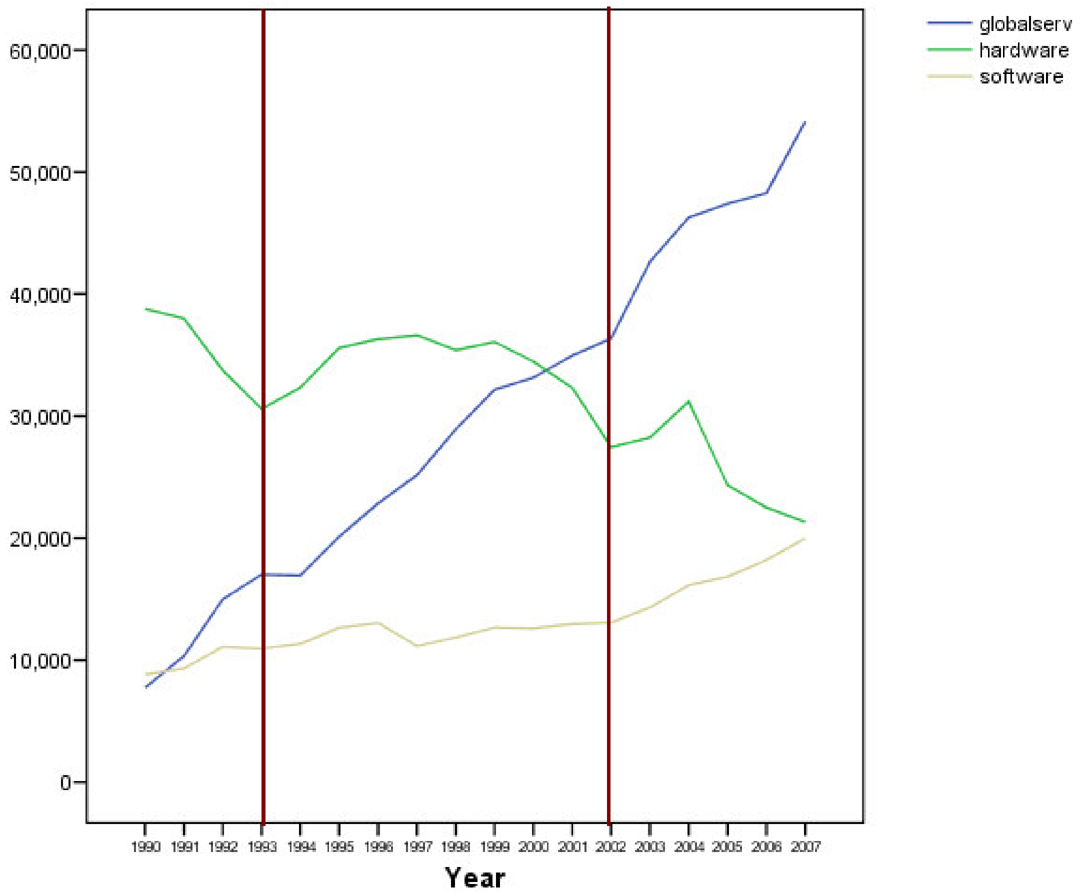

Figure 4.3. Time evolution for Global Service, Hardware and Software strategic business units

The evolution in time of the three strategic business units shows the following patterns, with respect to the two turning points, 1993 and 2002. There is an observable improvement in the Hardware department following Gerstner's joining IBM. The selling of the department appears justified by the low point attained in 2002. The Software SBU had a relatively constant evolution, but with a visible improvement after 2002, after selling the Hardware SBU. The Global Service SBU shows an improvement in its evolution after Gerstner came into the company, and following the 2002 sale of the Hardware department, a period of exponential growth is noticeable.

Table 4.2.
Evolution of Revenue from the SBU

Year	**Global Service** US$ million	**Hardware** US$ million	**Software** US$ million
1990	7729	38785	8828
1991	10343	38002	9328
1992	14987	33755	11103
1993	17006	30591	10953
1994	16937	32344	11346
1995	20123	35600	12657
1996	22854	36316	13052
1997	25166	36630	11164
1998	28916	35419	11863
1999	32172	36083	12662
2000	33152	34476	12598
2001	34971	32313	12958
2002	36360	27456	13074
2003	42635	28239	14311
2004	46283	31193	16141
2005	47407	24343	16830
2006	48277	22499	18204
2007	54144	21317	19982

In the following time series and table, the evolution of the number of employees and retirement plan beneficiaries is observable.

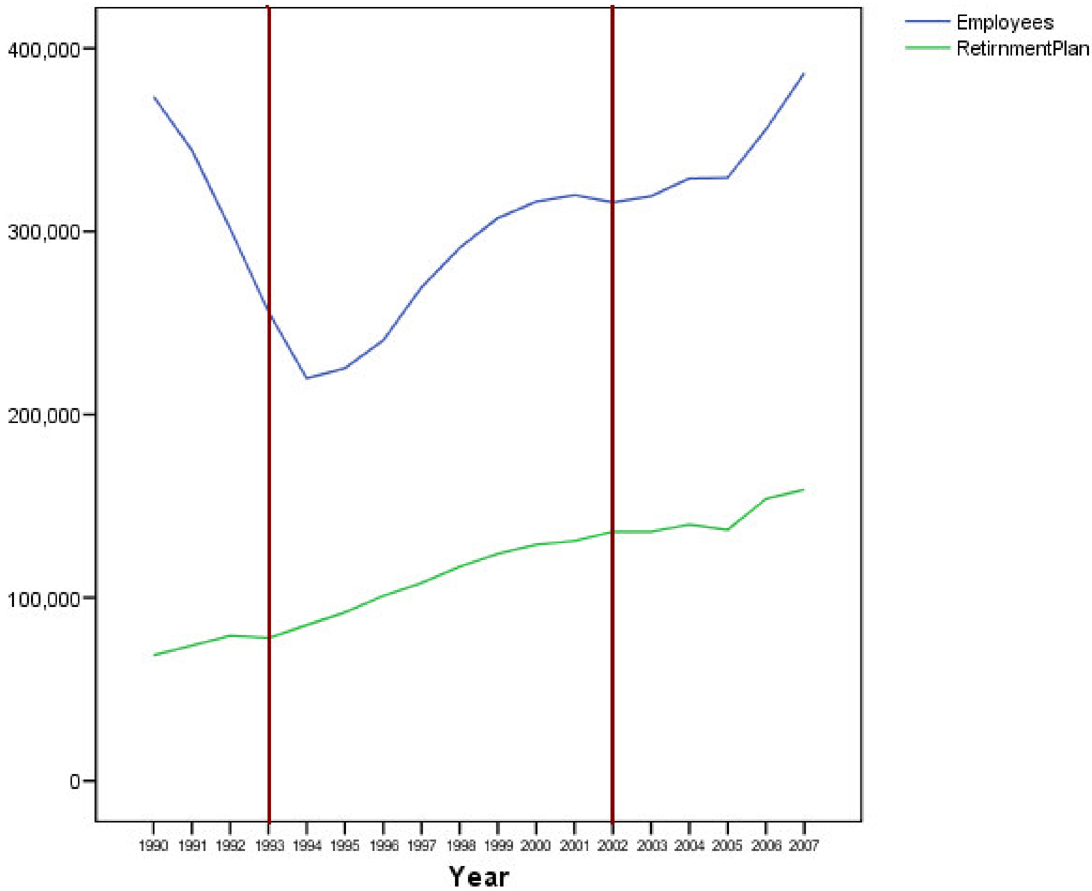

Figure 4.4. Time sequence evolution for number of employees and retirement plan beneficiaries

In respect to the strategic change turning points, the number of employees is seen decreasing in the years following Gerstner's arrival, due to his company reshaping strategies, only to increase in the years after that. The 2002 selling of the Hardware department does not appear to have drastically impacted the employees' number, mainly due to good human resources policies that allowed keeping a relatively constant number of employees. As far as the number of individuals benefiting from a retirement is concerned, apart from a constant growth, no fluctuations can be observed.

Table 4.3.
Evolution of HR policies

Year	Employees	Retirement Plan Beneficiaries
1990	374000	68600
1991	344000	73900
1992	302000	79300
1993	256000	78000
1994	220000	85000
1995	225000	92000
1996	241000	101000
1997	269000	108000
1998	291000	117000
1999	307000	124000
2000	316000	129000
2001	320000	131000
2002	316000	136000
2003	319000	136000
2004	329000	140000
2005	329000	137000
2006	356000	154000
2007	387000	159000

Empirical Results

Empirical results for Model 1.1

In constructing Model 1, Shih and Moldovan use IBM's profit and revenue to reflect the board's interests within the company, as employed by Tombesi (2006).

Table 4.4.

Multiple regression analysis of Earnings and Regional Variables, Strategic Business Units, Human Resource Policy and Institutional Change

y_1=Earnings						
	x_i		**Eq_1**	**Eq_2**	**Eq_3**	**Eq_4**
			β value (t-value)	β value (t-value)	β value (t-value)	β value (t-value)
Regional Variables	x_1	**Europe/ Middle East/ Africa**	0.228 (0.073)			
	x_2	**Asia**	0.812 (0.725)	0.805 (0.766)	0.695 (0.690)	
	x_3	**America**				
Strategic Business Units	x_4	**Global Services**	1.606 (0.886)	1.682 (1.208)	2.018 (1.607)	**2.339*** (2.056)
	x_5	**Hardware**	-2.126 (-1.217)	**-2.027*** (-0.953)	**-2.165*** (-2.196)	**-1.679**** (-2.496)
	x_6	**Software**	-1.541 (-0.547)	-1.344 (-1.827)	-1.228 (-1.773)	-1.140 (-1.716)
	x_7	**Global Finances**	-0.283 (-0.547)	-0.260 (-0.650)		
Human Resource	x_8	**Employee**	**5.226**** (4.859)	**5.234***** (5.189)	**5.314***** (5.467)	**5.254***** (5.562)
	x_9	**Individuals Benefiting from Retirement plan**	-5.223 (-1.561)	**-5.400**** (-2.496)	-5.979 (-3.123)	**-6.215*** (-3.381)
Institutional Change	x_{10}	**Gerstner's Policy Changes**	**2.524**** (2.297)	**2.537***** (5.455)	**2.621***** (6.041)	**2.707***** (6.675)
	x_{11}	**Selling Hardware**	-0.409 (-1.602)	**-0.0401*** (-1.841)	**-0.428*** (-2.060)	**-0.362*** (-2.011)
	R^2		***0.955***	***0.955***	***0.953***	***0.951***

$^*p < 0.1$ $^{**}p < 0.05$ $^{***}p < 0.01$

The empirical results for the first component of Model 1 of the study are shown in Table 4.4 By using the backward elimination process, after examining the p-values for the 11 independent variables, the highest not significant one is eliminated.

The parameter for each variable represents the percent change in the Earnings due to a 1% change in the independent variable. Looking at Eq4, the regression reveals that 6 of the variables became significant (Table 4.5.) at least at 10% level. Of the significant variables, 3 have a negative parameter, 3 are significant at 10% level, 1 at 5% level and 2 at 1% level. The R^2 stands at 0.951; therefore, the model can explain 95.1% of the variance in Earnings.

Table 4.5.

Significant variables for Earnings

y_1=Earnings			
			Eq 4 β value (t-value)
SBU (H1)	x_4	**Global Services**	**2.339*** (2.056)
	x_5	**Hardware**	**-1.679**** (-2.496)
HR Strategy (H3)	x_8	**Employee**	**5.254***** (5.562)
	x_9	**Individuals Benefiting from Retirement plan**	**-6.215*** (-3.381)
Institutional Change (H4)	x_{10}	**Gerstner's Policy Changes**	**2.707***** (6.675)
	x_{11}	**Selling Hardware**	**-0.362*** (-2.011)
	R^2		***0.951***

**p < 0.1 **p < 0.05 ***p < 0.01*

Results for hypothesis 1.1

For the regional variables, the parameter for **Europe/ Middle East/ Africa (x_1)**, as well as the ones for **Asia (x_2)** and **America** (x_3) are not significant at a 10% level, and are hence eliminated. This means that, from the board's perspective, the regional variables do not have an impact on the strategy formulations.

Accept the null hypothesis

$\boldsymbol{\beta_{YX} = 0}$

Results for hypothesis 2.1

Looking at the strategic business units, the parameter for **Global Services SBU (x_4)** is positive (2.339) with a t ratio of (2.056). The variable is significant at a 10% level. What this tells us is that the higher the revenues in the Global Services department of IBM, the higher the Earnings.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

The parameter for **Hardware SBU (x_5)** indicates a negative relationship (-1.679), with a t ratio of (-2.496), significant at the 5% level. The board should consider that the higher the activity for the hardware department of the company, the lower the Earnings.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

However, the parameters for the **Software SBU (x_6)** and the **Global Finances SBU (x_7)** are not significant at 10% level, which means that these sectors are not important to IBM's Earnings.

Accept the null hypothesis

$\boldsymbol{\beta_{YX} = 0}$

Results for hypothesis 3.1

When analyzing the human resource policies, we notice that the number of **IBM's employees (x_8)** is positive (5.254) with a t ratio of (5.562), significant at 1% level. This means that the higher the number of employees, the higher the company's Earnings.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

The parameter for x_9 is negative (-6.215), with a high t ratio (-3.381), and significant at 1% level. The higher the **number of individuals benefiting from a**

retirement plan, the lower the company's Earnings, which means that the board's decisions regarding the retirement plan policies take into consideration the employees wellbeing and not the direct increase in earnings.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

Results for hypothesis 4.1

The parameter for x_{10} is positive (2.707), with the highest t ratio (6.675), which make this Institutional Change variable the dominant one in the equation. It is significant at 1% significance level, which signifies that **Gerstner's Policy Changes** had a positive impact on IBM's Earnings.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

Selling the Hardware Department (x_{11}) has an impact on the company's Profits significant at the 10% level, with a negative parameter of (-0.362) and a t ratio of (-2.011), meaning that the strategic move had a negative impact on IBM's Earnings.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

Empirical results for Model 1.2

Table 4.6 shows the empirical results for the second component of Model 1: **Revenue,** as a function of regional variables, strategic business units, human resource policy and institutional change. The same process will be used, as in Model 1.1, the backward elimination process.

Table 4.6.

Multiple regression analysis of Revenue and Regional Variables, Strategic Business Units, Human Resource Policy and Institutional Change

y_2 =Revenue						
	x_i		**Eq_1**	**Eq_2**	**Eq_3**	**Eq_4**
			β value (t-value)	β value (t-value)	β value (t-value)	β value (t-value)
Regional Variables	x_1	**Europe/ Middle East/ Africa**	-0.115 (-0.803)	-0.120 (-0.879)	-0.075 (-0.627)	
	x_2	**Asia**	0.022 (0.428)			
	x_3	**America**				
Strategic Business Units	x_4	**Global Services**	**0.443**** (5.353)	**0.456***** (6.222)	**0.457***** (6.375)	**0.427***** (8.234)
	x_5	**Hardware**	**0.400 **** (5.014)	**-0.416***** (6.210)	**0.388***** (7.127)	**0.360***** (11.436)
	x_6	**Software**	0.237 (1.843)	**0.244*** (2.011)	**0.210*** (1.906)	**0.144***** (4.627)
	x_7	**Global Finances**	**0.054*** (2.252)	**0.056**** (2.479)	**0.055**** (2.498)	**0.046**** (2.798)
Human Resource	x_8	**Employee**	**0.235***** (4.793)	**0.234***** (5.009)	**0.243***** (5.471)	**0.236***** (5.643)
	x_9	**Individuals Benefiting from Retirement plan**	**-0.297*** (-1.943)	**-0.310*** (-2.182)	**-0.297*** (-2.149)	**-0.231**** (-2.628)
Institutional Change	x_{10}	**Gerstner's Policy Changes**	**0.061**** (2.575)	**0.065**** (3.009)	**0.064**** (3.058)	**0.060**** (3.115)
	x_{11}	**Selling Hardware**	0.006 (0.481)	0.008 (0.753)		
	R^2		***1.000***	***1.000***	***1.000***	***1.000***

**p < 0.1 **p < 0.05 ***p < 0.01*

In **Eq4**, 7 variables are significant (Table 4.7.), 4 at 1% level and 3 at 5% level, of which 1 has a negative parameter. R^2 stands at 1.000; therefore, the model can explain 100% of the variance in IBM's revenue.

Table 4.7.

Significant variables for Revenue

y_2 =Revenue			
x_i			**Eq_4**
			β value (t-value)
SBU (H2)	x_4	**Global Services**	**0.427***** (8.234)
	x_5	**Hardware**	**0.360***** (11.436)
	x_6	**Software**	**0.144***** (4.627)
	x_7	**Global Finances**	**0.046**** (2.798)
HR Strategy (H3)	x_8	**Employee**	**0.236***** (5.643)
	x_9	**Individuals Benefiting from Retirement plan**	**-0.231**** (-2.628)
Institutional Change (H4)	x_{10}	**Gerstner's Policy Changes**	**0.060**** (3.115)
R^2			***1.000***

$*p < 0.1$ $**p < 0.05$ $***p < 0.01$

Results for hypothesis 1.2

For the regional variables, the parameter for **Europe/ Middle East/ Africa (x_1)**, as well as the ones for **Asia (x_2)** and **America** (x_3) are not significant, and are hence eliminated. This means that the regional variables are not important from the board's perspective.

Accept the null hypothesis

$\boldsymbol{\beta_{YX} = 0}$

Results for hypothesis 2.2

For the strategic business units, the parameter for **Global Services SBU (x_4)** is positive (0.427) with t ratio (8.234). The variable is significant at the 1% level, which means that the higher the activity for the Global Service department of the company, the higher the Revenue. The board is interested in further investment in this SBU.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

The parameter for **Hardware SBU (x_5)** indicates a positive relationship (0.360), with a t ratio of (11.436), significant at the 1% level. For the board, from a decision-making point of view, an increase in the activity of the hardware department of the company translates into higher revenues.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

The parameter for the **Software SBU (x_6)** indicates a positive relationship (0.144), with a t ratio of (4.627), significant at the 10% level. What this empirical result means is that the higher the activity for the Software department of the company, the higher the Revenue.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

The parameter for the **Global Finances SBU (x_7)** indicates a positive relationship (0.046), with a t ratio of (2.789), significant at the 5% level. From the board' perspective, this means that the higher the activity for the Global Finances department of the company, the higher the Revenue.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

Results for hypothesis 3.2

Looking at the human resource policies, the number of **IBM's Employees (x_8)** is positive (0.236) with a t ratio of (5.643), significant at 1% level. This empirical result shows that the higher the number of employees, the higher the company's Revenue.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

The parameter for x_9 is negative (-0.321), with a t ratio (-2.628), and significant at 5% level. This tells us that the higher the **number of individuals benefiting from a retirement plan**, the lower the company's Revenue.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

Results for hypothesis 4.2

As far as the institutional change variables are concerned, we can observe that the parameter for x_{10} is positive (0.060), with a t ratio (3.115), is significant at a 5% level. **Gerstner's Policy Changes** had a positive impact on IBM's Revenue. Gerstner's policies have put IBM back on track by significantly improving the company's financial performance, which shows the correctness of the board's decision in hiring him.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

However, **Selling the Hardware** department (x_{10}) is no significant at a 10% level, which means that, from the board's perspective, this decision does not have an impact on the company's profitability.

Accept the null hypothesis

$\boldsymbol{\beta_{YX} = 0}$

Empirical results for Model 2

In the early 1990's, IBM's EPS has reached an all time low, resulted in a loss in confidence in investing in the company, and emphasizing the need for change. This is the time when Gerstner came to IBM.

Table 4.8.

Multiple regression analysis of Earn Per Share and Regional variables, Strategic Business Units, Human Resource Policy and Institutional Change

			y_3 =EPS			
	x_i		**Eq_1**	**Eq_2**	**Eq_3**	**Eq_4**
			β value (t-value)	β value (t-value)	β value (t-value)	β value (t-value)
Regional Variables	x_1	**Europe/ Middle East/ Africa**	1.382 (0.859)	1.758 (1.681)	1.905 (1.789)	1.569 (1.463)
	x_2	**Asia**	0.611 (1.066)	0.650 (1.223)		
	x_3	**America**				
Strategic Business Units	x_4	**Global Services**	0.952 (1.026)	0.689 (1.676)	**0.890**** (2.307)	**0.885**** (2.214)
	x_5	**Hardware**	**-1.970*** (-2.203)	**-2.161***** (-3.416)	**-1.808**** (-3.134)	**-1.951***** (-3.320)
	x_6	**Software**	-0.988 (-0.686)	-1.322 (-1.396)	-1.355 (-1.397)	-0.972 (-1.012)
	x_7	**Global Finances**	-0.219 (-0.809)	-0.276 (-1.435)	-0.265 (-1.345)	
Human Resource Strategy	x_8	**Employee**	**1.559**** (2.831)	**1.476**** (3.192)	**1.374**** (2.948)	**1.237**** (2.625)
	x_9	**Individuals benefiting from Retirement plan**	-0.550 (-0.321)			
Institutional Change	x_{10}	**Gerstner's Policy Changes**	0.494 (1.847)	**0.438**** (2.271)	**0.498**** (2.600)	**0.484**** (2.444)
	x_{11}	**Selling Hardware**	**0.539***** (-4.123)	**-0.547***** (-4.506)	**-0.491***** (-4.264)	**-0.497***** (-4.174)
	R^2		***.974***	***.976***	***.975***	***.973***

$*p < 0.1$ $**p < 0.05$ $***p < 0.01$

In light of the stockholder's importance within the company (Mello, 2006), Gerstner had to balance their interests and concerns with the ones of the board. The stockholders' primary concern is the company's profitability, quantified through earns per share, hence, in order to measure the stockholders' perspective, this study employs the EPS index.

Table 4.8 shows the empirical results for the second model: **EPS (Earn Per Share)** as a function of regional variables, strategic business units, human resource policy and institutional change. The same process will be used, as in Model 1.1, the backward elimination process.

Looking at Eq4, the regression reveals that 5 of the variables became significant at least at 10% level (Table 4.9). Of the significant variables, 2 have a negative parameter, 3 are significant at 5% level and 2 at 1% level. The R^2 stands at 0.973; therefore, the model can explain 97.3% of the variance in EPS.

Table 4.9.

Significant variables for Earn Per Share

			y_3 =EPS
	x_i		**Eq_4**
			β value (t-value)
SBU (H6)	x_4	**Global Services**	**0.885**** (2.214)
	x_5	**Hardware**	**-1.951***** (-3.320)
HR Strategy (H7)	x_8	**Employee**	**1.237**** (2.625)
Institutional Change (H8)	x_{10}	**Gerstner's Policy Changes**	**0.484**** (2.444)
	x_{11}	**Selling Hardware**	**-0.497***** (-4.174)
	R^2		*.973*

**p < 0.1   **p < 0.05 ***p < 0.01*

Results for hypothesis 5

For the regional variables, the parameter for **Europe/ Middle East/ Africa (x_1)**, as well as the ones for **Asia (x_2)** and **America** (**x_3**) are not significant at a 10% level, and are hence eliminated. This empirical result means that, as far as stockholders are concerned, regional activity does not impact the EPS.

Accept the null hypothesis

$\boldsymbol{\beta_{YX} = 0}$

Results for hypothesis 6

Looking at the strategic business units, the parameter for **Global Services SBU (x_4)** is positive (0.885) with a t ratio of (2.214). The variable is significant at a 5% level, meaning that the higher the revenues in the Global Services department of IBM, the higher the EPS.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

The parameter for **Hardware SBU (x_5)** indicates a negative relationship (-1.951), with a t ratio of (-3.320), significant at the 10% level. This means that the higher the activity for the hardware department of the company, the lower the EPS. From the stockholders point of view, this department is causing a decrease in company profitability.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

However, the parameters for the **Software SBU (x_6)** and the **Global Finances SBU (x_7)** are not significant at 10% level, which means that these sectors are not important to IBM's EPS.

Accept the null hypothesis

$\boldsymbol{\beta_{YX} = 0}$

Results for hypothesis 7

When analyzing the human resource policies, we notice that the number of **IBM's employees (x_8)** is positive (1.237) with a t ratio of (2.625), significant at 5% level. This means that the company's profitability is influenced by the employees' numbers.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

The parameter for **number of individuals benefiting from a retirement plan (x_9)** is not significant at 10% level, which means that IBM's profitability is not affected positively or negatively by changes in retirement plan beneficiaries' numbers.

Accept the null hypothesis

$\boldsymbol{\beta_{YX} = 0}$

Results for hypothesis 8

The parameter for x_{10} is positive (0.484), with the t ratio (2.444). It is significant at 5% significance level, meaning that **Gerstner's Policy Changes** had a positive impact on IBM's earn per share. This empirical result tells us that Gerstner's policies have been very important in mediating the interests of the stockholders with the ones of the board, and that he has managed to increase the company's profitability.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

Selling the Hardware Department (x_{11}) has an impact on the company's Profits significant at the 1% level, with a negative parameter of (-0.497) and a t ratio of (-4.174), meaning that the strategic move had a negative impact on IBM's EPS.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

Empirical results for Model 3.1

When facing globalization, a company like IBM needs efficiency in their HR policies in order to cut cost. The cost of human resources is very important for a company (Boyle, Balfour, 2009). From a board and stakeholders perspective, the largest take in that cost is represented by employees' salaries and retirement plans. Cost reduction policies call for efficient HR policies. On the other hand, the Unions' primary concern is the welfare of the employees (Mello, 2006). This study uses the retirement plan beneficiaries and employee numbers in measuring the union's perspective.

Table 4.10.

Multiple regression analysis of Individuals Benefiting from a Retirement Plan, Regional Variables, Strategic Business Units and Institutional Change

			y_4 =Retirement plan beneficiaries		
	x_i		**Eq_1**	**Eq_2**	**Eq_3**
			β value (t-value)	β value (t-value)	β value (t-value)
Regional Variables	x_1	**Europe/ Middle East/ Africa**	-0.395 (-1.639)	**-0.410**** (-2.578)	**-0.290**** (-2.259)
	x_2	**Asia**	0.165 (1.574)	0.161 (1.746)	**0.174*** (1.855)
	x_3	**America**	**0.601***** (6.973)	**0.597***** (8.625)	**0.639***** (10.485)
Strategic Business Units	x_4	**Global Services**			
	x_5	**Hardware**	-0.010 (-0.086)		
	x_6	**Software**	**0.515**** (2.483)	**0.526***** (3.532)	**0.407***** (3.517)
	x_7	**Global Finances**	0.050 (1.172)	0.049 (1.230)	
Institutional Change	x_8	**Gerstner's Policy Changes**	**0.058*** (1.878)	**0.059*** (2.118)	**0.049*** (1.804)
	x_9	**Selling Hardware**	0.036 (1.522)	**0.038**** (2.502)	**0.036**** (2.334)
	R^2		***.999***	***.999***	***.999***

$*p < 0.1$ $**p < 0.05$ $***p < 0.01$

Table 4.10 shows the empirical results for the first component of the second model: **Retirement plan beneficiaries** as a function of regional variables, strategic business units and institutional change.

Looking at Eq3, the regression reveals that 6 of the variables became significant (Table 4.11) at least at 10% level. Of the significant variables, 1 has a negative parameter, 2 are significant at 10% level, 2 are significant at 5% level and 2 at 1% level. The R^2 stands at 0.999; therefore, the model can explain 99.9% of the variance in the number of individuals benefiting from a retirement plan.

Table 4.11.

Significant variables for Individuals Benefiting from a Retirement Plan

y_4 =Retirement plan beneficiaries			
	x_i		**Eq_1** β value (t-value)
Regional Variables (H9)	x_1	**Europe/ Middle East/ Africa**	**-0.290**** (-2.259)
	x_2	**Asia**	**0.174*** (1.855)
	x_3	**America**	**0.639***** (10.485)
SBU (H10)	x_6	**Software**	**0.407***** (3.517)
Institutional Change (H11)	x_8	**Gerstner's Policy Changes**	**0.049*** (1.804)
	x_9	**Selling Hardware**	**0.036**** (2.334)
		R^2	***.999***

**p < 0.1 **p < 0.05 ***p < 0.01*

Results for hypothesis 9.1

The parameter for **Europe/ Middle East/ Africa** is negative (-0.290), with t ratio of (-0.259) and significant at the 5% level. This means that the financial results from these regions have a significant negative impact on the number of individuals benefiting from a retirement plan.

Reject the null hypothesis, and accept the alternative.

$\boldsymbol{\beta_{YX} \neq 0}$

The parameter for **Asia** is positive (0.174), with t ratio of (1.855) and significant on the 10% level. Financial results from Asia (x_2) have a significant impact on the number of individuals benefiting from a retirement plan, meaning that the larger the revenues from this area, the larger the number of beneficiaries.

Reject the null hypothesis, and accept the alternative.

$\boldsymbol{\beta_{YX} \neq 0}$

The parameter for **America** is also positive (0.639), with t ratio of (10.485) and it is significant on the 1% level. Financial results from America (x_3) have a significant impact on the number of individuals benefiting from a retirement plan, signifying that the larger the revenues from this area, the larger the number of beneficiaries. From a union's perspective, the America geographic region is very important.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

Results for hypothesis 10.1

The parameters for the **Global Services SBU (x_4),** the **Hardware SBU (x_5)** and the **Global Finances SBU (x_7)** are not significant at 10% level. From the union's perspective, this means that the results from these business units do not have an impact on the number of retirement plan beneficiaries.

Accept the null hypothesis

$\boldsymbol{\beta_{YX} = 0}$

The parameter for the **Software SBU (x_6)** is positive (0.407), with t ratio (3.517), significant at 1% level. This means that higher activity in the Software department will lead to a higher number of individuals benefiting from a retirement plan.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

Results for hypothesis 11.1

The parameter for **Gerstner's Policy Changes** (x_8) is positive (0.049) with t ratio of (1.804), significant at 10% level. This means that Gerstner's policy changes had a positive impact on the number of individuals benefiting from a retirement plan.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

The parameter for x_9 is positive (0.036), with t ratio (2.334). It is significant at 5% significance level. From the union's perspective, **Selling the Hardware** department had a positive impact on the number of individuals benefiting from a retirement plan.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

Empirical results for Model 3.2

Table 4.12 shows the empirical results for the first component of the second model: **Number of Employees** as a function of regional variables, strategic business units and institutional change.

Table 4.12.

Multiple regression analysis of Number of Employees, Regional Variables, Strategic Business Units and Institutional Change

y_5 =Employees						
	x_i		**Eq_1**	**Eq_2**	**Eq_3**	**Eq_4**
			β value (t-value)	β value (t-value)	β value (t-value)	β value (t-value)
Regional Variables	x_1	**Europe/ Middle East/ Africa**	-0.563 (-0.731)	-0.563 (-0.768)	-0.492 (-0.733)	
	x_2	**Asia**	-0.003 (-0.010)			
	x_3	**America**	0.455 (1.655)	0.455 (1.736)	**0.483*** (2.032)	**0.589*** (3.186)
Strategic Business Units	x_4	**Global Services**				
	x_5	**Hardware**	0.587 (1.622)	**0.585*** (1.834)	**0.605*** (2.005)	**0.402**** (3.397)
	x_6	**Software**	0.688 (1.040)	0.687 (1.095)	0.612 (1.095)	0.224 (1.268)
	x_7	**Global Finances**	0.041 (0.303)	0.041 (0.318)		
Institutional Change	x_8	**Gerstner's Policy Changes**	**-.0281**** (-2.865)	**-0.282***** (-4.003)	**-0.287***** (-4.383)	**-0.290***** (-4.503)
	x_9	**Selling Hardware**	0.107 (1.416)	0.107 (1.706)	**0.109*** (1.805)	0.088 (1.683)
	R^2		*.989*	*.990*	*.991*	*.991*

$*p < 0.1$ $**p < 0.05$ $***p < 0.01$

Looking at Eq4, the regression reveals that 3 of the variables became significant (Table 4.13) at least at 10% level. Of the significant variables, 1 has a negative parameter, 1 is significant at 10% level, 1 is significant at 5% level and 1 at 1% level. The R² stands at 0.991; therefore, the model can explain 99.1% of the variance in the number of employees.

Table 4.13.

Significant variables for Number of Employees

	y_5 =Employees		
	x_i		**Eq_4**
Regional Variables (H9)			β value (t-value)
	x_3	**America**	**0.589*** (3.186)
SBU (H10)	x_5	**Hardware**	**0.402**** (3.397)
Institutional Change (H11)	x_8	**Gerstner's Policy Changes**	**-0.290***** (-4.503)
	x_9	**Selling Hardware**	0.088 (1.683)
	R^2		***.991***

$^*p < 0.1$ $^{**}p < 0.05$ $^{***}p < 0.01$

Results for hypothesis 9.2

The parameter for **Europe/ Middle East/ Africa (x_1)**, as well as the parameter for **Asia (x_2)** is not significant at the 10% level. This means that the financial results from these geographical regions do not significantly impact the number of employees.

Accept the null hypothesis

$\boldsymbol{\beta_{YX} = 0}$

The parameter for **America** is positive (0.589), with t ratio of (3.186) and it is significant on the 10% level. Financial results from America (x_3) have a significant impact on the number of IBM's employees, meaning that the larger the revenues from this area, the larger the number of employees.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

Results for hypothesis 10.2

The parameter for **Global Services SBU (x_4)** is not significant at the 10% level, which means that the number of employees is not influenced by the financial results from this SBU.

Accept the null hypothesis

$\boldsymbol{\beta_{YX} = 0}$

The parameter for **Hardware SBU (x_5)** is positive (0.402), with t ratio (3.397), significant at 5% level. What this means is that the higher the activity for the Hardware department of the company, the higher the number employees.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

The parameters for the **Software SBU (x_6),** as well as the one for the **Global Finances SBU (x_7)** are not significant at 10% level. From a union's perspective, these business units are not significant in influencing the numbers of the employees.

Accept the null hypothesis

$\boldsymbol{\beta_{YX} = 0}$

Results for hypothesis 11.2

The parameter for x_8 is negative (-0.290), with t ratio (-4.503). It is significant at 1% significance level. This empirical result shows us that **Gerstner's Policy Changes (x_8)** had a negative impact on the number of employees.

Reject the null hypothesis, and accept the alternative

$\boldsymbol{\beta_{YX} \neq 0}$

The parameter for **Selling the Hardware (x_9)** is not significant at 10% level. This means that the Hardware component of institutional change does not significantly impact the number of employees.

Accept the null hypothesis

$\boldsymbol{\beta_{YX} = 0}$

CHAPTER V. CONCLUSIONS AND RECOMMENDATIONS

Chapter overview

This chapter contains two major sections, conclusions and recommendations. Section I provides a conclusion of the thesis by integrating the empirical results yielding from the empirical model with the SWOT analysis, resulting in the ESWOT analysis on the three dimensions of the study: The Board, The Stockholders and the Unions. Section II provides recommendations for IBM, as well as recommendations for future research.

Conclusions

Through the introduction of the ESWOT econometrics model developed by Shih and Moldovan, this study successfully emphasizes the extent to which each of regional variables, SBU, Human Resource policies and Institutional Change variables are significant in determining IBM's performance.

The present study allows us to have a better understanding of what are the strategic revenue sources for the company, as well as where the company should reconsider further investment on the different regions or strategic business units.

The ESWOT analysis will be structured on the three perspectives of the econometrics model: The Board, The Stockholders and the Unions. The strengths and weaknesses are established by examining the significant variables that have a positive or negative quantifiable impact on IBM, like the regional variables, strategic business units and human resources.

The opportunities and threats are set by looking at the institutional change variables, as well as recurring non-significant variables, like the regional variables for the board and stockholders.

The results of the ESWOT analysis are summarized in Table 5.1., allowing us to understand which are IBM's strengths, weaknesses, opportunities and threats in relation to the econometrics model and each of the hypotheses of the study- hypothesis 1(H1) to hypothesis 11 (H11).

Table 5.1.

The ESWOT Analysis

Strengths		**Weaknesses**	
The Board	Global Services SBU (H1) Employees (H3)	*The Board*	Hardware SBU (H1) Retirement plan (H3)
The Stockholders	Global Services SBU(H5) Employees (H7)	*The Stockholders*	Hardware SBU (H6)
The Unions	Asia and America regional variables (H9) Hardware and Software (H10)	*The Unions*	Europe/Middle East/Africa regional variable (H9)
Opportunities		**Threats**	
The Board	Gerstner's Policies (H4)	*The Board*	Selling the Hardware (H4) Regional variables (H1)
The Stockholders	Gerstner's Policies (H8)	*The Stockholders*	Selling the Hardware (H8) Regional variables (H5)
The Unions	Selling the Hardware (H11) Gerstner's Policies (H11) (retirement plan beneficiaries)	*The Unions*	Gerstner's Policies (H11) (employees numbers)

The board's perspective

For the first dimension of the research, the **Board's Perspective**, a comparative analysis of the degree of significance of the independent variables on IBM's profits and revenue, combined with the four SWOT dimensions, yields the following conclusions:

Table 5.2

The ESWOT for the board

Strengths	**Weaknesses**
➢ Global Services SBU ➢ Employees	➢ Hardware SBU ➢ Retirement plan
Opportunities	**Threats**
➢ Gerstner's Policies	➢ Selling the Hardware ➢ Regional variables

Strengths

Firstly, the study of IBM's strategy shows that the Global Services SBU and the employees are the main **strengths** of the company. The empirical results of the study prove that what is important to the company's profits and revenue is the SBU. The four strategic business units are positively influencing the company's total revenue. However, the only SBU that significantly and positively influences IBM's profits, thus bringing the plus value and being strength for the company, is the Global Services Unit.

Our findings are supported by Forter (1997), which underlined how a key tenet in Gerstner's credo is that IBM is a customer solutions business. Realizing that software and services will deliver the key value-add to customers in the future, Gerstner decided to unshackle IBM software from its subservient role to hardware.

The human resource component is of great value to IBM. The number of employees is used as an index to measure the human resources. The empirical results show that the number of employees is highly significant and positive to IBM's revenue and profit. This means that the human resources are a core value and strength for IBM.

Weaknesses

Secondly, the study of IBM's strategy shows that the Hardware Unit and the retirement plan are the main **weaknesses** of the company. Also, the Software and Global Finance Units may cause a decrease in profits, however they are not significant.

The empirical results show that the Hardware department has a negative significant impact on IBM's profits, which has led to Gerstner's decision to sell the unit in 2002.

When we examine the human resource policies, the number of employees benefiting from a retirement plan has a significant negative impact on the company's revenue and profits. This empirical results show that IBM pays too much money for the retirement plans, which weakens the company's financial condition. What this weakness shows us, especially in today's global financial crisis, is that companies should consider reforming their retirement policies. In 2006, IBM announced a change in its US retirement plan, effective in 2008, as part of ongoing global retirement plan strategy shift (http://www-03.ibm.com/press/us/en/pressrelease/19090.wss).

Opportunities

Thirdly, the study of IBM's strategy shows that Gerstner's policy is the main **opportunity** for the company. Gerstner's policies prove to have been highly significant in improving the company's financial performance. This underlines Gerstner's importance in putting IBM back on track. The role of a visionary CEO is highlighted by the fact that his policies have led to a slight increase in total revenue, but a very significant increase in profit. One of these policies, shifting focus to services, at a time when increasing sales seemed to be important, emphasizes the importance of a visionary CEO within the company. The strength of this model is that the later highly praised (Gerstner, Herrmann, 2002) strategic planning of Gerstner, becomes quantifiably proved.

The implication of this finding from the management perspective is the fact that it quantitatively justifies the correctness of IBM's controversial hiring of Gerstner as an outsider to the IT industry. The board of director's choice of Gerstner as the company's

CEO supports the management views of the need for a professional to “do the right thing” (Robbins, Coulter, 2005). The right thing translates in our case by achieving effectiveness through attaining the organizational goals necessary for putting IBM back on track. The reason why Gerstner was the right man for the job is because he is a T-shaped professional, thus being able to have a broader view of the industry and the strategic changes needed in order to help IBM shift from slow hardware giant to a successful solution provider. Fully understanding the implications of his strategies is an opportunity for the company to direct and assess future strategies.

Threats

Lastly, the study of IBM’s strategy shows that the regional variables and selling the hardware department are the main **threats** of the company. One highly important finding is that the regional variables have no significance in determining IBM’s profits and revenue. None of the three main strategic regions, Europe/Middle East/Africa, Asia Pacific or America led to either an increase or decrease in profit or revenue. Traditionally, companies focused their strategies on the development of geographical markets; however, the empirical results of this study show no significant difference to IBM’s regional markets’ profits and revenue. This implies that, in a world facing globalization, IBM’s case teaches us that the Earth is flat, as the markets you do business in are not significant.

An interesting finding is regarding the selling of the Hardware department, move that has a negative impact on the company’s profits, and no impact on IBM’s total revenues. However, since the strategic decision has been made rather recently, the time until the conducting of this study is to short, so an explanation for this may be the little number of observations available. The true nature of the impact that the selling of the Hardware department has had on IBM’s profitability may be studied in future research, when more observations will be available. If the strategic move does negatively impact the company’s profits, then this kind of decision-making may prove to be a potential threat to IBM.

The stockholders' perspective

For the second dimension of the research, the **Stockholders' perspective**, the ESWOT analysis, the combination of the study of the degree of significance of the independent variables on IBM's EPS and the four SWOT dimensions, yields the following conclusions.

Table 5.3.

The ESWOT for the stockholders

Strengths	**Weaknesses**
➢ Global Services SBU ➢ Employees	➢ Hardware SBU
Opportunities	**Threats**
➢ Gerstner's Policies	➢ Selling the Hardware ➢ Regional variables

Strengths

Firstly, the main **strengths** of IBM, derived from the study of the empirical results, are identified as the Global Services SBU and the employees. The empirical results of the study prove that what is important to the company's stockholders is the Global Services SBU. The other three SBU have negative impacts on IBM's profitability, although only the Hardware department has a statistically significant negative influence on the company's earn per share. Hence, the only SBU that significantly and positively influences IBM's profitability, thus increasing the value and being strength to the company, from a stockholders' point of view, is the Global Services Unit, as supported by Forter (1997).

The employees' independent variable has a significant and positive impact on the company's earn per share, making the human capital a core value and strength for IBM's stockholders.

Weaknesses

Secondly, the study of IBM's strategy shows that the Hardware Unit is the main **weakness** of the company. Also, the Software and Global Finance Units may cause a decrease in profits, however they are not significant. The empirical results show that the Hardware department has a negative significant impact on IBM's EPS. From a stockholders' perspective, this reinforces the correctness of the decision to sell the unit in 2002.

Opportunities

Thirdly, the main **opportunity** for IBM from the stockholders' perspective is Gerstner's policies, which prove to have been highly significant in improving the company's profitability.

When Gerstner came as CEO of IBM, the EPS has reached an all time low, resulted in a loss in confidence on the stockholders' behalf in investing in the company. His strategies in implementing institutional changes have led to a significant increase in the company's profitability.

As the stockholders' primary concern is the company's profitability, the choice of the right CEO is an opportunity that needs to be exploited by IBM.

Threats

Lastly, the study of the empirical results shows that the regional variables and selling the hardware department are the main **threats** of the company as far as the stockholders are concerned. One highly important finding is that the regional variables have no significance in determining IBM's EPS. None of the three main strategic regions, Europe/Middle East/Africa, Asia Pacific or America led to either an increase or decrease in earn per share. From a stockholders point of view, a strategy focusing on geographical markets can be understood as a threat, as regional variables are not contributing significantly to IBM's profitability.

As far as the selling of the Hardware department is concerned, the move that has a negative impact on the company's earn per share. Since the stockholders' primary interest is in IBM's profitability, any decisions that lead to a decrease in EPS may be detrimental to the confidence level that they have in the company.

The Hardware department was however a weakness. This can lead to two conclusions. Firstly, if the decision to sell this SBU is negatively affecting the company's profitability, as our results have shown, maybe a strategy to save the department and improve its results would have been more appropriate, and must be taken into consideration for similar cases. On the other hand, the decision to sell the Hardware department was taken in 2002, and the financial results for this study span until 2007. When a larger number of observations will be available, empirical results yielding from future research may support the decision to sell the SBU.

The union's perspective

The ESWOT analysis for the third dimension of the research model, the **Union's perspective,** the four SWOT dimensions integrated with the comparative analysis of the degree of significance of the independent variables on IBM's human resource policy, yields the following conclusions:

Table 5.4.

The ESWOT for the union

Strengths	**Weaknesses**
➢ Asia and America regional variables ➢ Hardware and Software	➢ Europe/Middle East/Africa regional variable
Opportunities	**Threats**
➢ Selling the Hardware ➢ Gerstner's Policies (retirement plan beneficiaries)	➢ Gerstner's Policies (employees numbers)

Strengths

Firstly, the study of IBM's strategy shows that the Asia and America regional variables and the Hardware and Software SBU are the main **strengths** of the company. The empirical results of the study prove that the regional variables are important to the company's human resources policy. The America regional variable significantly and positively influence both IBM's employees and retirement plan beneficiaries, thus adding value and being strength to the company from a union's standpoint. The Asia variable has a significant and positive impact as far as the retirement plan beneficiaries are concerned, but is has no significant influence on the number of employees.

When taking the strategic business unit component into consideration, the Hardware independent variable has a highly significant and positive impact on employee numbers. The Software SBU significantly and positively influences the retirement plan beneficiaries. This means that the Hardware and Software strategic business units are an important asset to IBM's human resources.

Weaknesses

Secondly, the study of IBM's strategy shows that the Europe/Middle East/Africa regional variable is the main **weakness** of the company. The financial results from this region have a significant negative impact on IBM's retirement plan beneficiaries. This means that the unions in these regions should increase their bargaining power. Also, an improvement in the legal environment might be conducive to better results for the unions.

Opportunities

Thirdly, the selling of the Hardware department and Gerstner's policies can be identified as the main **opportunities** of the company. Selling the Hardware department has a significant positive influence on IBM's retirement plan beneficiaries, as well as a positive but not statistically significant impact on the employees' dependent variable.

As far as the retirement plan beneficiaries are concerned, Gerstner's policies prove to have been highly significant. This underlines Gerstner's importance from the unions' perspective. Even though the retirement plans have a negative impact on the company's profits, Gerstner proves a thorough understanding of cost leadership. When he came at IBM, he had to cut cost, and this was done by letting go of the people who did not fit their jobs, and so not adding value to the company. In order to ensure the success of his global strategies, Gerstner had to make sure that he had the right personnel capable of handling the global business and the SBU.

Threats

Lastly, the study of IBM's strategy shows that, from a union's perspective, some of Gerstner's policies can be perceived as a **threat** to the human resources policies. From an institutional change point of view, Gerstner's policies have had a significant negative impact on the number of employees. From a HR perspective, prior to Gerstner's joining the company, for employees, IBM's job security was legendary. Gerstner's restructuring policies led to massive reorganizations, followed by layoffs. Although positively influencing the company's profitability in the long term, the HR restructuring policies implemented by Gerstner are perceived as threats to the employees' component.

To conclude, this paper uses a new perspective on SWOT analysis, through the integration of an econometrics model: ESWOT, in order to measure and assess IBM's human resource policy through its regional strategy and business units, as well as to evaluate a CEO's performance. By using the ESWOT analysis we successfully explain the relationships between the board, the stockholders and the unions' interests. IBM must focus its future objectives on its core business that enables it to create a niche in the market, and recruiting the right staff, especially the right CEO to lead the team in achieving the substantial goals of the company and guiding it through the future challenges brought upon by the global financial crisis.

Recommendations

Recommendations for IBM

First of all, the present research, through the introduction of the ESWOT econometrics model derives its recommendations for IBM on the structure of the Strengths, Weaknesses, Opportunities and Threats.

The main Strengths of the company from the financial and profitability perspectives, the Global Services SBU and the employees, must be exploited. Focusing on further investment in the Global Services business unit, as well as continuing with policies emphasizing the crucial role of the employees will bring plus value to the company. From the Unions' perspective, the Asian and American regional variables are an asset to the company. Also, the Global Services SBU could be further exploited.

The Weaknesses of the company must be dealt with carefully, as IBM already proved to have done with by selling the Hardware SBU, which had a significant negative impact on IBM's profitability. The empirical results show that IBM pays too much money for the retirement plans, which weakens the company's financial condition. What this weakness shows us, especially in today's global financial crisis, is that IBM should consider reforming its retirement policies.

As far as Opportunities are concerned, fully understanding the implications of the role of a visionary CEO and his strategies is an opportunity for the company to direct and assess future strategies in order to gain the necessary flexibility to adapt and quickly respond to the challenges of today's fluctuating market.

The Threats that IBM faces have to be acknowledged and adverted. Strategic decisions such as the selling of the Hardware department have to be thoroughly researched, and the implications fully integrated, in order to maintain competitiveness on the market.

Recommendations for further study

Second of all, the present study gives way to a number of suggestions for the conducting of future research, which arise from the delimitations and limitations presented in chapter I, as well as from the analysis of results of the ESWOT econometrics model.

As this research provides a novel approach to the SWOT analysis, by introducing for the first time the ESWOT, it can be viewed as a pilot study; hence there is room for further improvement. A future study employing the ESWOT econometrics model on different companies may contribute fruitfully to the development of the model.

The availability of observations for a more extensive time period than the one under analysis (1990-2007), may improve the empirical results, as well as it may found the basis for further research.

A field study conducted at IBM's headquarters, or regional branches (like Taiwan IBM) might yield more conclusive results.

A future study may be conducted regarding the implications of selling the Hardware department in 2002 once more data is available.

One highly important finding of this study is that the regional variables have no significance in determining IBM's profits and revenue, nor its profitability. None of the three main strategic regions, Europe/Middle East/Africa, Asia Pacific or America led to either an increase or decrease in profit or revenue. Future research focusing on the geographical markets and their importance to a company may be undertaken. Also, an analysis of the SBU by geographical regions can form the basis for future research.

REFERENCES

Anonymous (2009). Unions address the challenges of globalization. *Dispute Resolution Journal. 63*(4), 90-91.

Bartol, K. M., & Martin, D. C. (1991). *Management*. New York, NY: McGraw Hill.

Bernroider, E. (2002). Factors in SWOT analysis applied to micro, small-to-medium, and large software enterprises: an Austrian study. *European Management Journal, 20*(5), 562-573.

Board of directors' information. Retrieved December 27, 2008, from ftp://ftp.software.ibm.com/annualreport/2007/2008_ibm_proxy.pdf

Borland, J, Ouliaris, S. (1994). The determinants of Australian trade union membership. *Journal of Applied Econometrics. 9*(4), 453-469.

Copeland, T. (2002). Want to create value? *Strategic Finance. 83*(9), 48-55.

Dahl, H. L. Jr. (1998). Human resource cost and benefit analysis: New power for human resource approaches. *Human Resource Planning. 11*(2), 69-70.

Dyson G. R. (2004). Strategic development and SWOT analysis at the University of Warwick. *European Journal of Operational Research, 152*, 631–640.

Econometrics definition. Retrieved April 4, 2009, from http://www.investopedia.com/terms/e/econometrics.asp

Eden, C. & Ackermann, F. Making strategy. Retrieved November 03, 2008, from http://books.google.com/books?hl=en&lr=&id=XD-zCs43eHUC&oi=fnd&pg=PP11&dq=strategic+management+swot&ots=YnLR1z1Xwv&sig=cUIQBh7P8ByH09h_dFaMtJWpZiY#PPP1,M1

Forter, P. L. (1997). Master of the game - CEO Lou Gerstner's strategy to make IBM into a dominant network-computing software player. *Software Magazine*.

Gandolfi, F. (2008). HR strategies that can take the sting out of downsizing-related layoffs. *Ivey Business Journal Online*. Retrieved November 03, 2008, from http://www.iveybusinessjournal.com/article.asp?intArticle_ID=768

Gerstner, L. & Herrmann, E. (2002). *Who says elephants can't dance? Inside IBM's historic turnaround*. New York, NY: HarperCollins Publishers.

Goodrich, P.S., Rossiter, N. (2009). Remote ownership shareholders in the 21st century: Theoretical implications for corporate governance, profitability and long term wealth creation. *Journal of American Academy of Business. 14*(2), 40-47.

Hill, T. & Westbrook, R. (1997). SWOT analysis: It's time for a product recall. *Long Range Planning, 30*(1), 46-52.

Houben, G. Lenie, K. & Vanhoof, K. (1999). A knowledge-based SWOT-analysis system as an instrument for strategic planning in small and medium sized enterprises. *Decision Support Systems, 26*(2), 125-135.

IBM History Retrieved November 17, 2008, from http://www03.ibm.com/ibm/history/history/history_intro.html

IBM Timeline Retrieved November 17, 2008, from http://www.allianceibm.org/

Jackson, S. E. (2003). Recent research on team and organizational diversity: SWOT analysis and implications. *Journal of Management, 29*(6), 801-830.

Johnson, G., Scholes, K., & Sexty, R. W. (1989). *Exploring strategic management*. Scarborough, Ontario: Prentice Hall.

Kaplan, S. R., & Norton, D. P. (2002). Using the balanced scorecard as a strategic management system. *Harvard Business Review*, 1-13.

Kerzner, H. (2006). *Project management. A systems approach to planning, scheduling, and controlling*. Hoboken, NJ: John Wiley & Sons, Inc.

Kurttila, M. Pesonen, M., Kangas J. & Kajanus, M. (2000). Utilizing the analytic hierarchy process (AHP) in SWOT analysis — A hybrid method and its application to a forest-certification case. *Forest Policy and Economics, 1*(1), 41-52.

Kurttila, M., Kangas, J., & Kajanus, M. (2003). The use of value focused thinking and the A'WOT hybrid method in tourism management. *Tourism Management, 25*(4), 499-506.

Louis Gerstner profile. Retrieved November 17, 2008, from http://www.washingtonspeakers.com/speakers/speaker.cfm?SpeakerId=2738

Mello, J. A. (2002). *Strategic human resource management*. Cincinnati, OH: South-Western College Publishing.

Mello, J. A. (2006). *Strategic human resource management* (2nd ed.). Cincinnati, OH: South-Western College Publishing.

Mellor, S. (2009). Self-evaluation and union interest: The empirical relevance of a mediated model. Journal of Occupational and Organizational Psychology. 82(2).

Mendelson, H., & Pillai, R.R. (1998). Clockspeed and information response: Evidence from the IT industry. *Information Systems Research 9,* 415–433.

Mendelson, H., & Pillai, R.R. (1999). Industry clockspeed: Measurement and operational implications. *Series Operations Management, 1*, 1–20.

Moore, D. McCabe, G., Duckworth, W. & Alwan, L. (2009). *The practice of business statistics. Using data for decisions*. New York: W. H. Freeman and Company.

OECD (1996). *The knowledge-based economy*. Retrieved November 17, 2008, from http://www.oecd.org/dataoecd/51/8/1913021.pdf

OECD (1999). *Benchmarking knowledge-based economies*. Retrieved November 17, 2008, from http://www.oecd.org/document/4/0,3343,en_2649_34409_2087236_1_1_1_1,00.html

Orr, D. (2004). Recipe for an Honest Salary. *Forbes, 173*(10).

Osterman, P. (2000). Work reorganization in an era of restructuring: Trends in diffusion and effects on employee welfare. *Industrial and Labor Relations Review, 53*(2), 179-196.

Puffer, S. M. & Weintrop, J. B. (1991). Corporate performance and CEO turnover: The role of performance expectations. *Administrative Science Quarterly. 36*(1).

Rashidah A, R. & Fairuzana H. M. A. (2006*)*. Board, audit committee, culture and earnings management: Malaysian evidence. *Managerial Auditing Journal. 21*(7), 783-803.

Robbins, S., & Coulter, M. (2005), *Management*. New Jersey: Pearson Education.

Shamsul, N. A. (2004). Board composition, CEO duality and performance among Malaysian listed companies. *Corporate Governance. 4*(4), 47-62.

Shih, C. P., & Plescan, M. (2007, October). *Global strategies, strategic business units and the impact of a charismatic leader on IBM's performance*. Paper presented at the International Conference on Workforce Education and Development, Taipei, Taiwan.

Stockholder information. Retrieved December 27, 2008, from http://en.wikipedia.org/wiki/Shareholder

Toulmin, L. M. (1988*)*. The treasure hunt budget search behavior by public employee. *Public Administration Review. 48*(2), 620-631.

Weirich, H. (1982). The tows matrix-a tool for situational analysis. *Long Range Planning, 60*(4).

Yuksel, I., & Dagdeviren, M. (2007). Using the analytic network process (ANP) in a SWOT analysis - A case study for a textile firm. *Information Sciences: An International Journal, 177*(16), 3364-3382.